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EXTRACT

From an Act prescribing Rules for the Government of the State Library, passed March 8th, 1861.

SECTION 11. The Librarian shall cause to be kept a register of all books issued and returned; and all books taken by the members of the Legislature, or its officers, shall be returned at the close of the session. If any person injure or fail to return any book taken from the Library, he shall forfeit and pay to the Librarian, for the benefit of the Library, three times the value thereof; and before the Controller shall issue his warrant in favor of any member or officer of the Legislature, or of this State, for his per diem, allowance, or salary, he shall be satisfied that such member or officer has returned all books taken out of the Library by him, and has settled all accounts for injuring such books or otherwise.

Sec. 15. Books may be taken from the Library by the members of the Legislature and its officers during the session of the same, and at any time by the Governor and the officers of the Executive Department of this State who are required to keep their offices at the seat of government, the Justices of the Supreme Court, the Attorney-General and the Trustees of the Library.

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MINING AND SCIENTIFIC PRESS.

INV. 1859.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, JULY 4, 1874.

VOLUME XXIX Number 1.

Straw-Burning Engines.

The London *Times*, of May 16th, describes at length the visit of the Czar of Russia, Grand Duke Alexis, the Duke and Dutchess of Edinburgh and others, to the Flemish farm, to witness the operation of a straw-burning engine, which is soon to be introduced upon this coast. The engine referred to is the joint invention of Mr. John Head, of the firm of Ransome, Sims & Head, England, and the late Mr. Schemioth, a Russian engineer.

The *Times* says: "Although it is only now that the Czar has seen it in action, it has already obtained the approval of the most competent agricultural authorities. We have already made mention of it in letters we published on the Vienna Exhibition, where it was one of the great centers of attraction in the agricultural machinery hall, and we have no intention now of entering into technical details. We shall merely say the engine is fed by a self-acting apparatus driven by a strap attached to itself. The straw is passed in between a couple of rollers, which spread it out lightly with a lateral and fan-like motion, exposing it to the full force of the fire. One man only is required to supply it, and it reduces the average consumption of straw to something like four times the weight of coal. It is exceedingly simple; and, indeed, its general utility must depend almost entirely upon its simplicity in a country where the laborers have been only accustomed to the most primitive implements, and where the most skilled artisan to be found within reach is probably an ordinary village blacksmith. The trial witnessed by the Czar went off most satisfactorily."

By means of this straw-feeding apparatus, it is claimed that almost any kind of vegetable product can be utilized as a fuel, and thus permit of steam being used as a cheap motive power in countries which are devoid of ordinary fuel, but which are covered with vegetable products. The apparatus for feeding the furnace with straw is self-acting, being driven by a belt from the engine; but if desired, the belt can be disconnected and the apparatus operated by hand; or, when necessary, the entire apparatus can be readily disconnected and removed, and the ordinary furnace door substituted in its place.

In getting up steam it is necessary to operate the apparatus by hand until the engine begins to work. One man can easily feed the straw to the machine, thus requiring no more men than an ordinary steam engine. It is claimed that the average consumption of straw or cotton stalks is about four times in weight to coal, and that about eight or ten sheaves of straw are required to thresh one hundred sheaves of grain.

The apparatus can be adapted to fixed as well as portable engines.

This invention has been secured by American patents. For further particulars, address Ernest L. Ransome, manufacturer of artificial stone, San Francisco, Cal.

Hanscom & Co., of the Ætna Foundry, who recently built the machinery for Capt. Dick Ogden's steam yacht "Quickstep," have just completed the machinery for a new steam yacht belonging to Capt. Wilcox, of San Diego. This little craft is 40 feet long, 10½ feet beam, and will draw only four feet of water. They expect her to attain a speed of 10 miles an hour. The engine is of the overhead A frame description, with cylinders eight inches in diameter and 12 inches stroke. Hanscom & Co. have also finished the machinery for a tiny side-wheel steamer, intended to do service on Lake Tulare, for Messrs. Goldstein. She will be the first steamer on the lake. The paddle wheels are only seven feet in diameter, and the engine has oscillatory cylinders 10 inches diameter and 24 inches stroke.

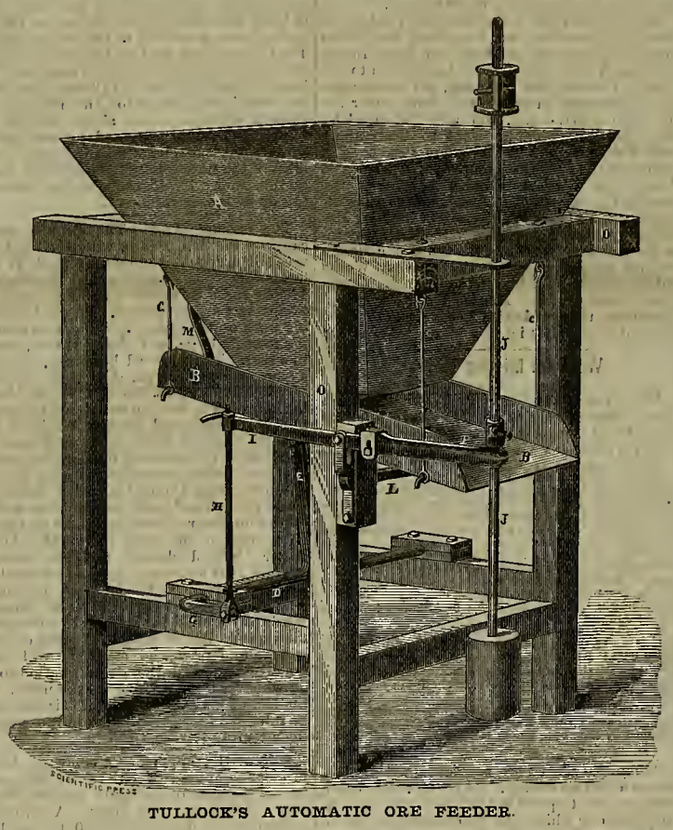
Mining matters in England are dull, and the London *Mining World* says that mines, whose names have been familiar as household words, are being abandoned; and it would seem that the prospects of British mining were never blacker than now. It has, however, been often remarked that the darkest hour is that which precedes the dawn, and the present is doubtless another illustration of the truth of this adage.

Tullock's Automatic Ore Feeder.

We illustrate this week a new device for feeding ore to batteries, recently patented through the Mining and Scientific Press Patent Agency, by James Tullock, of Sonora, Tuolumne county. A tray placed beneath a hopper is given a vibratory motion by means of a rock shaft and arm, and an intervening mechanism, which connects the rock shaft with the stamp stem. The tray is stopped abruptly at the end of each forward vibration, by concussion against a stationary block or bar, so that all trouble by the sticking of damp or wet ore is avoided.

By referring to the engraving on this page, the details of the machine may be noted. *A* is a hopper supported by suitable frame work. Beneath this hopper is the tray, *B*, which receives the ore from the hopper as fast as may be desired, a suitable regulating gate being employed. The tray, *B*, is inclined as much as may be desired, and is suspended by the links, *c*, *c*, from the frame, *O*, so that it can receive an oscillating motion forward and back. Beneath the tray a rock shaft, *D*, crosses the frame transversely, and an arm, *E*, extends upward and is secured by a pin passing through the lugs in the bottom of the tray, and through the slotted upper end of the arm, *E*. The end of the shaft, *D*, has a crank, *G*, formed upon it, and from this crank the rod, *H*, connects with one end of a lever arm, *I*.

The lever is pivoted near its middle to the frame, and the other end extends to a point near the stamp stem, *J*. An adjustable collar, *K*, is secured to the stem, *J*, and whenever the stamp falls, the collar will strike the end of the lever, and through the connecting rod, *H*, the rock shaft will be operated so as to draw the tray back. When the stamp is again raised, the tray will be allowed to swing forward until the lugs on the bottom of the tray strike a bar or post, *L*, which will abruptly stop the tray, and thus tend to loosen and throw forward its contents, this feature being especially valuable when the ore is wet.



TULLOCK'S AUTOMATIC ORE FEEDER.

In practice it is found that the force of gravitation is sufficient to operate these parts, no springs being used; a spring, *P*, is placed upon the end of the lever, *I*, which is struck by the collar, *K*, so as to relieve the strain and transmit the force gradually. Suitable adjustable screws serve to regulate the movements of the different parts, and the amount of ore beneath the stamps will regulate the amount fed.

This ore feeder is in use in several mills on this coast. There are two of them at the Buchanan mill, about eighteen miles east of Sonora, Tuolumne county. Two of them are at the Shawmut mine, and two of them at the Knox & Boyle mill, in Tuolumne county. A. B. Preston writes concerning the operation of the last four, that his mill-men say they are the best feeders they have ever used, being simple in construction and good for either wet or dry crushing. At the Spring Gulch mill, owned by an English company, and situated about sixteen miles from Sonora, Tuolumne county, Cal., they have used them a short time. A letter from this company recommends them highly, saying the machines have given satisfaction. They give them credit for economy in the wear of shoes and dies and the regularity of discharge. They think they will pay for themselves in five months in that respect, where there is constant milling. They are a great saving in every respect. The managers are confident that they have put through two tons of rock per day more, since they have worked these machines than they did before. James Bowden, Vincent Johns, Thomas Whitto, Richard Martin and John Sherwood, owners of the mill, say: "We have been more or less connected with quartz and the milling of it for twelve or fourteen years, and do not hesitate to say that the machine is the best we have seen introduced in a quartz mill, and with propriety we can recommend it to all quartz mill owners."

In Elko county, Nevada, the mines never looked so well, and gave so much promise of permanency as at present, being now worked more earnestly and with a better directed purpose.

Our Holiday.

Although the date of the Press is July 4th, our many readers are not to suppose that the issuing of it has necessitated anything like a desecration of that day; for the busy hands and brains that have toiled all the week in "getting it up," closed the labors of the week on the "night before the Fourth," as the youthful patriots say. And before the "one gun at day-break" gave the formal announcement of the dawning of the glorious day, the Press was on its way to its thousands of destinations far and near. Those of us who have kept "Fourth of July" for half a century have noticed a marked difference in regard to the uniformity with which this holiday is celebrated. Even twenty years ago it was considered optional with the employer whether his workmen kept holiday or not, and many worked of their own choice; sometimes to gratify their greed, and sometimes from a supposed necessity. Now no employer requires his workmen to stick to their tasks on this day, and they would not do it if it were required of them.

The whole country to-day lays aside its cares, runs away from its labors, and throws up its cap exultingly in city and country. Our readers have probably discovered before this, that the Press is not given to croaking on any subject; and they will not be surprised when we declare, as we now do, our belief that the growth of true patriotism among the American people is in full keeping with their increasing power to maintain their liberty.

The Comet may now be distinctly seen by the naked eye in the northern part of the heavens, a short distance below and to the west of the North Star. It is moving almost directly toward the sun, and will pass so near the earth as to form a most brilliant object in the heavens. It will reach its nearest approach to the earth about the 1st of August, when it will be seen in the west only for a short time after the setting of the sun, and very near its point of setting. As its motion is rapidly increasing, with its approach to the sun, it will from this time until it reaches its perihelion (nearest to the sun) increase very rapidly in brilliancy. Still another comet is announced. It is said that Rev. R. B. Fairbairn, D. D., Warden of St. Stephen's College, at Anendale, has discovered another comet, in the vicinity of Jupiter. So it is possible that we may soon be treated to the rare sight of two comets in the heavens at one and the same time.

Pullman Cars in Italy.—A fifteen-year contract has been definitely closed at Milan, Italy, for putting Pullman palace cars on all trains and lines in Upper Italy. This covers the great routes of pleasure travel via the northern lakes. The Italian press highly compliments American progress, and Director-General Amilhan on his enterprising application of public wants.

New Horse Cars.—The car lately built at the railroad shops in Sacramento for the Potrero and Bay View Railroad was received here last Saturday. The car weighs 2,200 pounds, and is 12 feet long. The old-style street car is 16 feet long, and weighs 4,700 pounds. A notable feature is the addition of a patent car-starter, to start the car without strain on the horses.

B. V. Sargent reports that the Monterey coal mining company are actively exploring their mine. Twenty-five feet below the surface, a well defined stratum three 3 in thickness was discovered, and on drifting forty feet on the level it increased in size about an inch to the foot.

Mr. Lytle is obtaining good results in his cinnabar mine, above Trinity Center. Last week forty-five pounds of the cinnabar were placed in a common retort, and from this sixteen pounds of quicksilver were obtained.

The property in Clifton district, or Deep creek, in Utah, known as the Gilberson property, has been sold to a St. Louis company for the snug little sum of $90,000 cash.

The Virginia and Truckee railroad contemplate building a narrow-gauge railway from the head of the Summit flume to Lake Bigler.

Montana Placer Mining.

The Introduction of Little Giants.

Last fall Messrs. W. A. Clark, S. E. Lsrabie, Ed. L. Irvins and Jos. Steele ordsred from San Francisco a No. 3 Littls Gisnt snd No. 16 and 18 iron pipe to work ths Hoover diggings at the head of Squaw gulch, nsar Yamhill. The Flint Creek Ditch and Mining Co. also ordsred a larger size Littls Giant and iron, ssveral thousand fset of box, 15 and 22-inch pips to work their placsrs on Flint creek. During ths winter Mr. F. B. Millsr manufactured the Clark Co's pips, and Thos. Strang the Flint Creek Co's pipe, and ths apparatns for both companies was placed on their grounds early this spring. The formsr company, procuring watsr from the Rock creek ditch, got to work some two or thrss wesks ago, and on Saturday last we rods over to ses it in operation.

We had sxpected mnch of it, but it snrpasses all onr sxpectations. It is mining in earnsst. Compared to it ths ordinary hydranlic is child's play, and it is a question of a very short time when all tha old appliances will bs displsced by the new wherever there is sufficient watsr, pressure, extent of gravel and dump to render it practicable. It not only revolntionizss the old system, but will bring into devslopmant hundrsds of thonsands of acres of ground not available herstofore, and really, we bslieve, hegins the era of big mining in Montana. The theory of it is to substitute and utilizs the power of the water for manual labor. As an illnstration of how it doss this, we cits the Clark Co's claim. The ground was worked a year or two ago by the Hoover Co. with an ordinary hydraulic. It is hard, tough, cemented gravel atrata, so hard to cut that it is said the hydraulic would scarce color the water; that one cave was a good day's work, and sometimes two or three were required to hring one down; that 25 kegs of powder were exploded in it without any very noticeable benefit. And yet it paid expenses hy the old process. With the Little Giant, 400 inches of water is brought down with 250 feet pressure, snd is thrown throughja 4-inch nozzle. When we saw it, it was playing on the gravel at an elevation of 20 or 30 deg. at 125 feet from the fsce, knocking out houlders the size of pumpkins as though they were marbles, and moving, according to the estimate of practical miners, twenty times as mnch earth aa the old method. And this with only five men employed for the 24 hours, againat donble that number required for the old system. It costs less per week to run with 600 inches of water than the old hydranlic dip with 250 or 300 inches. A 27-inch flume at 10 inches grade to 12 feet carriee off the dirt and rock; 100, 200, and we should jndge 300 ponnd bonlders go through without trouhle, and the larger ones are aledged up and follow suit. As soon as the pit is well opened the Little Giant will he set in it, giving 30 feet more pressnre; a larger nozzle will be used, and we presume the entire amonnt of water—200 inches being now used in the ground sluice—will be turned through the Giant. Its power ia amazing; we believe it would knock any ordinary honae to pieces at fifty feet in half a minute. And yet the nozzle ia more easily managed than a common hydraulio.

We presume the Clark mine will pay; it does not make a particle of difference, ao far as the system is concerned, whether it doea or not. That is the way to mine. The questions of there heing gold in the ground, and of saving it, come in as considerations entirely independent of moving the ground from its natural position in a bar through a string of boxee. The Little Giant system does that so mnch more rapidly and economically than the old methods that no miner will hesitate a moment between them. The aimple fact that it moves 20 times as much dirt at less expense, settles the point. The Flint creek company were to get to work thia week. Capt. John H. Rogera and Batterton, Irvine & Co., each have little giants on the road from Corinne, and will have them working in a few weeka on Granite Bar. Billy Winchel came up, saw the little giant work, and was conquered. He has his order for a No. 3 and 4,000 feet of pipe, for his Flint creek mines. They cost with an ordinary amonnt of pipe from $3,000 to $4,000. The ditching in Montana ia inadequate to their general use; hut we venture the prediction that if the Flint creek mines of Clagett & Co. pay, there will he such bar prospecting and ditch building in Montana within a year as was never thonght of before; while many dormant enterprises like the Race Track ditch of Thornton & Co. will become valuable and productive propertiea. We are not generally very enthusiastic about mining enterprises, but the introdnction of this new syatem is worth millions of dollars to Montana. The next thing is to undercurrent riffles to save fine gold. There is too mnch gold goes to dump. We have placed onrselves alongside of California in one kind of appliances; they save all their gold there by another set, while oure goes to wsste. It is a comparatively expensive process. Will not our intelligent and energetic miners follow their grand stride of progresa hy another? We trnst that the new system will not be confined alone to thie connty. We recommend miners elsewhere to come over and look at it and be convinced of its practical advantages, assured that wherever available they will rapidly supersede old processea.—*New North West, June* 13th.

The Board of Regents of the State University have empowered the Building Committee to recsive bids for 10 cottages, to be occupied hy 12 students each, to he couducted on the clubhouse plan, at Berkeley.

The Pioneer Smelters of Eureka.

It is right, says tha Eureka *Sentinel*, that dne crsdit should be given to those who wsre instrumental in proving that onr argentifsrons galena ores could be prcfitably smelted. In the spring of 1869, Major W. W. McCoy had some minsrs at work on Minsral hill, at the north end of what is known as Prospect mountain. These workmen occupied thsir leisnrs time in prospecting, and in June of that year they discovered the Ruby Hill mines. In October of ths previons year, Mr. C. A. Ststefeldt had commenced the ersction of a furnacs, but when it was started np, in the following spring, it failed to do satisfsctory work. Major McCoy, having becoms interested in tha property, and fesling assursd that the ores could easily he smsltsd, endsavored to find some man to undertaks the businsss. On ths advice of Mr. P. K. Roots, now of Arkansas, hut who at that tims was connected with the Orsana Smelting Works, in Humboldt connty, the Msjor becams anxious to secure the ssrvices of R. P. Jones, a Welshman, who, though possessing no scientific knowledge, was said to be an efficient, practical smelter. Hsaring that Jones was prospecting in White Pine district, the Major procsaded thither and sngaged him to come to Eureka; and at his suggsstion, also, secured ths assistance of his conntryman, John Williams. On the way over from Hamilton they stopped to lunch on Pancake mountain, and strolling off a short distance from the road, Jones fonnd a sandstone, which he declared was fire-rock. On reaching Eureka, Jones and Williams were told that they were at libsrty to alter the furnace as they pleased, only that they mnst introduce two additional tweers, Mr. Stetefeldt having put in hut one. A snpply of the Pancake rock waa aent for at once, and being put in as a new lining, its excellent quality as a fire-rock was speedily demonstrated. The furnace was aoon pnt in operation on Ruby Hill ores, and, proving a success, the way waa prepared for subsequent undertakings.

In Novembsr, 1869, Bateman and Bnel leased the McCoy furnsce, and succeeded so well in smelting Champion ore, that two large furnaces, which were afterwarda transferred to the Eureka Consolidated company, were commenced. These new furnaces were built nnder the direction of Mr. Jones, and wera managed by him nntil 1872, when he went to Utah along with Williams, who had for some time heen in charge of the Jackaon company's works. To Jones and Williama, therefore, belongs the credit of giving our smelting bnsiness a profitable start, and bnt for the efforts of Major McCoy they might never have fonnd their way into the diatrict. So far as the Stata is concerned, it is proper to say that the Oreana Works led the smelting business; and the unassuming Harry Stront, of the Hoosac Works, acquired experience there which he hae turned to good account in this district.

Work on Mining Claims.

Department of the Interior, General Land Office, June 9th, 1874.—The following is an Act of Congresa, approved June 6th, 1874:

An Act to amend the Act entitled "An Act to promote the development of the mining resources of the United States," paeeed May 10th, 1872:

Be it enacted by the Senate and Houee of Repreeentatives of the United States of America in Congress aesembled: That the proviaione of the fifth section of the Act entitled "An Act to promote the development of the mining reaources of the United Statee," passed May 10th, 1872, which requiree expendituree of labor and improvements on claime located prior to the passage of said Act, are hereby eo amended that the time for the firet annual expenditure on claime located prior to the passage of said Act, ehall he extended to the 1et day of January, 1875.

By thie legislation the requirements of the fifth section of the Mining Act of May 10th, 1872, and the Amendatory Act of March 1st, 1873, are changed by extending the time for the firet annual expenditure upon claims located *prior to May* 10th, 1872, to the 1st day of January, 1875.

The requiremente in regard to expenditurea upon claims located *since* May 10th, 1872, are in no way changed by the above Amendatory Act.

S. S. Burdett, Commisaioner.

Tunnels.—There are several tunnel projects talked of in this conty. At present the Milton company's enterprise in that matter seems to be the only one which will be commenced at an early day. We are of opinion, and have been ever since we knew anything about mining, that more drain tnnnels ahonld be run in the mining districta. When they are made, they save expenses in hoisting and pumping. A tunnel jndiciously located in the neighborhood of two or three mines, aoon pays for itself. More tunnels would have been run heretofore had not so much time been required for their construction. An average mining company wants to get to pay dirt aa aoon as they can, and had rather spend much money and make a quick realization, than to take up a few more montbs of time at less cost, in getting to the "pay." But tunneling is now getting to be an enterprise of mere daya, and not of months and years, aa was the case at a very late day of the past. Those psronssion machine drills have bronght about the revolution. They put blasting holes into the rocks with astoniahing rapidity, and they never get tired. The drill which haa had the greateet success in doing such work is the "Burleigh," of which Messrs. Parke and Lacy, of San Francisco, are the agents. That drill does its work not only in tunnels bnt in mines which are worked through shafts. Those at work now in the Idaho mine of this place are proving successful beyond what was expected of them. Those interested in improvementa in mining machinery should exsmine the Burleigh drill. It is a success. —*Grass Valley Union.*

Timber Lands of the Sierras.

The esstern slopes of the Sierras bristls with forssts of timbsr, which have besn cut into at will by pretty much every one who had nse for the timber. Claim was laid to portions of thess lands by the Central Pacific Rsilroad, which the Governmsnt intended to reserve, and its opinion on the mattsr has been made known in the annexed correspondsnce:

Washington, D. C., June 15, 1874.

Hon. John Day, Register State Land Offics, Carson City, Nsv.—Dear Sir: We enclose Commissionsr's letter of the 10th inst., officially notifying ns of the Ssrstary's decision on the appeal taken by the Central Pacific railroad, from the Commissioner's decision of January 15, 1873, rejecting the claim of the road to ths odd nnmbered sections within the limits of the old Timber Ressrve. This decision finally disposss of the claim of ths road, and as soon as we can get new lists made up we will have includsd the selections which have been suspended on that acconnt. Yours trnly,

Britton, Gray & Drummond.

Department of the Interior, General Land Offioe, Washington, D.C. Jnne 10, 1874.

Messrs. Britton & Gray—Gentlemen: As agents of the State of Nsvsda, I have to inform yon that the Hon. Secretary of ths Intsrior, under dste of the 2d inst., affirmed my decision of Jannary 15, 2873, rejecting the claim of the Central Pacific Railroad Company to lands in Townships 18 and 19 N., R. 18 E.. Carson city, Nevada, late Mill and Timber Rsservs. Vsry respectfully, W. W. Curtis.

In alluding to thia correspondence, the *Territorial Enterprise* says:

The reservation lies on both sides of the Truckee river, and was set apart for the purpose of supplying Pyramid Lake Indian Reservation saw-mill with timbsr. Thousands of logs were cut and rolled to the river; hut the mill was not completed, and the logs, instead of being floated down the atream to the reservation, were permitted to rot where they lay. The Government paid for the cutting and banking of about one-half of these logs, and a suit is still before the Court of Claims, we believe, to compel a settlement for the remainder, the amount claimed heing ahout $15,000. The timber reservation ia several thousand acres in extent; bnt it can be of no great value, as the most of the timber has doubtleas heen removed by thia time. It will probably be thrown open to sale by the Government.

The Bloony Mine.—The Bronco mine, located on the San Pedro, where M. B Dnffield was killed, has had a hloody record. It was located in 1855 by a man named Bronco, and in 1858 he and a man named Williams entered into a copartnership to work it. They did considerable work on the mine and as far as developed it showed a large, well defined vein, very rich in silver. They erected bnildings, established a atore and were prspared to work the mine on an extenaive acale, when in 1859 the Mexicans in their employ rose en masse and for pnrpoaes of robbery murdered Bronco, Williams, Marsh and another man whose name we do not know, and carried to Sonora all the movable property. The four victims were buried near the mine, and now Major Dnffield is buried beside them. Since Bronco and party were murdered no work of any importance has been done on the mine, on account of the danger from the Apachee. Major Duffield claimed to have located the mine in 1864 and over a year ago it waa located by other persons and since that location Duffield haa been very violent in his threats towards any and all who dared to interfere with hia righta. Before leaving Tucson on his laat trip we nnderstand he made his will and frequently expressed the determination to drive off whoever he might find on the mine. From the fact of his making his will it is evident that he intended to succeed in his purpose or die in the attempt.—*Arizona Citizen.*

A Giant Enterprise.—A company haa been formed, composed of citizens of this county, for the purpose of bringing lumber from the Sierra Nevadas to this point. A sawmill with a capacity for dressing 30,000 feet of lumber per day, or 50,000 feet every 24 hours, has been established at the head waters of the Fresno river, in what is probably the finest timber region of the State, from which a V-shaped flume is now in process of construction to a point between Borden and Beranda stations—a distance of some 55 miles. There is now engaged on the flume a working force of 35 men, which will be increased as fast as men can be obtained. It ia estimated that 7,000,000 feet of lumber will be nsed in the construction of this flume, at a coat of $1,600 per mile. Merced is to be the principal place of hnsinesa. The enterprise is certainly an important one, and cannot fail to be of immense advantage to the people of thia county.—*Merced Tribune.*

Rich Diggings Steuck.—It is reported that rich diggings have been struck in what is called the "Warren'a meadows." These meadows have long been enpposed to contain vast deposita of gold, hnt it is so deep to the hed-rock that heretofore they have not been able to work them successfully. Above the meadows and a stream that empties into these, very rich mines have been worked for some time, and it has always been believed that this same vein ran through the meadows, hnt heretofore it wae impossible to trace it. But now a rich deposit haa been struck, and men are taking out as good psy as they did in the palmy daya of Warren's camp.—*Walla Walla Union.*

Yield of Pacific Coast Mines.

Ths New York *Times* has the following article on the yisld of the Pscific coast mines:

The war of the Unitsd States with Mexico hss in itsslf heen called a trifling affsir, bnt it is difficult to find any war, sxcepting that of the rebellion, which has had more important rsults. By the terms of ths treaty of psace, California was csded to the United Statss, and being thus opened to American enterpriss, it was not long before the world was startled by the discovery that the new acquisition contained dsposits of gold of almost fabnlous extent. Twenty-five years have now elapsed since that discovsry, and it is almost impossible to measurs the effect which its results have had upon the commsrce and the governmsnts of the world. The businsss of the world increasss year hy ysar with the incrsase of popnlation, and thsre must, of course, be a corresponding increase in the volume of money npon which it is bssed, or there would be not only a gsneral derangement of values, bnt an end of that enterprise by which mankind has bscome civilizsd and prospsrons.

The product of the mines of our Pacific slops in the precious metals is, thsrefore, a mattsr of mors than national importance and interest, for it has affected directly or indirsctly all mankind. Recently-published statistics show that the yield of ths last quartsr of a centnry reached the enormous total of $1,583,644,984. Of thia immense snm California produced thrse-fourths, or $1,094,919,098, nearly all of which was in gold. Nevada has produced $221,402,412 in gold and silver, hut chisfly the latter, for by far ths greater proportion of the prodnct has come out of the wonderful Comstock lodes. Utah, althongh known for many years to be rich in precions metals, hae only lately been made to produce them, and the yield haa been no more than $18,527,537. Montana has added $119,308,147 to the riches of the world, and Idaho has given $57,249,197. Oolorado has been only lately developed aa a mining region, hnt its yield has already reached about $30,000,000. Oregon and Washington Territory have together prodnced $25,504,250. British Columbia haa contribnted abont $9,000,000, and Arizona a small aum, hut the latter Territory haa not been worked to any great extent, and ia capabla of doing mnch better. It is a remarkable fact, worthy of more attention than it has received, that the prodnction of the Pacifio alope has been steadily increasing from year to year. It is especially significant that the increase of last year was about 14 per cent., the actnal yield heing $80,287,436, against $70,236,914 in 1872.

It is interesting to inquire what has become of this immense store of gold and silver. Ahout $40,000,000 of it remains on the Pacific slope in coin and jewelry, and a fraction, of course, haa heen abaorbed by the general business of the country. Bnt the great bulk has been exported, and chiefly to England, China and Japan, bnt moatly to England, which has had nearly $1,100,000,000, leaving only about $500,000,000 for the reat of the world. The reason for this flow of the precious metala to England is given in a recent forcible letter from Dr. Linderman, Director of the United States Mint, to Senator Sargent, of Califorria. The bullion goes there in the first place, not because it is demanded by the commercial needs of the conntry, but because coinage is free at the London Mint, while the United States have always persisted in the absurd policy of pntting a tax npon coinage so onerous that bullion haa heen driven ont of the country, Most of it would go in any event, owing to the fact that we buy so largely in foreign countriea, and it perhapa makea little difference whether it goes as coin or bullion. But if our coinage laws had heen more sensible, there ia reaaon to believe that the proportion against ns would by no means have been so great. There has lately been a manifestation of common sense in Congress on this snbject, and it did not come any too soon.

There is one other fact connected with the yield of precious metala on the Pacific slope which ahould not escape attention. We have said that there has been for aeveral years a steady increaae in the total yield, but it also ahould be said that this is dne wholly to the increase in the production of silver, for there has been a decrease in that of gold. Formerly the yield waa entirely gold, and it waa not nntil 1859, when the argentiferous lodea of Nevada astoniahed the world, that we hsgan to produce silver in any considerable quantities. Thus far the yield has been enormous, but it promises to be mnch larger in the futnre. The Pacific slope, having furnished the world with the gold it required, is now giving it a snfficiency of silver.

Goon Yield.—Nine tons of ore from Highland district were crushed last week at the Floral mill, and yielded something over $1,000. Thia mill, nnder the careful and experienced management of Mr. McMasters, is doing excellent work. In thie lot of ore there was fully 30 per cent. of base metal, yet it was worked np to 80 per cent. of the pnlp aasay, which ia more than ordinary good work.—*Pioche Record.*

Nevada's Bullion Product.—The Carson *Appeal* saya: The hnllion product of Nevada will he doubled within the next twelve-month. Developmenta on the line of the Comstock indicate a large increase, and the enlargement of facilitiee for the transportation of snpplies and productа in the eastern part of the State ensure ns of the fulfillment of our prediction.

SCIENTIFIC PROGRESS.

How a Great Discovery was Made.

M. Claude Collas, a celebrated French chemist, communicates to *Les Mondes* an interesting paper on how discoveries are made. To M. Collas is due the honor of first recognizing nitro-benzol, or, as it is better known, essence of mirbane, a yellowish oil derived from coal tar, having a very sweet taste and an odor strongly resembling that of bitter almonds, which latter peculiarity has led to its extended use in perfumery. In telling the story of how he found this substance, he says that, during the year 1848, he was engaged in researches with a view of utilizing industrially the quantities of light oil which, having no employment, and hence very small value, filled up the cisterne in gas houses. It was at that time worth about one cent a pound. After vainly endeavoring to solve the problem for some time, M. Collas was about to relinquish the task, when it occurred to him to treat the oil in the same manner as gun cotton, that is, with a mixture of monohydrated nitric acid and sulphuric acid. "After the operation, the acids being separated by water," he says, "I was astonished to find at the bottom of my vessel a yellow button. The oil, at first lighter than the water, had become heavier, and hence sunk. I touched it with my finger and rubbed it on my hand, when the strong characteristic odor became at once forcibly apparent. I had found an essence which, at the cheapest, could replace a substance in great demand, and which was worth, instead of five centimes (one cent), fifty francs (ten dollars), a pound."

This discovery of mirbane was, however, only the prelude of the greater one, subsequently made, of the magnificent colors which could be derived from the aniline obtained by its deoxidation by means of nascent hydrogen evolved from iron filings and acetic acid. In 1856 Perkin obtained from aniline the beautiful violet color known as mauve, and since then the dyes thus derived have been produced to such an extent that their value to industry is almost beyond calculation. The little button of mirbane, however, in the modest laboratory of a Parisian apothecary, was the germ from which the whole grand series sprang.

There seems to be a kind of fatality about great discoveries which bring them forth in its own time. Men stumble across valuable ideas, and learn important truths too soon, which lie dead during their lifetime, only to be appreciated by the world after their death. The history of arts and sciences abounds in examples. Faraday, in 1825, found benzol in the tarry residues of gas works, but that illustrious chemist obtained neither fame nor profit for his discovery, which would doubtless have remained buried in the archives of the British Royal Institution until the attention of the scientific and industrial world was drawn to the chemical properties of the substance, almost forty years later. Again, it often happens that discoveries escape those who are, by accident, placed in the very position to seize upon them. M. Collas cites, as evidence of this, the case of a French chemist who, in 1846, made a yellow dye for silk by the action of nitric acid on coal oil. The peculiar odor of the mirbane, which he must have produced, escaped him, and he failed to recognize the new substance which he had obtained.—*Scientific American.*

The Age of Coal.

It seems probable that vegetable matter may, under favorable conditions, be converted into coal much more rapidly than most chemical geologists are in the habit of assuming. At least, a curious instance of an approach toward such conversion within the historic period has been brought before the German Geological Society. In one of the old mines of the Upper Hartz some of the wood originally employed as timbering has become so far altered as to assume most of the characteristics of a new lignite, or brown coal. It appears that certain of the levels in the ancient workings of this mine are filled with refuse matter, consisting chiefly of fragments of clay-slate, more or less saturated with mine water, and containing here and there fragments of the old timbering. This wood, when in the mine, is wet, and of a leathery consistence, but on exposure to the air it rapidly hardens to a solid substance, having most, if not all, the characteristics of a true lignite. It breaks with a well-marked conchoidal fracture, and the parts which are most altered present the black lustrous appearance characteristic of the German "pitch coals." At the same time, chemical examination of the same wood shows that it stands actually nearer to true coal than do some of the younger tertiary lignites. This instance seems, therefore, to prove that pine-wood, when placed under highly favorable conditions, may be converted into a genuine lignite, within a period which, from what we know of the history of mining in Hartz, can not have extended beyond four centuries.—*Athenæum.*

ALBUMEN EXTRACTED FROM MILK.—Schwalbe has found that if oil of mustard be added to cow's milk in the proportion of one drop to 1.1 drams, the milk does not coagulate even after being kept for a considerable period; but that the caseine is transformed into albumen. If this discovery, says *Les Mondes*, is confirmed, it will be of considerable importance in the printed fabric industry.

Man Five Hundred Thousand Years Old.

The New York *Nation* condenses from an English scientific periodical some interesting speculations of Dr. Alfred Russell Wallace, on the probable antiquity of the human species. They may well startle, it says, even those who have long since come to the conclusion that 6,000 years carry us but a small way back to the original home. In fact, in Dr. Wallace's reckoning, 6,000 years are but a day. He reviews the various attempts to determine the antiquity of human remains or works of art, and finds the bronze age in Europe to have been pretty accurately fixed at 3,000 or 4,000 years ago, the stone age, of the Swiss lake dwellings, at 5,000 or 7,000 years, "and an indefinite antsrior period."

The burnt brick found sixty feet deep in the Nile alluvium, indicates an antiquity of 20,000 years; another fragment at seventy-two feet gives 30,000 years. A human skeleton found at a depth of sixteen feet below four hundred buried forests, superimposed upon each other, has been calculated by Dr. Dowler to have an antiquity of 50,000 years. But all these estimates pale before those which Kent's cavern at Torquay legitimates. Here the drip of the stalagmite is the chief factor of our computations, giving us an upper floor which divides the relics of the last two or three thousand years from a deposit full of the bones of extinct mammalia, indicating an Arctic climate.

Names cut in the stalagmite more than two hundred years ago are still legible; in other words, where the stalagmite is twelve feet thick and the drip still very copious, not more than a hundredth of a foot has been deposited in two centuries—a rate of 5 ft. in 100,000 years. Below this, however, we have a thick, much older and more crystalline (i. e. more slowly formed) stalagmite, beneath which again, "in a solid breccia, very different from the cave earth, undoubted works of art have been found." Mr. Wallace assumes only 100,000 years for the upper floors and about 250,000 for the lower, and adds 150,000 for the immediate cave-earth, by which he arrives at the sum of half a million years that have probably elapsed since human workmanship were buried in the lowest depths of Kent's cavern.

TEST FOR ALUM IN FLOUR OR BREAD.—According to *La Science pour Tous*, if a drop of alcoholic extract of logwood be allowed to fall upon pure bread or flour, a spot of yellowish-brown color will be the result. If the flour contain alum in the proportion of one or two per cent., the color is grey, blue, or grayish-violet; if five per cent., the spot is reddish-yellow, with an edge of greyish-blue, such spots of blue being detected in its disc by means of a lens. With 25 per cent., the blue border is no longer visible, but the spots may be discovered. This appears to be given as a recent French discovery, but Dr. Letheby used a decoction of logwood as a test for alum in bread more than 10 years ago. Mr. Crookes, after trying it, decided that it was of no value; but other chemists have commended it highly. Mr. Horsley's process is as follows: He makes a saturated solution of ammonia carbonate, and puts a teaspoonful of it, with the same quantity of the logwood tincture, into a wineglassful of water, in a white ware dish; a slice of bread is put in for five minutes, then removed, and allowed to drain; in an hour or two it turns blue if alum be present.

GUTTA-PERCHA AND VULCANIZED RUBBER.—These are entirely distinct substances. Gutta-percha is the gum of the "*percha*" trees, found in the Malay Peninsular, of which the *Icosandra gutta* is the chief. Vulcanized rubber is the concentrated gum of several kinds of plants and trees rendered hard by the action of heat. It usually has a certain proportion of sulphur compounded with it. Vulcanized rubber is not affected by boiling water. Gutta-percha, on the contrary, softens in boiling water, so that it can be molded into forms which it retains when cold.—*Am. Artisan.*

In a note to the French Academy upon the different conditions under which lead is attacked by water, M. Ad. Bobierre states that he has proved by numerous experiments the law that, with the exception of rain and distilled water, potable waters in general do not attack lead in a sensible manner except when the surface is alternately in contact with water and air. The author believes that a great part of the poisonous material in a plumbiferous water is often held in suspension, and can be removed by proper filtration.

M. DUMAS has communicated to the French Academy some curious experiments of MM. Troost and Hautefeuille, on the hydrates of mercury or combinations of hydrogen with that metal. These combinations, it is said, so strongly resemble those which constitute the amalgams of mercury, with silver and other white metals, that it is hardly possible to doubt that they are themselves amalgams, and hence that hydrogen is a metal, a fact apparently indicated in many other analogies.

THE FROG BAROMETER.—In some countries frogs are used as barometers; the species employed for this purpose is the green tree frog. They are placed in tall glass bottles with little wooden ladders, to the top of which they always climb in fine weather, and descend at the approach of bad weather. This is a cheap and highly interesting weather glass where the green tree frog is to be procured in its natural state.—*Science Gossip.*

MECHANICAL PROGRESS.

Straw Board.

The manufacture of straw board is a growing industry. Notwithstanding it is comparatively modern, its increase has been so great that it has nearly trebled the price of straw during a period of 20 years. Although based upon the same general principles as paper making, it differs from the methods employed for fine papers in several important particulars, some of the processes being omitted and others not required in the latter being necessary.

The first process consists in boiling the straw with quick-lime. This is done in a wooden digester which takes steam from a boiler. The straw is packed in layers with lime between them, and the whole boiled for from 10 to 12 hours, according to circumstances. Straw is composed of a tube of woody fiber and cellular tissue, having upon its outer surface a cuticle composed of silicates of potash and soda, with some free silica. The woody fiber also contains some silica. To the silicious cuticle the straw owes, in great part, its strength. The same cuticle also covers the leaves of the different grains and grasses, and gives them the sharp cutting edge often observed in the coarser varieties.

The boiling process is therefore chemical in its effect. The reaction which takes place is the combination of the lime and the silica, which leaves the straw in a soft and pulpy state. The mass is now ground by a machine similar in principle to that used for grinding the ordinary paper pulp—namely, a revolving cylinder, upon which knives are fixed, which play between a series of fixed knives on a bed-plate. The straw is not chopped by these knives, but is gradually disintegrated until it is reduced to a uniform pulp.

The entire mass is now drawn into a vat, which contains water, and is kept constantly agitated by a series of revolving arms. A wire-gauze cylinder is so adjusted that it will revolve partially beneath the surface of the finid mass. The pulp adheres to the gauze and is carried around to another cylinder, around which an endless belt of felt runs. The latter cylinder presses upon the gauze, and by this means the pulp is made to adhere to the felt, and condensed so as to give it enough consistency to be taken up by another cylinder, called a forming cylinder. The cylinder is one of a pair made of polished metal, and by them the pulp is strongly compressed. The pulp is wound around the former until the proper thickness is reached; this is determined by an indicator. Along the forming cylinder there is a groove planed out, through which the operator now passes a wooden knife, thus severing the soft board; and at the same time he unwinds the sheet and removes it. These sheets are cut so as to form other sizes, and then dried, which completes the process. Woolen rags are sometimes ground and mixed with the straw pulp. This makes a much darker-colored and heavier board, which is worth considerably more than the pure straw board.

The boards as thus manufactured are applicable to a great variety of useful purposes, among which book-binding, button-making and paper-box manufacture are most prominent.—*Furniture Gazette.*

Light Signals.

Much attention has been given to the construction of signal apparatus adapted to giving flashes of light of different colors. In one of the arrangements for this purpose the plan has been to construct lanterns with two internal screens, each capable of being revolved by handles either at the sides or top of the lantern. One of these screens carries glasses, of one or more colors, so that either one or the other colored glass can, by turning the screen, be brought behind the lens of the lantern, and govern the color of the light; the other screen, a "dark screen," can be turned into a position to cut off all passage of light to the lens.

Now, in an improved apparatus for this purpose, just invented in England, there is simply mounted upon the top of a hollow stem, a lantern, fitted, like the above, with two internal screens, but the bottom of the lantern is, at its center, attached to the top of the hollow tubular stem, and, in order to revolve the screens, two concentric tubes, or a tube and a rod, passing up through the stem, are employed. One tube is attached, at its upper end, to the bottom of one of these revolving screens, while the other tube, or the rod, is attached to the bottom of the other revolving screen; and, to the lower end of the tube and of the rod, handles are attached, by which they can be turned, together with the screens carried by them. The bottom of the tubular stem which carries the lantern is fixed to the center of a disk, which at its circumference is attached to a second disk at a short distance from it.

When this signal apparatus is to be used on board ship, the second disk has projecting downward from its center a stem suitable for being dropped into sockets or gimbals; and these may be fixed to the ship on either side, and at the stem and stern—so that the lantern may be set up in whatever position may at any time be most suitable for signaling from.—*Ex.*

DRIFTING upon the shores of the Baltic produced, in 1870, 14 cwt. of amber, value £60,000.

Needles.

So little we believe, is popularly known regarding the history and many elaborate processes necessary to transform a piece of simple wire into the beautiful and highly finished little implement so indispensable to the personal comfort of civilized beings, that we feel no apology is needed to our reader, if we endeavor in this short article to jot down a few interesting items of information respecting the needle, gathered from the *Iron Trade Circular*, London. In the first place there is the wire in hugs coils, which are cut by immense shears. The wire is again cut into the different sizes required, each length being so divided as to make two needles. Several thousands of these lengths are then placed within two rings, about six inches in diameter, made of rough wrought iron, and are then straightened by being rubbed with a hot iron. The wire is next pointed at either end, a beautiful process to witness, innumerable sparks being emitted during the operation caused by the friction of the grindstone and wire, and which resemble a shower of golden fire. Some idea of the rapidity with which this is effected may be formed when it is stated that one man is expected to point 22 packets of 50,000 each in a week. The next process is that of brightening the middle portion of the wire, previously to stamping, that is, roughly shaping the head and eye, without actually perforating the wire. "Eyeing," as it is called, is the next stage, and is done by girls with extraordinary rapidity and accuracy; a smart hand can punch as many as 40,000 in a working day of 10 hours. They are now splitted, which consists in two thin wires being thrust through the eye; this operation is always allotted to boys. The reader must now suppose the needles in "sheets," which have next to be filed, that is, the flange formed by punching the eye is filed off, the sheets are broken in two, now first forming the distinct needle. The heads are now again filed and the needles then rubbed and hardened; next washed and "evened," that is, they are sorted into particular lengths, and are now ready for "tempering," perhaps the most delicate operation of all, and which is always superintended by one of the firm. Picking, straightening, and scouring follow, which latter operation, by the way, comprises about 14 different processes and extends over a fortnight.

Iron Forts.

Fortifications in America have as yet not included iron work as defense against the formidable modern rifled artillery, because it has been deemed almost impossible to make any walls that could not be pierced by any modern projectiles. Yet in England and Germany a great deal of money and ingenuity have been devoted to the work of rendering fortifications impregnable. For six years past experiments have been in progress in Germany that have demonstrated the eyetem of iron defences to be proof against assault. They consist of chilled cast iron gun stands and iron-clad turrets. In Russia and America, the main reliance is upon earthworks. But war has shown that upon a great field any given point may be isolated and starved into surrender like Paris, Vicksburg and Metz, or its importance may be nullified by isolation while the armies work on beyond it. Our own coast defences are nearly all of small value against the artillery now in use. But if they were all constructed as carefully as these new German forts, they could all be evaded by a foreign foe in the manner that Scott adopted at Vera Cruz, and the English and French adopted at Sebastopol; that is, by landing at a safe distance and laying regular seige by land approaches, against which no fort built is proof. It was the maxim of the great Vauban that whatever engineering skill has rendered formidable, engineering skill can overcome.—*North American.*

BACK TO HAND PUDDLING.—The Chattanooga *Times* says: "The Roane Iron Company are preparing to tear down the rest of the Dank's furnaces and put up five more double hand puddling furnaces. The Danks furnaces make good iron, but cost too much for repairs." The iron men of the country have looked with interest toward the operation and result of the Danks furnaces in the various places where they are known to be in use, but especially they have kept watch of the results of the experiment at Chattanooga, for there was the attempt most largely and favorably made with these furnaces. Ten of the new steam puddlers were put to work in the mill named—a rail mill—having been put up and started under the immediate direction of Mr. Danks, the inventor, and his son. One thing is prominently brought out by the experience with the new invention, that, in regard to some new improvements, after the *practicability* of a principle is proved only time will show the *durability* of them. The greater or lesser amount and expensiveness of wear and tear in a change so great as the Danks furnace attempt, is not ascertained by the successful operation of six months or double that time. While it must be confessed as against the method, this action of a company who have given a long trial to it, yet even for the purpose of rail making (especially advocated for this purpose by Mr. Danks) it should not be considered as conclusive. We regret this, because we think the enormous development of the iron trade, and scientific advancement as well, demand something better than the old method.—*American Manufacturer.*

A MAUCH CHUNK man, it is said, has invented a machine to separate slate from coal.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, July 1, 1874.

NAME OF COMPANY.	IN MINE.	IN MINE.	SHARES.	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.							
Alamo							4½
Alpha Con	300	6000	13½TH	12s			
Alta	3600						
American Flat		36000	7w	6¾w			1
Bacon M. & M	65	24000	4½TH	3⅝w			
Baltimore Con		54000	7⅞M	6⅝s			
Belcher	1040	104000	85T	80⅝s	3		
Best & Belcher	224	22400	27½T	26w			2
Bowers	20	5000					
Buckeye		16000					
Bullion	2500	25000	8M	7⅝w			2
Caledonia	5000	20000	19½w	17½s			
California			38w	36½TH			2½
Chollar-Potosi	2800	28000	73⅝M	67⅛s			18½
Confidence	130	24350	13¼w	10s			1
Con. Gold Hill Quartz	34½	30000	3T	2⅝TH			1
Con. Virginia	1160	108000	83w	82w			
Cook & Geyer	1600	24000					
Crown Point	600	100000	83T	81¾TH			2
Daney	2000	24000	2½s	2⅛s			¼
Dardanelles	1200	24000	6TH	5T			
Dayton			5w	4¾s			¼
Eclipse	70	25000	1w	6T			1¾
Empire M. & M	15	50000	7w	5⅞s			1¾
Exchequer	400	8000	60w	40s			20.
Fairchild							
Flowery	3000	12000					
Franklin			2M	2M			½
Globe		20000	1M	1M			½
Gould & Curry	1200	48000	24TH	22½s			3½
Hale & Norcross	400	16000	56w	45⅝s			1½
Imperial	184	10000	8w	7s			
Indns							
Insurance	2000	30000					
Jacob Little			3⅝s	3⅜s			
Julia	2000	30000	3⅝w	3T			⅛
Justice	3000	21000	8¼F	7w			⅛
Kentuck	95	30000	16½F	14⅞s			2
Knickerbocker	1200	24000	5M	4TH			¼
Kossuth			1¼T	1⅛T			
Lady Bryan			⅜T	⅜T			
McMoans	3600	36000					
Mint	1600	50000	30cs	14s			½
Nevada	3000	30000	1⅝F	1¼F			⅛
New York Con	3600	36000	3⅝F	3¼w			⅛
Occidental	800	10000	4w	3⅝s			2
Ophir	1400	16800	18¾w	16s			
Overman	1200	24000	37F	32M			5½
Phil. Sheridan	1200	24000					
Pioche	2000	30000	30cs	30cs			20c
Rock Island		24000	2½w	2TH			¼
Savage	800	16000	19s	18s			6
Seg. Belcher	160	6400	89w	81s			4
Seg. Caledonia		10000					
Seg. Rock Island							
Senator		24000					
Sierra Nevada		20000	25½w	21⅝s			3
Silver Hill		54000	8T.	6s			¼
South Comstock							
South Overman		24000					
Succor M. & M	7600	22800	2¼M	2w			½
Sutro		24000	1s	¾TH			½
Trench	20	50 0	7w	7w			3
Tyler	2200	33000	3½F	40cs			¼
Union Con	803	20000	11½w	11w			2½
Utah		20000	4¼M	4¼w			½
Woodville	1400	28000	3½T	2¾TH			½
Yellow Jacket	1200	24000	95T	85⅛s			4
NEVADA.							
Adams Hill		50000					
Alpe	800	30000					
Amador Tunnel							
American Flag M. & M		30000	3½w	3F			
Arkansas	300	30000					
Belmont			5½TH	4½M			
Bowery		30000	7s	7s			
Chapman M. & M		30000					
Charter Oak	1000	30000					
Chief of the Hill		30000					
Chief East Extension		36000					
Columbus M. & M	10000	50000					
Condor		25000					
El Dorado South			5TH	4½M			⅛
Eureka Con		50000	19M	18T			½
Excelsior		12000					
Harper		30000					
Hayes							
Hermes	1000	30000					
Home Ticket							
Hoss & Hunt	3500	30000	5½w	5¼w			
Ingomar	1000	40000	¾s	¾3			
Ivanhoe		30000					
Jackson		50000					
Josephine							
Juniata Con	5000	50000					
K. K. Con			3¼T	2¾w			
Kentucky	1000	30000					
Kinston	1000	30000					
Lehigh	1000	30000					
Lillian Hall	1000	15000					
Louise	2400	30000					
McMahon	1000	30000					
Marion		30000					
Meadow Valley	24023	60000	1¾2T	8w			3½
Mocking-Bird	1200	30000					
Monitor-Belmont			2¾w	2½w			¼
Murphy	2000	60000					
Newark	800	32000	2⅝M	2¼F			⅛
Pacific Tunnel							
Page & Panaca	2400	40000					
Peavine	1000	30000					
Phœnix		60000	⅛s	⅛s			
Pioche	1000	20000	10s	TH			¾
Pioche West Ex		25000					
Pioche-Phœnix		40000					
Portland							
Raymond & Ely	5000	30000	20½w	20T			1½
Rye Patch			2w	1⅝M			
Silver Peak		30000	⅞TH	⅞s			¼
Silver West Con							
Standard M. & M			5½TH	5F			
Star Con	18000	30000					
Starright	6900	25000					
Sterling		30000					
Spring Mount		35000					
Spring Mt. Tunnel		20000					
Ward Beecher							
Washington & Creole	200	30000	2¼M	1¾F			¼
Watson			5M	4s			
Yellowstone							
CALIFORNIA.							
Alpine	1200	12000					
Bellevue	8000	20000	2½w	1⅜F			½
Calaveras	3200	20000					
Caderberg		24000	2¼w	1F			4
Chariot Mill			6¾w	6M			½
Jon. Amador							
Cottonwood Creek		20000					
Dunderberg M. & M							
El Dorado							
Eureka	1680	30000	8½w	8w			
Gillis		24000					
Independent	1800	25000					
Keystone		10000					
Mt. Jefferson	1500	25000					
Oakville							
St. Lawrence M. & M							
St. Patrick	1800	20000					
Teonmseh	3000	30000					
Yule Gravel	400	10000					
IDAHO.							
Empire		25000	13½TH	7w			
Golden Chariot	750	30000	16F	12w			
Ida Elmore	1300	10000	2¾F	2½w			
Mahogany	720	10000	7¾TH	7TH			¼
Red Jacket			3¾M	3w			½
South Chariot	560	20000	12½F	11T			¼
War Eagle	1000	10000	3½M	3w			
WHITE PINE.							
General Lee	1000	20000					
Mammoth	1800	36000					
Noonday	1000	20000					
Grig. Hidden Treas.	800	21333	4w	4w			
Silver Wave							
Ward Beecher		24000					
UTAH.							
Deseret Con	2400	30000					
Wellington		50000					
OREGON.							
Ictue		20000					

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Arizona & Utah	Washoe	9	1 00	June 11	July 15	Augnst 4	Joseph Magnire	419 California st
Baltimore Cons M Co	Washoe	6	1 00	May 25	July 2	July 25	D T Bagley	419 California st
Bowery Cons M Co	Ely District	6	20	May 14	June 28	July 16	C E Elliott	419 California st
Calaveras G M Co	Cal	5	50	May 13	June 16	July 8	T B Wingard	318 California st
Europa M Co	Nevada	2	25	June 9	July 15	Aug 7	F O J Margetson	418 California st
Gold Mt G M Co	Holcomb Valley, Cal	1	25	May 15	June 20	July 10	J P Cavallier	513 California st
Globe Cons M Co	Washoe	2	1 00	June 11	July 15	Augnst 4	Joseph Maguire	419 California st
Globe M Co	Washoe	7	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Hale & Norcross S M Co	Washoe	43	5 00	June 9	July 14	August 4	J F Lightner	438 California st
Hayes O & S M Co	Cal	6	50	June 4	July 13	August 10	Geo R Spinney	320 California st
Imperial S M Co	Washoe	19	1 00	June 5	July 8	July 30	W E Dean	419 California st
Independent O M Co	Cal	6	50	June 4	July 9	July 31	O T Grimes	240 Montgomery st
Julia G & S M Co	Washoe	18	1 00	May 23	June 29	July 20	A Noel	419 California st
Justice M Co	Washoe	10	2 50	June 13	July 14	August 3	Frank Swift	419 California st
Kossuth M Co	Washoe	1	25	June 29	July 31	Aug 18	E F Stone	419 California st
Leo M Co	Washoe	3	50	June 3	July 16	Aug 14	G J Eaton	Express Building
Mahogany G & S M Co	Idaho	12	1 50	May 8	June 12	July 6	W F Bogart	411½ California st
New York Cons M Co	Washoe	9	1 00	May 12	June 12	June 30	H C Kinbe	419 California st
Overman S M Co	Washoe	29	3 00	June 9	July 13	July 31	W W Stetson	414 California st
Pauper M Co	Idaho	2	25	June 16	July 25	Aug 17	D Wilder	Merchants' Ex
Quintero M Co	Nevada	2	10	May 27	June 30	July 19	H G Kibbe	419 California st
Rock Island G & S M Co	Washoe	3	1 00	May 13	June 16	July 9	J W Clark	418 California st
Savage M Co	Washoe	14	5 00	May 22	June 24	July 11	E B Holmes	419 California st
Senator S M Co	Washoe	10	50	June 3	July 11	July 31	H Boyle	Stevenson's Building
Silver Hill M Co	Washoe	3	2 00	June 25	July 29	Aug 20	W E Dean	419 California st
Sierra Nevada S M Co	Washoe	38	2 50	May 23	June 19	July 10	R Wegener	414 California st
Spring Mountain Tunnel Co	Ely Dist	9	10	May 22	July 3	July 25	J M Buffington	Merchants' Ex
Tyler M Co	Washoe	5	30	June 4	July 9	July 29	G K Durbrow	Merchants' Ex
War Eagle M Co	Idaho	6	50	June 19	July 23	Aug 12	L Kaplan	Merchants' Ex
Washington & Creole M Co	Ely District	11	1 00	May 11	June 8	July 1	F D Cleary	Merchants' Ex
Woodville M Co	Washoe	7	1 00	May 23	June 27	July 15	A Noel	419 California st
Yule Gravel M Co	Cal	4	15	June 10	July 15	Aug 6	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Amador Cons S M Co	Nevada	8	15	May 18	June 22	July 13	S E Holcombe	422 Montgomery st
Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
Cherokee Flat Blue Gravel Co	Cal	32	5	May 18	June 23	July 10	H Pichoir	603 Washington st
El Dorado Water & Gravel M Co	Cal	4	5 00	June 19	July 20	Aug 5	H Elias	416 Montgomery st
Electric M Co	Cal		10	June 10	July 15	August 5	A B Paul	318 California st
Emma Cons M Co	Utah	1	50	June 3	July 13	August 10	L C Fowler	302 Montgomery st
Enterprise G & S M Co	Nevada		10	June 22	July 22	Aug 25	E E Rice	411½ California st
Gold Mountain G M Co	Holcomb Valley	1	25	May 15	June 20	July 10	J P Cavallier	513 California st
Gold Run M Co	Cal	6	25	May 22	June 29	July 20	C C Palmer cor Market & Spear sts	
Independence G M Co	Cal	6	50	June 4	July 9	July 31	Geo T Grimes	240 Montgomery st
Kearsarge M & M Co	Cal	3	50	May 9	June 16	July 8	W E Heman	401 California st
Keystone No 1 & 2 M Co	Arizona	3	50	June 17	July 18	Aug 3	W R Townsend	419 California st
Knickerbocker M Co	Nevada	9	1 50	June 23	July 25	Aug 14	H Boyle	Stevenson's Building
North Bloomfield G M Co	Cal	32	1 00	June 15.	July 23	August 10	Thomas Derby	320 Sansome st
North Fork M Co	Cal	3	1 25	June 1	July 1	July 23	A Martin	520 Washington st
North Star Tunnel & M Co	Butte Co Cal		10	May 11	June 13	July 14	P J O'Reilly	511 Washington st
Ohio Cons M Co	Calaveras Co Cal		20	May 30	July 1	July 20	W Aug Knapp	116 Liedesdorff st
Phœnix Tunnel & M Co	Utah	5	20	June 12	July 12	Aug 4	C S Healy	Merchants' Ex
Prospect Hill Cons S M Co	Eureka Nev	1	5	May 6	June 10	July 9	A Noel	419 California st
Prussian G & S M Co	Nev		75	May 26	June 30	July 22	R H Brown	402 Montgomery st
Sanderson G M Co	Cal		20	June 11	July 13	July 30	W Stuart	113 Liedesdorff st
San Marcial S M Co	Mexico	14	1 00	June 18	July 28	Aug 17	C F Schulze	426 Montgomery st
Soledad G & S M Co	Cal	12	10	May 8	June 13	July 4	E Barry	415 Montgomery st
South Fork M Co	Placer Co Cal		5	May 30	July 6	July 27	P H Blake	306 Montgomery st
Starr King S M Co	Nevada	6	25	June 11	July 14	Aug 3	L Kaplan	Merchants' Ex
State of Maine M & M Co	Cal	6	.5	May 15	Juns 20	July 11	J M Buffington	Merchants' Ex
Table Mountain B G M Co	Cal	3	50	May 8	June 15	July 8	W M Helman	401 California st
Umpire Tunnel & M Co	Utah	3	5	June 29	Aug 3	Aug 24	P A Eakins	230 Kearny st
Valley Copper M Co	Nevada		10	June 16	July 15	August 1	Wm H Martin	534 California st
Venns G & S M Co	Cal	1	3 00	June 6	July 18	August 8	S Pattee	323 California st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Belmont M Co	Nevada	C H Bogart	402 Montgomery st	Annual	July 7
Best & Belcher M Co	Waahoe	W Willis	419 California st	Annual	July 13
Chollar-Potosi M Co	Washoe	W E Dean	419 California st	Annual	July 13
Consolidated Reforma		A D Carpenter	405 Clay st	Annual	July 6
Eclipse Winter & Pluto M Co		J Marks	419 California st	Annual	July 20
El Dorado South Cons M Co		Wm Willis	419 California st	Annnal.	July 5
French Gold Hill M Co	Washoe	J Marks	419 California st	Annual	July 15
Overman S M Co	Washoe	W W Stetson	414 California st	Annual.	July 10
Pauper M Co	Idaho	D Wilder	Merchants' Ex	Annual	July 16
Savage M Co	Washoe	E B Holmes	419 California st	Annual	July 16
Sierra Novada S M Co	Nevada	Called by Trustees	414 California st	Speolal.	July 20
"63" G & S M Co	Cal	H Knapp	306 Montgomery st	Annnal	July 7
Tecumseh G S & C M Co		F J Herrmann	418 Kearny st	Annual	July 16
Union Cons M Co	Nevada	J M Buffington	Merchants' Ex	Annual.	July 16
Union Cons Co	Washoe	J M Buffington	Merchants' Ex	Annual	July 18
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Annual	July 20
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Special	Aug 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.		W. L. Oliver,	316 California st.	30	June 10
Belcher M. Co.	Washoe.	H. C. Tibbe,	419 California st.	5 00	May 9
Cederberg G. M. Co.	California.	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Con. Amador M. Co.	Cal.	F. B. Latham.	402 Montgomery st	50	April 8
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 60	June 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	June 11
Diana M. Co.		W. C. Bisget.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	B. B. Minor.	411½ California st.	50	Dec. 5
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

Mining stocks this week have not been very lively, and the list shows a decline from highest prices of last week, as will be seen by refereuce to our stock tahle. The principal topic in stock circles is the Ophir wrangle, which is not yet settled. Curtis, superintendent, refused to give up the mine to Corey, which he was ordered to do, and the matter is before the conrts. The affair is considerahly muddled at present, but will probably be set right by the time of our next issue.

Newe from the mines is generally good. The *Enterprise* givee the following from the Comstock: All of our leading minee are looking so well that prices must eoon improve. Ore and bullion will tell in the long run. The newe from the lower levele of all our ore-producing minee is most cheering, and ehowe that the vein growe stronger ae depth on it ie attained. The indications for the development of a good hody of ore on the 1,900-foot level of the Empire are good. Not only has excellent ore already heen found, hut in cross-cutting upon it a strong hody of water has heen encountered. This promisee a large and permanent body of ore, if we may judge hy what has been seen in the Crown Point mine in openiug out the lower levele. The ore depoeits in the Ophir are improving, and that mine hae again begun to ship bullion. In prospecting the greateet activity ie everywhere eeen, and some valuahle discoveries are sure to he made hy some of the companiee now eo industriously delving upon the great metalliferous range. Several companies are at thie time contending with great bodies of water, hut thie ie far from being a discouraging circumstance; on the oontrary, it is most encouraging, as it shows that they are at the threshold, as it were, of ore-bodies. Some of these may be expected eoon to make important developments.

Variations in price of prominent stocks during the week have heen as follows: Alpha Con., $12 and $13.50; Baltimore Con., $6.50 and $6.87½; Belcher, $80.50 and $85; Best & Belcher, $26 and $27.50; Caledonia, $17.50 and $19.50; California, $36.50 and $38; Chollar, $67.50 and $73.50; Confidence, $10 and $13.-25; Crown Point, $81.75 and $83; Empire Mill, $5.37½ and $7; Exchequer, $40 and $60; Gonld & Curry, $22.25 and $24; Hale & Norcross, $46.50 and $56; Kentnck, $14.87½ and $16.50; Ophir, $16 and $18.50; Overman, $32 and $37; Savage, $79 and $89; Seg. Belcher, $81 and $89; Silver Hill, $6 and $8; Yellow Jacket, $85 50 and $95; Belmont, $4.50 and $5.50; Eureka Con., $18 and $19; K. K. Con., $2.75 and $3.75; Pioche, $7 and $10; Empire (Idaho), $7 and $13.50; Golden Chariot, $12 and $15.

Belcher roee $3 above highest prices last week, and Pioche, $2.75. The declines were more marked: Beet & Belcher, $2; Bullion, $3; Caledonia, $4; California, $2.50; Chollar, $16.50; Crown Point, $2; Exchequer, $20; Gonld & Curry, $4.50; Hale & Norcroes, $3.50; Kentuck, $2; Ophir, $2; Overman, $6.50; Savage, $6; Seg. Belcher, $4; Sierra Nevada, $3; Trench, $3; Union Con., $3.25; Yellow Jacket, $4; Cederberg, $4.50; Raymond & Ely, $1.50.

NEW DISCOOVERY OF PLACERS.—It is reported that rich placer claims have heen etruck near Tehaichipa, Kern county. Information received at Bakerefield etates that fifty cente to one dollar per pan of dirt has been ohtained. The partiee who made the discovery are diligently eearching for the main lead. Quite a number of quartz leads bave been taken up, and work is actively going on.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's office, San Francisco:

THE PERSEVERANCE BLACK SAND MINING CO.—Object: To work the.hlack sand and placers along and near the Pacific Gold Coast, in California and Oregon, and to do a general business of mining. Capital stock, $625,000, in 12,500 shares. Directors: S. A. Morrison, Jarvis Jewitt, Charles E. Hazeltine, H. C. Wilson and Monroe Thompson.

FORBESTWN CONSOLIDATED M. CO.—June 25. Location: Forhestown, Butte county. Directors: Nathaniel Dunhar Plum, Henry E. Vail, John P. Price. Benj. F. Howland, De Witt C. Story. Capital stock, $1,000,000.

SILVER COLUMN M. CO.—June 30. Location: Wallapai district, Mohave county, Arizona. Capital stock, $200,-000, in shares of $100 each. Trustees: J. A. Johnson, H. F. Baker, S. O. Holhrook, Ernest, Michaelmas, J. B. Merriman. President, James A. Johnson; Secretary, Colonel H. F. Baker.

CRESHEN ROCK AND ASPHALTUM PAVING CO.—June 30. Object: Tn manufacture and lay down the Van Camp pavement. Directors: Aaron Van Camp, Henry F. Williams, Samnel W. Holliday, S. S. Tilton and W. W. Stow. Capital stock, $500,000.

ILLINUS CENTRAL M. CO.—June 30. Location: Gwyhee county, Idaho. Directors: Edward B. Pond, Hill Beachy, John T. Boyle, John F, Cassell and R. R. Givens. Capital stock, $300,000.

Meetings and Elections.

MAHOGANY M. CO.—At the annual meeting of the stockholders of the Mahogsny G. and S. M. Co., held on Tuesday, June 23d, the following gentlemen were elected as Trustees: Oeo. M. Pinney, C. H. Bogart, Isham Case, J. E. De la Montagnie and T. B. Shannon, At s subsequent meeting of Trustees the following officers were elected: Oeo. M. Pinney, President; C. H. Bogart, Vice-President, and C. Higgins, Secretary.

THE YANKEE BOY M. CO. has elected J. C. Bates, N. G. Rollins, S. N. Putnam, T. B. Robinson and B. Wells, Trustees. J. C. Bates is President and Treasurer and George Comstock, Secretary.

THE MINERS' PROTECTIVE ASSOCIATION has elected officers as follows: President, H. H. Snhling; Vice-President, H. Sherring; Corresponding Secretary, H. D. Nahor; Treasurer, H. Myers; Sergeant-at-Arms, Wm. Helden.

Important Mining Sale.

Several accounts have appeared in the papers of late, concerning a heavy purchase of mining property by Senator Jones, of Nevada. The *Post* of this city is pretty well informed about Senator Jones, and gives some particulars of the sale. That paper calls the district "Death Valley," but as we nnderstand it the mines are in Psnamint district. The *Post* says:

The new mines are located about 65 miles eontheast of Cerro Gordo, on the western rim of Death valley. They were discovered April 21st, 1873, bnt as they are considerably off the line of travel, have attracted but little attention. The ledges are very large and well defined, and the ore of a high grade, containing hoth gold and silver, the latter predominating. Practical tests show that it will yield from $80 to $150 per ton. Mr. E. P. Rains, an old Nevada miner, was one of the earliest visitors to the district, and being favorably impreesed with its richness, and being aleo the friend of Mr. Jones, reported to that gentleman concerning them, and for the past eight monthe negotiations have been pending. Mr. Rains visited Senator Jonee, in Washington, for consultation on the proposed purchase, and the result was tbat Mr. H. A. Jones, the Senator's brother, returned with Mr. Raine and visited the mines, which proved to be all that they had been represented. The pnrchase was speedily brought to a close, Mr. A. P. Pritchard, of this city, conducting the financial portion of the trade, and the four mines, known ae the Wyoming, Wonder, Chief and Hemlock, together with two sections of land, containing an abundance of timber and several valuable water privileges, have passed into the ownership of Senator Jones, the price paid heing in the neighborhood of $200,000. On one of the properties the second payment was made on the 19th of Jnne, and first payment on the property last mentioned ie to be made in this city on the fifth of July, when Senator Jones will be here.

The developments thue far made in the new district have not been very extensive, but they have been sufficient to show that it is capable of producing large amounte of bullion at very little expenee, the ore paying from the surface. The Wyoming ledge ie opened by a tunnel to a depth of 160 feet, the Wonder to a depth of 30 feet by a shaft, and the Chief abont 14 feet, the ledges all widening as they are followed down. Other mines, owned by Schmidt, D. C. Jacohs and Dr. Weiss, also give great promise, and their ownere are now having a 5-stamp mill bnilt, which will he shipped to the district in about ten days. Senator Jonee will probably pnt np a 20-etamp mill on his property without delay.

The new district ie in Kern county, about 15 or 20 miles from Mesquit City and Dry lake, and can he reached either by way of Loe Angeles or Bakersfield. The distance from Bakersfield ie 155 miles. The explorations and developments thue far made show tbat it contains a great variety of mineral deposits. A toll road has recently been completed into the district, making it comparatively easy of access.

PROSPECTING FOR OIL.—Advices from Los Angelee speak of the organization of a new company to prospect for oil. They have taken up a tract of land within two and one-half milee of the railroad depot at San Fernando, which is said to contain 32 oil springe in sight. The furore for oil has received a powerfnl impetue within in the paet two weeks.

BULLION.—Ninety-six car loads of base bullion, amounting to $1,100,065 pounds, wae ehipped from Palisade, Nev., to San Franoieco and points weet during the month of Jnne.

SHAFT BOARNO.—The Eureka *Sentinel* of Juna 23d says: "Tha boring apparatus, now in nss by the Eurska Consolidated company on the north-esstern slops of Ruby hill, is preparing ths way for a new working shaft. Eight holes, aach about 1¾ inches in diameter, will be put down four hundred fest, aud heing then filled with sand, they will be spoonsd out ths proper depths for ths blasting charges. Four holes are already complsted. There is no cora extracted, tbs drill bsing a solid hit set with sevan diamonds. The reduced rock is removed by water, which, howsver, does not return to the surface aftar seventy feet in depth is reached. The rock is much harder at the point of the hill than at the point where the boring was done last year."

GOOD DIGGINOS.—After running 10 days—most of the time using the water to get their ground into shape—the Sierra Nevada oompany claansd np $10,000 from their hydraulic diggings. Under the circumstances, $1,000 per day is not bad. Now that they have got a face on tbsir bank thsy will begin to gst out some money. The *Enterprise* nnderstsnds that tho Virginia and Gold Hill Watsr Compauy had an eys on these diggings whsn they laid their big iron pipe across Washoe vallsy. It will reqnire many yaars to wash ont the gravel deposit. Millions of dollars will be obtained from it in the shape of gold dust, not to speak of the valno of the float quartz that will be oaught and saved for orushing in mills.

LUCIN DISTRICT.—A correspondent of the *Union* states that a great doal of work has hsen performed, and explorations made, dnring the past six months, with a most happy and encouraging resnlt, showing olearly that there ara othar immense deposits hesides the celebrsted Latham lode. It is anticinated by those wall posted that the Ingot mining company will aoon resnme work again. Why this oompany should leave their immanse smelting establishment and wall-developed minas idle so long, is beyond ths comprehenelon of outsiders.

OANER CANCELED.—The Amador Tunnel and Mining Company and the Newark Silver Mining Company, et als., are defendants to a suit hy F. Franks to recover 1,935 shares of Amsdor atock, and to have a sale of the Amador mine to tbe Newark company declared void. An order was grsnted by Jndge Sharpstein retraining the Newark company from paying $60,000 to the trusteas of the Amador, but this week he set the order asida.

THERE has been a new town laid out near the Rattlasnake mine, in Sonoma conty, cslled "Illinoistown."

A OOMPETENT assayer is wanted in Panamint district, Inyo county.

A 20-stamp mill ia to be pnt up in Panamint district.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

THE MCGLEW FURNACE.—*Chronicle*, June 20: A nnmber of men ars at work at the M. & N. W. mill, sxoavating and grading for the new reduction furnace — McGlew's — which, it is claimed, will greatly advance the mining interest of Alpine by the cheap and close working of our ores. It will be completed in abont four weeks, its erection heing under the snperintendence of Mr. Kelly, agent of the inventor, and who erected one in Mexico, where, it is ssid, it proved a perfect success. One has been erected and is in sucoessful operation, we are told, at Battle Mountain, Nevada.

EXCHEQUER.—We have been sbown by the Manager of this mine some splendid specimens of native silver ore taken from the northmost stope in the north drift from the engine shaft—100-foot level, in the old Bnckeye No. 2 ground. Also, beantifnl specimen of ruby silver ore, taken on Wednesday last from the top of the stope; also, from the face of the main tunnel. Chnnks of ruhy silver ore, weighing from twenty to forty ponnds, are daily taken from the mine.

AMADOR COUNTY.

THE BIG DITCH.—*Ledger*, June 27: Work on the Amsdor canal is progressing finely, and we learn that water will be let in at the npper end in the conrse of a few days.

CALAVERAS COUNTY.

SAN BAUNO POURS FORTH ANOTHER GOLDEN TIDE.—*Chronicle*, June 27: We have intelligence of another rich clean-up at the San Bruno, a mine that is rapidly taking rank among the foremost in the conuty. Seventy tons of ore yielded 121 ounces, worth $2,117.50, an average of $30.25 per ton. Something like $20,000 has been netted by the San Bruno within a month or two, but the source of the golden stream shows no signs of exhaustion. Tbere is no decrease in the eize or richness of the ledge, and the work of development ie pressed steadily forward.

QUAKER CITY.—Work ie progressing with very favorable results at the Quaker City mine, near the Junction. A fair grade of ore is being taken from the level. The ledge is wide and well defined. The shaft is sunk in a slide from the ridge adjoining the mine, and the proprietor has dstermined to hydranlic off ths snrface, to the depth of abont 65 fset, for tha purpose of obtaining a solid fonndation for tha mschinery to be erected. It is expected that tha hydraulicing operation will taka about a month, when everything will be in readiness for commsncing the permanent development of the mine.

MINING JOTS.—Ths mill being put up on the Zacetero mine, at West Point, is nearly completed. Tho frame-work is up and the machinery on the ground. Krim & Co., of Mosquito, will hsva a lot of rich rock resdy for crnshing immediately after the fourth of Jnly.

RIVEA CLAIMS.—Mining operations in the vicinity of Poverty Bar are partially suspended. The famous Story claim, which has hssn psying handsomsly for some time past, has ceased extensiva operations for want of a sufficisnt amount of water. The breaking of the Campo Seco reservoir, a short tima since, has heen ths canso of tha cessation of work.

LIPKEMAN'S olaim, adjoining Story's, is sustaining its rapntation as a paying claim, and worked ensrgetically when watsr can be obtainsd. Ahout a mils bslow the Lipksman claim, on the river, are the Ssnd hill claims. Cliniug & Co., after having bssn actively engaged stripping dnring ths winter, when water was plentifnl, have ceased hydraulicing and began oarting the bottom gravel to a "dump" for washing. The want of fall for slnicing is the great obstacla in working these river claims. The greater part of the hank can be piped away, but the gravel on the ledge must necessarily be oarted out to a plaoe for washing. Meyer's claim is still in operation and holds out creditably. In Mulholland's claim work has been suspended for the season.

COLUSA COUNTY.

NEW MINING DISTRICT.—*Sun*, June 27: According to previous notice, the miners of the cinnabar district north of Snlphur Creek district, met last Tuesday and organized a new district, called Bear Valley District, witb the following boundaries: Beginning at the month of Sulphur creek, thence np Bear creek to the line between townships 15 and 16 (north end of Bear valley); thence west to conuty line; thence southerly, on county line, to Sulphur Creek district; thence easterly with said district to the beginning. The size of each claim is 1,500 faet on a ledge, and 300 feet on each side. All claims mnst be marked ont and recorded in thirty days. This district inclndes the Lovelace discovery and the several extensions thereon.

EL DORADO COUNTY.

GOON QUARTZ.—Mountsin *Democrat*, June 27: Captain Woodwortb, at his mill, on Badford avenue, this city, last week crushed five tons of unselected surfsce rock from the Herrington mine, nesr Gold Springs, and tbe yield fell hit a small fractiou short of $42 per ton. As a matter-of-conrse the owners of the mine are highly elated. The ledge was supposed to be a good one, but the above resnlt more thsn fulfilled the expectations of tbose who were most sanguine as to the solid merits of the mine.

QUICKSILVER.—Amador *Ledger*, June 27: We are pleased to learn that the Amador quicksilver mine in El Dorado county is looking very well indeed. In driving the tunnel into the hill the ore becomes more abundant, and of a high grsde, giving very favorable indications that a large deposit lies further in the hill into which the tunnel is being driven.

LAKE COUNTY.

STAUCK GOON OAE.—*Bee*, June 25: In tbe Pacifio quicksilver mine, an exteusion of the Rattlesnake, near Pine flat, owned by Messrs. Forhes, Parrish, Mackall & Sleeper, of Lakeport, good ore was struck last Saturday, in an open prospecting out.

LASSEN COUNTY.

IRON.—Susanville *Advocate:* It seems strange to ns that somebody does not take hold of the iron mine that lies in the hills soutb of this place. There are millions of tons of ore in sight tbat will assay at least 75 per cent. of iron, and located almost in the valley. Can tbere possibly be a higger thing on the coast in iron? It is located so that from Reno there is a succession of valleys to within half a mile of the lead, and on the edge of the finest belt of timber on thia side of the continent. As this section of the country is now attracting considerable attention, we shall expect before many months to see the mine located and operated by men who are willing and ahle to develop it. We are altogether satisfied that in it there is an enormous fortune, and to acquire it ouly needs an effort on the part of men who have capitsl and are willing to invest it.

MENDOCINO COUNTY.

QUICKSILVER.—*Democrat*, June 27: The discovery of quicksilver leads in the neighborhood of Dry creek, on the road between here and McDonald's, has become rather an old story. Lately we beard a report that John Knight had made a quicksilver discovery heneath his house, and a short time before some parties from ahroad found they had "struck it," and were proceeding to locate claims, when they were suddenly stopped with a notice from John that they and it were on his ranch, his private property. A few days ago all Anderson valley was in a huzz over quicksilver discoveries, and now we have to chronicle a reported sprouting out of a "tin" mine there. We shall not be surprised to see our county, ere long, making a noise in the world on acconnt of her mining interests—to say nothing of coal which she certainly has—in addition to her great lumbering, stock and wool fruitfulness.

NAPA COUNTY.

CALISTOGA SILVER MINE.—*Free Press*, June 27: A large force of miners ars engaged in breasting and stopping the northerly end of the ledge whsre it crosses tha cañon, near Capt. Montgomery's apring. Already a wall of sixty foet of pay ore is sxposed; and within ten days over one hundrsd fest in hight of the ledga will bs exposed, preparatory to working on the starting of the mill. From 400 to 600 tons of ors is now ready for milling, and suffioient in sight to run a twenty-stamp mill one year.

LIVELY TIMES.—The mining dsvelopments in this vicinity are producing good rssnlts in the improvemsnt of the business of this town. Nsw buildiugs are in ths conrse of erection, the stores ars well patronized, and the teams ars pouring into town with wool, grain and flasks of quicksilver, for rsturn loads of machinery and provisions for ths vsrious mining camps. Ths freight trains seldom arrive with less than from tsn to fifteen cars. All appsarances indioate a return of the flush times of '50.

SOMETHING NEW IN QUICKSILVER MINING.—Mr. Geo. Wright, who, until recently, bas bssn engsged in the steamship trade, has recsntly purchsssd from Ross & Co., ths English importing houss, in San Francisco, the Amsricsn quicksilver mine, in Lake county, almost 25 miles from this place, for $100,000, and has commenced the arection of a 10-stamp quartz mill, to crnsh the cinnahsr before submitting it to tha process of retorting. It bas heen oustomary to break the rock to almost the size of a walnut, and then submit it to roasting in a fnrnace or retort; hut Mr. Wright's prooess will rednce it to a powder first. The resnlt of this new process will be looked forward to with great interest. Mr. Wright employs a force of about 20 native Californisns, from the New Almaden mines.

FOR THE AMERICAN MINE.—Two large boilers, re-modeled into quicksilver condensers, are at the railroad depot, awaiting transportation to Geo. Wright's quicksilver mine—the American. Four one-ton rstorts are now en route for the ssme destination.

THE CALISTOGA SILVER MINE.—There are a great many owners in the Calistoga, some of the principal ones being Archy Borland, Coll. Deane, Thos. R. Hsyas, J. W. Winans and Alex. Badlam. The company own a mile esch on two ledges, including the lead known as the Mt. St. Helens G. & S. M. They are putting np a mill, having alresdy the power in sufficient for twenty stsmps, but will only put up for the present two 5-stamp batteries. We are glad to say that Napa has supplied the lumber (60,000 feet) for this work. There are now 1,000 tons of ore out estimated to be worth from $50 to $100 per ton. Several workiug tests of the ore hsve been made, two tons having been taken over to Virginia City, where it yielded $400 a ton, (contsining a laige percentage of gold), and five tons were worked at San Francisco. The ledge extends clear over the mountains, and is claimed to the line of Knight's valley grant. Mr. D. thinks the wealtb of the Calistoga, with its immense ledge and rich rock, perfectly incalcnlable, and that when its batteries are ouce at work it will turn ont ingots of gold and bsrs of silver that shall rival the palmy days of Comstock and the Eherhardt.

THE RISING SUN MINE.—Messrs. F. P. Daubenspeck and A. H. Underwood are the locators and owners of a mine known as the Rising Sun, in Chalk mountain district, adjoining Cinnabar district. The locators, after two and a half months' hard work and 80 feet of tunneling, had their labors rewarded last Friday evening by striking the ledge, and Mr. Daubenspeck passed down to San Francisco Saturday to proonre more tools for the work. The mine known as the Brother Jonathan, owned by B. E. Hunt and others, is an extension of the Rising Sun.

NEVADA COUNTY.

NEW YORK HILL.—*Foot-hill Tidings*, June 27: The Lsrrimer mill has been at work on a run of ore from this mine, and thongb yet too early to get the resnlt of the clean-up, we are told the batch of 50 tons will probahly give an average net yield of $12 to $15 per ton. The upper tunnel is turning out very rich ore this week, a bucket of rock we saw from there yesterday being worth at least $1,000 per ton.

MINING ITEMS.—Grass Valley *Union*, June 30: Slate Ledge mine (Perrin's) is doing a big business. The ledge is good 2½ ft. thick, and turns ont well in free gold and splendid sulphurets. A clean-up of the copper plates was made on Satnrday, after 28 loads of rock had been milled, and the result was about $572 in gold, or over $20 to the losd. The snlphurets saved and the amalgam in the batteries will increase the amount.

New York Hill mine sent up a beautiful little brick, yesterday, which was valned at $2,174, and was milled from 57 loads of rock.

RICH STRIKE IN THE PAYMASTER.—Truckee *Republican*, June 25: We learn from John Hallahan that a rich strike was made in the Paymaster mine, Peavine district, on Tuesday. The main ledge was strnck on that day in the prospecting shaft, at the depth of 150 feet from the surface. The ledge is over 8 ft. thick, and the ore splendid to look at. Stook in the mine, in oonsegnence of this strike, has gone up from $15 to $75 per foot.

PLACER COUNTY.

MINING CLAIMS AT BATH.—Placer *Argus*, June 27: Mining operations at Bath have been active, but the water has fsiled, and hydraulicing is now suspended for the season. The Golden Gate claim, owned by Wheeler & Breece, commenced washing Jan. 10th and continued np to the 1st of June, having only a supply of water half the time. They work 10 men, and ths claim has paid largely. The Rip clsim, owned by Roush & Grinnell, has had water to wash abont four months, during which tims thsy have worksd 12 msn. Their claim has paid hig. Thsy have baen running thsir tailings through the Goldan Gata tunnel, hnt dnring the comming summer thsy will run a tunnel of thair own, 400 ft. in length. Creek claim is ownsd hy S. G. Lewis, and has had a supply of water for hydraulio working for three months. It has richly rsmunerated its owners. Lshigh claim, owned hy Hosmer & Lewis, is in the hsd of Volcano cañon, and takss np tha tailings from the Golden Gate, Rip and Crack claims. Thsy hava worked two msn, and their net profit dnring ths aeason is about $6,000. The Paragon, belonging to Whesler & Breeca, which has hsretofors paid remarkably wsll for drifting, has not bsen worksd during ths psst ssason. It will bs fittsd np dnring the coming season as a hydranlic claim. Roogh Gold is owned by Breece, Davis and othsrs, and labors under tbe disadvantage of not having any front gronnd, tha olaim being in ths shaps of a wedge. As soon as an outlet can bs obtained, it will he fitted np as a hydraulio claim. The New York, Sebastopol and Bsdgar, whsn worked, paid wsll for work done on them many years ago. Of lata years, only sufficient work was done to hold the claims, but as soon as water oan be obtained they will ba fitted up for hydraulicing. Drummond, Bros. & King obtain good pay working a piece of dacomposed quartz, crushing abont a ton a dsy in an arastra. The Haucock quartz ledge, owned by Dewey & Burt, is being rapidly developed. The shaft is down 100 feet, tha ledge being two ft. thick. They have racently put in a pump and waterwheel, and although little has been said about this ledge, it has proved itself to he ona of the best in tbe oounty.

THE MINES NEAR OPHIA.—The Bellsvue is in full blast, turning out high grade ore, showing gold freely. In the stopes of the 240-ft. level tbe ledge is regular and well defined, fully 30 inches thick, and csrries about five per cent. of sulphurets. The ore from this mine is hsing milled at the St. Patrick mill, which has every fscility for tborough working and close conoentration. The plates are wall coated with gold, and a big return is anticipated. More men are advertised for—a good indicstion that ths mines are not played out.

THE work of opening and devaloping ths Orleans mine is progressing steadily, and the prospects are highly sncouraging. Preparations are being madc to erect a mill, and wa shall not be surprised if the new mine adds greatly to the wealth and prosperity of Auhurn.

PLUMAS COUNTY.

MINING NOTES.—*National*, June 27: We saw a couple of slugs, worth abont $50, taken from Lowery & Burge's claim, on Wolf oreek, a few days since. The rook from Batchelder's new mine is paying about $8 per ton. Gregg has commenced crnshing rock from the Grass ledge, in the old mill in Dixie ravine.

SANTA CRUZ COUNTY.

QUICKSILVER DISCOVERY.—*Enterprise*, June 26: There is little doubt but that the Munson mine, lately located back of Corralitos, in this county, will prove most valuable. The indioations are that lsrge deposits of cinnabar are to be fonnd in the region of the newly located claim. The New Almaden mine is just over the mountsin from this new discovery, and why should not the deposits extend through the mountain? Every encouragement should be extended the projectors of the works about to be erected.

SIERRA COUNTY.

LEROE STAUCK.—Mountain *Messenger*, June 27: A prospecting company called the Roman, we understand, working on the mountain across the river from Sierra City, recently struck the ledge they were running for. They found it about 2½ feet wide, and very riob in gold.

OAK RANCH.—Tbe tunnel at Oak Ranch mine is in over 400 feet. They lost sixty feet by tnrning off witb the expectation of "making fat" on an old tunnel, but finding it caved, they went baok and drove their tunnel straight ahead.

RED DOG.—J. K. Code is busily engaged in getting his engine and quartz mill to the site of his ledge, at Red Dog. He expects to have it running in a week or two.

TRINITY COUNTY.

FINDING IT.—*Journal*, June 27: Work is being prosecuted on the lately discovered qnartz lode on the head of Indian oreek, and the ledge promises to be extensive as well as rich. Free gold is visible in nearly every piece of rock taken ont.

MINERSVILLE.—From T. L. Miller we learn that minera in that section are doing well, and that water is yet plenty. Pete Van Matre is cleaning up in his Dutch Guloh claim.

TUOLUMNE COUNTY.

THE TABLE MOUNTAIN BLUE GRAVEL CO.—*Independent*, June 23: The miners are working in the sonth side of the Table Mountain Blue Gravel — the mill is running every day, and they are getting out splendid gravel.

GOON FOR THE ALPHA.—After the expensive outlay of this company in erecting a mill and pntting the claim in shape, we are pleased to learn that a good bed of gravel 3 ft. deep and 30 ft. wide hss recently been developed in the Table Mountain Alpha. From the main gangway one-half day's washing showed a clean-up of 7 onnces. The success of this claim gives additional importsnce to Table Mountain investment.

Lumber Flumes in California.

The Nevada *Transcript* has the following description of a new enterprise in that vicinity: In company with J. E. Brown, one of the originators of the V-flume enterprise, we visited the headquarters of the work the other day. Work is being pushed ahead as rapidly as the circumstances will permit. The mill will be located about three miles above the old Scott's flat saw-mill. Before work could he commenced on it, it was necessary to survey and boild three miles of road on the monntain side east of Deer creek. Most of the road is cut throngh solid bed-rock. The site of the mill is in a very wild and pictureeque spot, and was unapproachable with teams nntil the road was completed. Lumber for a flume half a mile long, for a boarding-house, sbeds and ehop, wae packed in to the place on the backs of men. The timhers for the lower frame of the mill are out and framed, and that part of the frame will be raised this week. Those of the npper frame will be completed next next. This mill will be 120 feet long and 30 wide, with a capacity of eawing 25,000 feet of lumber per day. It will be run by one of Collins' centrifugal turbine wheele. The hydraulic pressure will be 344 feet perpendicnlar. The water will be conducted to the wheel in a 13-inch pipe, about 700 feet long. The supply of timber in the vicinity of the mill is almost inexhanetible. The mill is situated in a very deep cañon, and the ridge, on both sides, is thickly covered with spruce, oak, pine and sugar-pine trees.

There will be a dam above the mill about 70 feet wide and a half mile long, into which the logs and timber will be run down from the hills above by means of slidee. All the timbers for miles above and below the mill will he acceseible to it. Mr. P. D. Shaw, under whose supervision the Bragg and Folsom mill, the mills belonging to the Bank of California, at Carson, were constructed, is the architect. Mr. Collins euperintends the pntting up of the water power. The lnmber and wood cut at the mill will be transported to this city and Grase Valley by means of a V-finme. The survey of the same haa been completed. The grade of the flume will be one inch to the rod. It will be nine miles in length to this city, and eighteen miles to Grass Valley. The amount of lnmber nsed in its conetruction will be 682,600 feet. The length of trestle work will be 11,776 feet. The highest treetle will be 30 feet. The deepest cnt 16 feet. The whole length of cuts will be 4,459 linear feet; 4,424 cubic yards of earth and gravel, 459 cubic yards of medinm rock, and 142 cubic yards of hard rock will have to be removed in its construction. The flume, when completed, will have a capacity of floating from 75,000 to 100,000 feet of lumber per day. The qnality of the timber in the vicinity of the mill is the best in the county. The foreman of the work is Mr. L. M. Snkeforth. The amount of work already done by this company will astonish any one who has not seen it.

Eagle Mine.—The Eagle mine, now the property of the Oakland G. & S. M. Co., bids fair to become the Comstock of Humboldt county. In the old worke the ledge is eight feet wide, and the ore, which can be ehoveled right into a buoket without blasting or picking, assays eighty-fonr dollars in silver and ten dollare in gold to the ton. In the new shaft recently started from the snrface and at present fifty feet deep, the ledge ie over nine feet wide and the ore richer than any ever before found in the mine. Steve Terrill, the foreman, was in town last Sunday with specimens from the new shaft that astonished old prospectors, so rich were they in gold and silver. We are pleased to note these signs of improvement in the Eagle, and hope they may continue, as the success of thie mine will do much towarde disproving the theories and opinions of the so-called experts who visit this neighborhood occasionally, and report unfavorably on mines. Several of these chaps took a look at this same Eagle mine, two years ago, and pronounced it worthless; but recent developments prove that they were very much mistaken.—*Silver State.*

New Conoentrator.—A correspondent of the Salt Lake *Tribune* writes as follows of a new ooncentrator in operation in Bingham: I have been on a vieit with Capt. P. J. Mitchel, the inventor of a new patent for the concentration of ores, for nearly two weeke, watohing the progress of the construction of the works. It affords me great pleaeure to inform you that today the machines are in operation, and are working to the fnllest satisfaction of the inventor, who is an ore dresser of long experience. The process of separating the ore from the gangue or vein matter, ie perfect, and the results of this day's trial will warrant a success. In a few daye we will be able to give yon eome data as to the results obtained. The machinery is simple and comparatively inexpensive, and requiring but little power, so there can be no doubt that this invention will be of great benefit to the mines of the varione mining camps of Utah and elsewhere, where mines are waiting to be made profitable and valuable by ooncentration of ores, with a small outlay for maohinery.

Another Producing Mine.—The Bank of California yesterday received four bars of bullion from the Ophir mine, valued at $10,200. This is the first ehipment of bullion made by the Ophir in eix or seven years. The bars are about one-third gold, and attraot considerable attention. It ie claimed that the mine will now make shipments every week.—*Virginia Chronicle.*

The Black Hill Region.

Who has not heard of the Black Hills and the rich treasures of gold and other precious metals supposed to exist there? Year after year expeditious have been formed or talked of to explore this region, but no reliable information has been obtained concerning it. The expeditions formed have been checked by government interference or driven off by the Indians. Only a month ago, the Bozeman expedition retnrned disorganized and to some extent dieheartened, after a month's continuous fighting with the Indians, reporting barren results.

As the Christian looks forward with hope and faith to that land of pure delight, so the miner looks forward to the Black Hills, a region of fabulous wealth, where the rills repose on beds of gold and the rocks are studded with the precious metal. Nuggets of pnre gold as large as walnuts have been shown and evidence produced as undisputable ae that on which the Christian founds his hope, that they come from this promised land.

And hence it bas come to pass that with the return of every epring-time bold men make their arrangements to explore this region, and the government officials are kept constantly on the alert to prevent it, but the time has now come when the entire army could not, much longer, keep the country from being overrun by the invincible white man—by the hardy pioneer.

To-day there is forming on the banks of the Missouri an expeditiou consisting of from 75 to 100 of as brave boys as ever drew bead on a red-skin, to be led by the redoubtable Chris. Gilson, and sworo to visit the Black Hills and report. They come in squads from Yankton, from Moorhead, from Jamestown—from the east, the far west, and from the south, and early in June they will meet where provision has been made for croesing the river, and with pack-mules loaded with flour, bacon, ammnnition, etc., take up their line of march for the El Dorado of the north.

Who is the brave leader of this band of hardy pioneers? we are asked, and reply, Chris. Gilson, who will live in hietory and song as one of the bravest men of his time. Those spirite who cannot help admiring the valor of Daniel Boone, or the plnck and persistence of Kit Carson will delight to revere the name of Chrie. Gilson. For 28 years Chris. has operated on the western plaine, now a guide or interpreter, then occupying positions of higher trust.

Those who wieh to go with him should apply to him at once at Bismark. There is no fee, but parties joining will need a mule, gun, rations, etc.

About the 15th of June, 10 companies of the 7th Oavalry, under the command of General Custer, two sectione of artillery nnder the command of Lieutenant Chance, accompanied by Lieutonant Colonel Fred. Grant and General Forsythe of General Sheridan's staff, Colonel Ludlow, and several practical miners will leave Fort A. Lincoln for the same region. Their mission is a peaceful one. They go to explore the country, a corps of observation, and will not interfere with the Indians nnless attacked by them. The expedition will not be attended by expense to the Government, ae the men and horeee will require fewer supplies on the maroh than in camp.—*Bismark Tribune.*

Jersey District.—This new district, which has caused such an excitement among miners, is situated about forty miles a little southeast from Unionville. The first, and ae yet the most important discovery of the district, was the result of an accident. The ledge orops out boldly for several hnndred feet on the mountain side, and in appearance differed in no reepect from the adjoining rocks, being covered like those rocks with mosses and lichens. Sheepherdere had camped in its immediate vicinage for two or three years, and had frequently sat ou its prominent croppinge, never euepecting that they contained anything valuable or that the blow of a sledge or pick would reveal the hidden treasure beneath them. From the Austin *Reveille* we learn that Governor McBeth, who ie interested in the principal ledge of the district, had some eamples of the ore recently assayed with the following results: Specimen from the Lander mine, $190.47 in silver; specimen from the Union Flag, $144.64 in silver and 66.45 per cent. in lead. Both claims are supposed to be on the eame ledge, and are in a granite and qnartzite formation. We understand that Gen. Conner, of the Oreana Smelting Works, has made arrangements with the owners of one or both of the mines to smelt a lot of the ore, and as Oreana is the nearest railroad point from the minee, it is probable that all the ore produced will he reduced there.—*Silver State.*

The Mobile and Ohio company has laid in ite yard, in Mobile, 100 yards of a light rail invented by Mr. H. G. Angle, of Chicago. The rail, which weighs 25½ pounde per yard, is rolled nearly in the form of a common angle-iron, and bolted on a stringer of wood, five by six inchee, which is spiked down to the ties, from which the ordinary rails have been removed. Should it atand the severe test to which it ie eubjected in the yard, the company will lay it on all its branch lines. The cost is stated to be about 30 per cent. lees than that of a 50 pound T rail.

The circulation of trade dollars is dsily diminishing in Nevada, owing to the fact of their oeing bought up by the Chinese merchants of San Francisco.

Forestville Chair Factory.

The Petaluma *Argus* of June 26th gives a description of a flourishing industry at Forestville, in Sonoma county:

The machinery of the mill consists of four lathes, three circular-saws, one sash-saw, one boring machiue, one tennoning machine, one mortising machine, and other machiuery, all of which is propelled by a twenty-horse power engine. About fifteen men are employed in the factory, aud an equal number in the woods getting out the material. In manufacturing each man has a separate work, and does nothing else. One man works on posts, one on rungs, another on backs, and others are employed in putting the chairs together, bottomiug and finishing.

The material used in the manufacture of these chaire is ae follows: For posts, mountain live oak; for backs, alder; for rungs, oak. The bottoms are made of rawhide. The hides for the bottoms are first soaked in lime water, to take off the hair, and while yet wet are cut into stripes of the proper length and woven into the bottoms. A young man in the bottoming department, John McAllieter, has become very proficient at thie part of the busiuess, and can bottom 200 ohaire per day. The bottoming process is the last before they pass into the hands of the varnieher, when they are ready for the market. In order to dispose of the chairs a number of peddling wagons are sent out in different parts of the State, and even into Nevada. At the time of our visit to the factory there were eight wagone out peddling, and in this way, and through the furniture dealers, every year's make is very easily disposed of. The factory makes the common sitting chair, large office easy chair, rocking chair, and children's chairs. The enterprise is certainly a laudable one, and we believe a paying investment. The raw material for the manufacture of these chaire is all fonnd within the county, and we are informed by the Superintendent that they even manufactnre their own glue and varnish.

Oregon Mines.—The *Bed-rock* (Baker city O.) *Democrat*, has the following to say of El Dorado district: The mining news from this district is of the most cheering nature. The water is rnnning through the big ditch to the amount of some five hundred to eight hundred inches, which givee the miners there more water than they have had in years past, and they are making good nse of it by running hydraulios to good advantage. There are now some nine or ten hydranlica rnnning, with a prospect of some three or four more being put in operation. The claime where these hydraulics are running have been heretofore prospected with good resnlts. With the water now enplied to the miners, we expect to hear of good olean-npe in El Dorado, or Shasta, mining district. We hope the anticipation of our mining friends there may be fully realized. We understand that it is the intention of Mesere. Packwood & Carter, who now have control of the ditch, to extend it eome six or eight miles, eo as to tap both branchee of Burnt river, and that by so doing they will he able to procure water sufficient to run the full oapacity of the ditch, whlch is calculated to be some two thone-and or twenty-five hundred inches. When this ie done this ditch will be one of the best paying properties in Oregon, and Shasta district will give an account of herself that will place her in the foremost rank of mining camps east of the Cascades.

Tybo District.—A correspondent of the Belmont *Courier* writes ae follows from Tybo District: There are now about 100 men in camp, and all seem to be at work either for themselves or for the 2 G Mining Company. Thie oompany is working about 50 men—20 on the mines and the balance on outeide work—erecting buildings, euch as boarding honse, store honse, aesay office and snperintendent'e office. A ditch has been cnt for carrying water pipe, one and a half miles in length. A railroad for running ore to furnace, a distance of about 200 yards, is about completed. Machinery ie on the ground for a 40-ton furnace; fire rock and brick are also on the ground; grading for furnace ie done; coal is being burned. All of which has and is being done under the guidance of Cyrus Packard, an able and efficient manager. Mr. McGee, the general manager, will attend to mattere in person the present month. A greater force will be put on the mines, and then quantities of ore will be added to the now large dumps.

At Gold Monntain, says the *Reveille*, Mr. Higgs has put a force of men at work on the Crown Point, Lottery, and others of the eeries of mines owned by hie company. R. Ross sunk a well 26 feet in depth, at which he etruck a etream of water which flowe in at the rate of 120 gallons per hour. Gen. Page has made arrangements to seonre thie water, and will run in a cut and tnnnel a length of 300 feet, and if the water should prove to be suffioient in quantity, he will move the mill to Gold Mountain and inorease its capacity to 10 etamps.

Mottling of Marble.—The reaeon why the mottling of marble can not be imitated upon paper, wood and other substances of like character, is that marble ie a translucent material. Therefore, not only the mottling which ie upon the surface is visible to the eye, but that which is below the surface is also partially visible, producing a delicate, softly-shaded effect, which is imposeible upon opaque snbatancee. Upon some kinds of stone this mottling may be imitated almost exactly.

Oil Deposits of Ventura.

A letter to the San José *Mercury* gives the following acoount of the oil wells of Ventura county:

The oil deposits of Ventura county are inexhaustible, and when developed to anything approximating their full extent will constitute one of her chief sources of wealth. In the year 1865 a company was organized for their development by Tom Scott and other Eastern capitaliete, and operations were at once commenced, bnt owing to the many difficulties which they experienced in the prosecution of their work they were not very successful. On the formation of the company they purchased Spanish grants, aggregating 250,000 acres, a portion of which were sold to raise means to defray the expenses of work. The purchases of the company included the Colonia, Ojai, Simi, Las Posas, Cañada Larga, San Franoisquito and Caligua grants. Their first work was on the Ojai, south of Sulphur mountain, where they obtained a flowing well at a depth of 600 feet. At first it produced about 25 barrels per day, bnt work being discontinued the flow became obstructed, and it now produces only eight or ten barrele per day. In the cañons and ravines tributary to the Santa Clara valley, and which lie in the vicinity of Solphur mountain, there are several other works, some of which are producing an excellent quality of oil. The Hayward works produce about ten barrele per day of 32 gravity oil. The Stanford produoes six barrele per day, the San Paula ten barrels, and the San Fernando, near Camulos, abont ten barrels. These productions are all from natnral flows and horizontal tunnels. At the last named works an oil refinery has been established, which promises to he a euccess. The oil at these works, however, ia of an inferior quality, being quite heavy. At present there is bnt little demand for the oil, and the ehipments now do not exceed 200 barrels per month. This amount is shipped by R. G. Surdam, who furnishes it to the Central Pacific Railroad Co. for lnbricating purposes. There beiug no sale for the oil all operations have been suspended, and immense qnantities of it now run from the tanke down the mountain sidee, forming great pools in the gulches below. The source of all this oil ie supposed to be in Sulphur mountain, whioh derives its name from the snlphur springs in the vicinity. It ie found in a stratum of shale and in localities easy of aocese. With a reasonable expenditure the varione oil works of the oonnty conld be made to produce almost any desired quantity, which we doubt not will be done ae soon as the demand will warrant. The oil oan be delivered at the wharf for one dollar per barrel. A ooneiderable amount of asphaltum is aleo found in the oil regions. With the development of the oil resources, the hnsiness of San Buenaventura will receive a new impetne.

Succeseful Smelting.—The Truckee *Republican* says: The Tecoma Smelting Works here are now under the management of practical, experienced men, and we eee no reason why they should not be carried on succesfnlly. The furnace wae first started up on Saturday last. Up to yeeterday morning the bullion product was 20,000 pounde. This was ehipped to the refining works at Omaha yesterday. Only one of the two furnaces is in operation. Thie one rednces about twenty tone of ore daily, prodncing nearly 10,000 ponnds of crude bullion. The ore used is from the Company'e mines at Tecoma, eave a emall amount of outside ores which have been obtained for fluxing purposes. The company expect to ship another car load of bullion (20,000 pounds) tomorrow. The single furnace consumes daily about 600 bushels of charcoal. Furnace No. 2 is in readiness, but will not be etarted up until more ore is secured. No difficnlty ie experienced in smelting the ore, the great trouble being to get enough of it to keep the furnaces busy. One of the drawbacks the Superintendent of the worke here has had to contend with, is the lack of material for making varioue repaire. When a break or acoident occurs, it is important that the necessary means shonld be at hand to remedy the disaster as promptly as poseible. Thie difficulty will donbtless be remedied soon. We understand that the company are willing to purchase orea from any one, which may contain a high percentage of lead.

Insects and Flowers.—According to Dr. Muller, of Lippstadt, who has recently published an exhauetive treatiee on the fertilization of flowers by insects, it appeara that insects are not impelled by their instinct to frequent particular species of plants. This may oconr, but it ie only in isolated casee, of which he ia able to cite only two. In general, insecte roam at random over the fielde, and light indifferently on any flowere that attract their attention, and it ie not uncommon to find them making fruitless search in flowere that contain no honey. This important fact has been generally overlooked by former observers.

Truckee Bullion.—One oar of bullion (20,000 pounds) was shipped from the emelting worke for Omaha yesterday and another will be dispatched to-morrow. Thie will make the fourth car load shipped within about ten daye—80,000 pounds in all. This is certainly an excellent beginning and angure good resulte for the near future.—*Republican.*

Ground will be broken on July 4th for the constrnction of the Visalia railroad. It ie expected that the road will be completed by the 15th of Angust.

Useful Information.

Preservation of Metallic Surfaces.

The great tendency of sheet iron to decay by oxidation has led to the employment of many methods of preventing it. The first and most natural seems to be a coating of some substance, and paint or oleaginous varnish has been much used. This is often employed where the exposure of the natural color of the iron is of no account, or where there is no desire to conceal the material of which the work to be preserved is made.

Asphaltum and black varnish are largely employed in many places, and a surface thus protected is susceptible of being gilded and elaborately finished, after the manner of tea trays, waiters, coffee cans, etc. Coating the sheet metal by immersion in a bath of melted tin is adopted, and is the most common, and perhaps the best, protection sheet iron can have. A familiar illustration is the numerous articles of household use that are so very common.

There is a process called galvanizing (but the term is not properly applied, as the process is not completed by the galvanic current), and this is very extensively used now. It consists in coating the iron by immersion in melted zinc, as in coating with tin. Articles of cast or malleable iron that are exposed to damp, or are for use under water, are coated in this way with advantage. Specimens of this method may be seen in the iron fixtures of washing machines, churns, wringing machines, etc.

There is also a process of enameling, in which the article is dipped into a gummy fluid, and the gloss or enamel, reduced by pulverization or grinding to a powder, is dusted on the gummy surface, where it adheres. The article is then put into a muffle and placed in a furnace, where, after a short exposure to a certain heat, fusion takes place, and a uniform coating is obtained, which is a good protection to such articles as breadpans, saucepans, etc. Enameled kettles and saucepans used by the housewife for boiling or cooking acid fruits are made in this way; and the application of such a coating should be more generally adopted.

To coat the sheets of iron with either tin, zinc or enamel, it is first immersed in sulphuric or muriatic acid for a sufficient time to clean them of grease or oxide; after that they are washed clean, and again dipped into a solution of muriate of zinc, and finally placed in a bath of tin or zinc, a thin coating of which immediately adheres to the surface.

By means of the electro-deposit process sheet metal may be coated with gold, silver or copper; but this process is used most for articles of ornament, and is intended to hide the metal of which they are formed. As the process is quite cheap, when but a light coating of the metal is required, it is extensively used, sheet brass or soft metal being chiefly selected for this purpose.—*Iron Age.*

Iron Architecture.—The use of iron as a building material has of late years been largely increased, especially in works of magnitude and importance, in consequence of the very great facility with which it can be manufactured into almost any required form, and the almost unlimited strength it possesses, if judiciously treated and applied. Yet, notwithstanding the enormous amount of iron construction that architects see constantly employed in all directions by engineers, it would appear that very few of them deem it worth while to learn anything about its capabilities and qualities as a building material. Architects do occasionally use iron in columns and girders, but they make but little effort to extend its use so that it might take the place of the materials which have been used from time immemorial, and with which they are more familiar, as brick, stone or wood. Hence it is that whenever any large building is erected, the whole credit of the design and execution is carried off by an engineer; although, perhaps, an architect may be called in to assist in the decorative features. And this state of things will continue to be so as long as architects are contented to take their knowledge of iron-construction at second-hand from the engineers. It is, however, a matter for serious consideration whether the architectural profession should be satisfied with simply endeavoring to imitate the styles and modes of building employed in former ages, rather than attempt to keep up with the rapid advance of the present age, and meet its requirements by adopting the use of a material of which our ancestors had but very limited knowledge.—*Builder.*

Nozzle for Delivering Water.—In a recent lecture on "Liquids," at the Royal Institution, Professor Tyndall mentioned that he had learned from Shaw, the head of the London Fire Department, that a scratch in the nozzle of a fire-engine delivery pipe, which an ordinary workman might overlook, will reduce its throwing power from 300 feet down to 150 feet. Our hydraulic miners in this State have frequently noticed strange and unaccountable variations in the force of the stream while the water remained constant; but we think that a falling off of one-half, resulting from an overlooked scratch, is rather heavy.

Type metal is composed of lead with ¼ or ⅛ of its weight of antimony, or: lead 2 parts, tin 1 part, antimony 1 part, or: lead 15 parts, tin 1 part, antimony, 4 parts.

Testing Iron Ores.

Mr. Thomas T. Morrell, Chemist of the Cambria iron works, at Johnstown, Pa., communicates the following to the *American Chemist:*

Persons selecting iron ores for the furnace may be glad to be reminded that the quantity of iron can be approximately estimated by easy colorimetric methods. For this purpose the deep colored solution of iodine, produced by reducing perchloride of iron by iodide of potassium (as in a well-known volumetric method,) seems most likely to give uniform results.

Dissolve 0·100 grammes or more of the ore in hydrochloride acid, and filter into a test tube. If much free acid is present, nearly neutralize with potassa; if protochloride of iron, oxidize with permanganate of potassa, and heat till the pink color disappears. Add now some crystals of iodide of potassium, immediately close the tube, heat till the reaction is complete, and compare, when cold, in a rack of standard colors (Britton's colorometer), or with stripes or tubes of glass of the same tint.

It is best to use about the same quantity of iodide in each trial, and to standardize each tube of the colorometer by tests with different quantities of a solution of perchloride of iron.

Small quantities of the chloride of lime, magnesia, manganese and alumina do not affect the results.

With care the results should agree to within one per cent. The addition of any other substance to intensify the color of the iodine solution is unnecessary, and would require the use of too small a quantity of ore.

Cleaning Brass.—A correspondent writes: The following is a recipe I have successfully tried in cleaning brass and copper: I make a mixture of one part of common nitric acid and one-half part sulphuric acid in a stone jar; then I place ready a pail of fresh water and a box of sawdust. I dip the articles to be cleaned in the acid, then remove them into the water, after which I rub them with sawdust. This immediately changes them to a brilliant color. If the brass is greasy, it must be first dipped in a strong solution of potash and soda in warm water. This cuts the grease so that the acid has the power to act. This is a Government recipe used in the arsenals. We will add to the above recipe that first washing in clean water, and second in water in which aqua ammonia has been placed to neutralize all trace of the remaining acid upon the surface of the brass, is an improvement upon the above process, which is, in all other respects, a good one. After dipping in the ammonia water and cleaning in the sawdust, if a good quality of lacquer be used, the effect is very fine. This process is excellent in preparing brass labels stamped from thin sheets.—*Artizan.*

Joining Gas Pipes.—At a recent meeting of German engineers a new method of joining gas pipes was described, which may interest some of our readers: Instead of the usual projecting end, the pipes have creases or channels around them. When placed in contact, end to end, a strip of soft lead is bound about them, and pressed tightly against the pipes by a wrought iron ring. The advantages claimed are that the pipes are lighter and more easily cast; less lead is required to make the joint tight; no heat is required for applying it; it is quickly done; and especially that the joint is somewhat elastic, and will last longer in soft ground, or when heavily loaded.

Vulcanized rubber coated iron tubes are now manufactured in Philadelphia, which will bear over 300 degrees heat, the rubber being prepared at 400 degrees Fahrenheit. The pipes can therefore be used for either hot or cold water. Gas and water are said to have no effect on them, and the coating resists sulphuric and muriatic acids and caustic potash solution.

Transferring Pictures to Glass.—Coat the glass with a varnish of balsam of fir in turpentine, then press the engraving on smoothly and evenly, being careful to remove all air bubbles. Let it stand for 24 hours, then dampen the back sufficiently to allow the paper to be rubbed off by the forefinger, rubbing it till a mere film is left on the glass, then varnish again.

Two recipes are given in the *Scientific American* for removing tallow and white lead which have been applied to polished parts of machinery to prevent rust: 1. Use turpentine, and rub it in well. 2. Try a concentrated solution of caustic potash, scrubbing with an old scrubbing brush.

To Cut Glass Jars.—Fill the jar with lard oil to where you want to cut the jar; then heat an iron rod or bar to red heat, immerse in the oil; the unequal expansion will check the jar all round at the surface of the oil, and you can lift off the top part.

To remove tattoo marks from the skin, blister the part with a plaster a little larger than the mark; then keep the place open for a week with an ointment; finally, dress it to get well. As the new skin grows the tattoo marks will disappear.

Wood can be ornamented by punching down carefully in patterns, planing off a little, and then wetting; the parts punched down show in relief above the planed surface and make quite a puzzle.

Good Health.

The Human Frame.

No 4.—The Stomach.

This important organ is a muscular sack, formed by a dilatation of the alimentary canal. In shape, it somewhat resembles a curved section of a cone; in size, it varies from eight to 12 inches in width, and from three to four in its greatest diameter. It is usually estimated to contain about one quart when in a perfectly normal condition; but so universally are excesses committed in eating and drinking, that, in scores of observations, we do not remember to have seen a single one that had not been dilated beyond this capacity. Its situation varies considerably, according as it is distended with food, or otherwise; its proper position is just below the last organ described—the liver. It is of a purely carniverous type; being intended only for the dissolving or chymifaction of the food which has been finely triturated by the teeth. It furnishes by far the most important of the five solvents concerned in digestion—the gastric juice. It actually digests, or reduces to chyme, all the elements of the food except the non-nitrogenous and hydro-carbons, or sugar, starch and oil. Of these, sugar and starch are digested by the duodenal juices; oils, by the pancreatic fluid.

Of its physiological functions we know much; the celebrated Martin case, wherein a permanent fistula or opening, followed a terrible gun-shot wound, having afforded wonderful facilities for studying its functions, and given a great impetus to the investigation of all the details of alimentation. Many important facts have been thus obtained; some physiologists even going so far as to lay down laws for the exact time in which any given article of food would be digested, and, consequently, classifying all such as wholesome or unwholesome according as they seemed to resist the action of the digestive powers of the stomach, or otherwise. By such rules pigs' feet and tripe were laid down as being digested in an hour; trout, in one and a half hours; milk, in two hours; roast beef, in three; and so on, until the climax was reached with roast pork and boiled cabbage, which, they said, required five and one-half hours for their proper digestion. But, from close observation, it is our belief that stomachs have as many whims and idiosyncrasies as have their masters, and that which is easily digested by one is "poison" to another. Hence, the folly of any set of rules which prescribe just what all persons shall eat. Each person should know enough of his own temperament and physiological organization to be able to select those articles of food which are best adapted to his own individual wants.

Treated from this common sense stand-point, many of the fearfully numerous diseases of the digestive organs would cease to exist. But we go on, defying or ignoring Nature's laws; eating, in half the time required for perfect mastication, double the amount necessary for our sustenance; jumping up and going at hard brain work, immediately after each meal when we ought to take complete mental relaxation for some time, in order that our nerve forces may be properly concentrated upon the digestion of our food; drugging ourselves with stimulants, when we see our digestive powers are beginning to fail, until the inevitable result follows and we become confirmed dyspeptics. We then pounce upon the stomach as the unlucky source of all our evils, forgetting that a large percentage of our food was never intended to be digested by it; forgetting that Nature has given us organs of locomotion, demanding that they be exercised; free, pure air, requiring it to be breathed; proper hours for repose, and insisting on their being so occupied.

Indigestion may also be intestinal, and aggravated by the use of sugar or starchy substances; or it may be pancreatic, and increased by the improper use of oils; or it may be due to a torpid liver, or deficient nerve energy, and rendered doubly worse by sedentary habits. Treat your stomach as becomes a rational being; live in accordance with the laws of nature, taking due exercise, pure air, good food that is suited to your own peculiar organization, and above all, allow yourself plenty of cheerful, mirth-provoking relaxation, and it will be impossible for you to suffer from indigestion.

Exercise.—The various kinds of physical exercise are considered by Dr. Bowditch in some detail. Walking, he believes, is the best form, and most generally applicable. It exercises the body better than any other method. The most favorable time is about midday in winter and in the morning and toward evening in summer. Late in the evening is less useful because of the liability to dampness and coldness in the absence of the sun's rays. Fast running, in the opinion of the writer, is pernicious to consumptives; it produces violent motions of the heart and too rapid breathing, and consequently great tendency of blood to the lungs. As regards dancing, it is said that, at appropriate hours and for a proper length of time, nothing can be better. It promotes grace and ease of motion and positive health, if used thus properly. Horseback exercise for consumptives is excellent, and in fact a remedy for the disease at its inception. An easy pacing or galloping horse is better than a hard, square, solid trotter, as the latter is apt to cause pains in the chest and undue fatigue.

Hygienic Hints.

It is possible that the stature of all persons may be increased if the conditions of health are enforced during infancy and childhood, and until the age of puberty is reached. Exercise in the open air, and the kinds of food which produce the carbonate and phosphates, which are found in milk and in the husks of grain, are highly conducive to osseous development.

But few people attach due importance to the use of the kind of diet which contains the elements that contribute to the formation of bone.

The constituents of bone are carbonate and phosphate of lime, and one-third the weight of the bone organic matter, therefore we should freely use oatmeal, Graham flour, beans, etc. In some localities the water is impregnated with lime, owing to the under-stratum of limestone that exists there, and it contains mineral properties sufficient, if used for domestic purposes, to increase the development of bone and muscle. Children should have all the milk they can drink. If it is first diluted with water, hot or cold, the proportion should be one tablespoonful of water, or a piece of ice, in a pint of milk. Sometimes milk disagrees with the stomach and forms curds. This tendency is entirely obviated by the admixture of water.

Children are more often fed too little than too much; too often their food is not sufficiently strong or nutritious. Cakes and candies should never be given to children until they have first eaten of wholesome food; they should have all they want of every kind of farinaceous food, and should also be allowed the judicious use of all other kinds, else some part of the system may be deprived of some important element of nutrition. They should not be permitted to remain long on the wet, damp ground, although their feet may be protected with overshoes. There are many days during the year when it is better for them to play on the porches that are most exposed to the sun. Dwelling-houses should have porches on all sides, so that children can have a preference on which to play, according to the weather. If they are sick give them no food or medicines except fruits, canned or otherwise, and air as pure as that which is unconfined, though they should not be exposed in a current of air. If there is a fever lemonade should be drank freely, and iced milk if it is desired. Whatever articles of food the appetite has a longing for may be judiciously given. Very fortunate are those children who live in healthful localities and have all the milk they can drink from healthy cows that are properly fed; and they are certain to enjoy robust health and develop strong osseous frames if they exercise freely in the open air and sleep early and as long as they wish to, especially if assisted by the under-stratum of limestone found in some localities. Even if there is a predisposition to hereditary disease, these healthful influences will prove great preventives. Although the importance of food cannot be over-estimated, yet heat and light are threefold more important. More nutriment is furnished by the atmosphere than is found in any kind of food. It must be pure, or we are deprived of the vital means of life and sustenance; and the solar rays bring to our brains and bodies the very essence of life.—*Herald of Health.*

Modern Surgery.—Life is not only saved or prolonged in thousands of instances every year through the agency of modern surgical skill, but how much more tolerable and happy it has been rendered by the wonderful progress made in this branch of science. If misfortune overtakes us and we are brought under the surgeon's knife, it is only necessary to inhale the vapor of a few ounces of ether or chloroform, and we become oblivious to all suffering. Consciousness returns only to awaken joy that the duties of the surgeon are ended. Surgical instruments and appliances are marvelous examples of artistic skill and ingenious invention. What with the opthalmoscopes, stethoscopes, spectroscopes, curious mirrors, etc., the human body in most of its parts is brought quite within the field of vision, so that dark cavities and deeply-hidden organs are illuminated and forced to reveal to the eye the nature of morbid conditions. The future for scientific surgery, and also for medicine and chemistry, is full of promise. One difficulty after another will be surmounted in the years to come, and perhaps there will remain ultimately but one great physical catastrophe which cannot be overcome by human skill, and that is death.—*Boston Journal of Chemistry.*

Drinking Water and Zinc.—In a communication to the Royal Society of Edinburgh, James R. Napier called attention to the fact that zinc from galvanized iron goods dissolved very rapidly in Loch Katrine water. He exhibited water of a milky color, made so by immersing 2½ lb. of galvanized iron nails and other objects for about 30 hours. He also showed pieces of a kitchen boiler, which had been coated by the so-called galvanizing process, in which, after 12 months' use, the zinc coating had entirely disappeared, and the iron itself was greatly corroded.

Barley Water.—*The Druggist* gives the following: Take of pearl barley, two ounces; boiling water, two quarts; before adding the boiling water, let the barley be well washed. Then boil it to one-half, and strain the liquor. A little lemon juice and sugar may be added if desirable. To be taken *ad libitum* in inflammatory diseases.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, July 4, 1874.

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Removal.

July 18th, 1874, the business office of this Journal will be removed just one block east of our present location, to No. 224 Sansome Street, southeast corner of California, over the Bank of British Columbia, where we have secured large and elegant quarters. This removal is made in consequence of the sale of the building in which we are now located, to parties who will proceed immediately to demolish the present structure, and erect a new and magnificent block in its place.

Our New Volume.

In pursuance of a time honored custom in the newspaper world, we call the attention of our readers to the fact of our having conoluded a volume and, with this issue, commenced another. The MINING AND SCIENTIFIC PRESS has completed its sixteenth year, and with this number takes its first step in the seventeenth. We do not desire to call to the minds of our readers what we have accomplished in the special field in which we labor, but will let our own pages speak for themselves. We shall continue to endeavor to make the paper as interesting as possible for the class of readers among which it circulates, and gather all suitable information; preserving it in a condensed form, so as to make each issue contain a variety of matter. The editorial pages are now set "solid" as well as the "reprint" pages, so as to economise space; this arrangement, although increasing the editorial labor, gives room for much more reading matter.

We again extend the fraternal grasp to our numerous and valued exchanges. They will please accept our hearty thanks for their complimenta and general courtesy. It is our wish and intention to retain in full our list of exchanges as long as it is.

Our patrons have our sincere thanks for thei substantial support, for friendly encouragement, and for innumerable courtesies.

Quicksilver.

In a recent issue we published the following item:

"They talk about having discovered a 'ledge' of cinnabar in Camp Floyd District, Utah, which assays from 20 to 75 per cent. in quicksilver. Utah does not want California to be ahead of her in mining matters; but 75 per cent. cinnabar even beats this State, and, in fact, almost any country in the world. Perhaps, if we discount 70 per cent., the report may be true; but even that is perhaps doubtful. Utah assays are generally pretty heavy ones."

Shortly after this was published, we received a box of samples of this ore. In the box was a smaller one, in which was a clipping from the PRESS, containing the above item, a small quantity of very rich ore, and this legend on a scrap of paper: "How is this sample for 75 per cent.?" We must acknowledge to being very much surprised, for the sample sent us was the purest vermilion. We have shown it to a number of persons interested in quicksilver, and they all pronounce it to be as rich as anything they had ever seen. A few hundred tons of it would make any man's fortune. The ore sent with it was excellent, but of course not so rich as that in the smaller box. The mine from which these samples came is called the "Geyser." It is in Camp Floyd District, Utah. The owners are L. Cuddeback, B. F. Shaw, J. G. Lockridge and J. G. Hughes. Of course it is not to be supposed that the deposit is all as rich as the samples sent us; but we must acknowledge that they are exceedingly rich. The owners vouchsafe us no information as to what they are doing with the mine; but it is to be supposed that, with present high prices of quicksilver, they will not let a mine be idle that turns out such ore as it does, even if in small quantities. The composition of cinnabar is given by different authorities, in Dana's Mineralogy, as containing from 69.36 quicksilver, 11.38 sulphur, to 86.79 quicksilver and 13.67 sulphur. The lowest is that taken from the Almaden mine, in this State, and the highest that from Westphalia. When pure it is identical with the manufactured vermilion of commerce. The specimens to which we refer appear perfectly pure.

The American quicksilver mine in Lake Co., four or five miles from the Great Western, was recently purchased by George Wright, from Cross & Co., for $100,000. The new owner is putting up a 10-stamp mill to crush the cinnabar ore, which will be then worked in retorts.

Two Knox & Osborne quicksilver furnaces are now being erected in this State, both of 10 tons capacity. One is being placed on the Ida Clayton and Yellow Jacket mines, in Napa county, and the other is for the Abbott mine, Calaveras county.

Riotte & Lueckhardt are building two of these furnaces for the sulphur banks. The castings have been shipped and the furnaces are being put up.

The miners in the cinnabar district north of Sulphur creek, Colusa county, have formed a new district, to be called Valley district. J. B. Turner was elected Recorder.

St. Helena, Napa county, sent away 31,329 pounds of quicksilver during the first five months of this year.

The California quicksilver mine, Napa Co., produced last week 67 flasks—the largest production yet made from the mine.

The Mechanics' Institute Fair.

Preparations for the coming Industrial Exhibition under the auspices of the Mechanics' Institute are rapidly going forward. Work on the building continues uninterruptedly, and from all appearances we will have a fair eclipsing all former efforts in this direction. The managers are all busy in arranging the numerous details necessary for the success of the exhibition, and have plenty of work yet to do. The standing committees of the exhibition are as follows:

AUDITING—W. P. Stont, P. B. Cornwall and George Spaulding.

BUILDING—Asa R. Wells, John P. Curtis and J. H. McDonald.

CIRCULAR AND CLASSIFICATION—J. H. McDonald, J. P. Curtis and Richard Savage.

PRINTING AND ADVERTISING—Geo. Spaulding, Richard Savage and W. P. Stout.

POWER AND MACHINERY—Charles Elliott, Jas. Spier and Richard Savage.

RULES, REGULATIONS AND TICKETS—James C. Patrick, P. B. Cornwall and Asa R. Wells.

MUSIC AND DECORATION—H. L. Davis, R. B. Woodward and Charles Elliott.

PRIVILEGES—R. B. Woodward, P. B. Cornwall and Geo. Spaulding.

LOCATION—James Spier, W. P. Stout and Geo. Spaulding.

POLICE—P. B. Cornwall, H. L. Davis and Richard Savage.

The publication of the *Mechanics' Fair Daily* has been awarded to the proprietors of this journal, who will spare no expense nor trouble in getting out a first-class paper. The journal will be circulated free in the Fair building, so that it offers great advantages to advertisers.

THE Eureka and Palisade railroad commenced on the 1st inst. to transport passengers and freight to a point 20 miles east of Palisade, on the road to Eureka, making a difference of one day and a half in the delivery of freight to Eureka, Hamilton and Pioche. Twenty miles of additional track will be laid as fast as the iron arrives. Stages run in connection with the railroad now for Eureka and other towns south.

Prospects of the California Academy of Sciences.

Our local Academy of Sciences has, by the munificence of James Lick, been placed in a most prosperous condition and one which exceeds the fondest anticipations of its founders. Mr. Lick first gave the Academy a piece of land worth between $200,000 and $250,000, and by his late deed he provides for a fine building on this land and ample funds to purchase books, collections, etc., as well as to carry on the Academy on a firm, substantial basis. The building, such as Mr. Lick desires to be erected, will cost about $250,000; and altogether the sum of his gifts to this institution amounts to one million dollars. We notice, by the way, that our esteemed cotemporary, the *Scientific American*, in speaking of Mr. Lick's gifts, omits to mention that to the California Academy of Sciences, and makes another mistake also; that of stating that the balance of the $1,780,000, after providing for the observatory, monuments, asylums, etc., is given to the Pioneer Society. The whole $1,780,000 is given for these purposes and the balance of *his fortune* is given to the California Pioneer Society and the California Academy of Sciences. Accordingly the Pioneer Society will receive an equal sum with the Academy.

It is not probable that these funds will become available for several years, as the property must be disposed of, and the various sums given in this manner specified by Mr. Lick before the balance which comes to the Pioneers and the Academy will be given to them by the trustees. In the meantime the Academy has pretty comfortable quarters and a sufficient income to move along without trouble. The publications of our local Academy are well spoken of abroad, and it is acknowledged that the association has a broader field of work than similar bodies elsewhere. As Professor Morse said, at a recent meeting of the Academy, "You are the only endowed society on this coast and probably the only one on the borders of the Pacific Ocean.

Professor Morse in speaking of the earlier efforts of our Academy said: "In the East we are familiar with your publications; I wish to tell you that when the first "proceedings" came along, we were somewhat amazed, and thought that some young men were starting it, and the Society would only last a year or so. From year to year you kept on, and we saw that the papers you published showed reasonable research. We saw that you did not decay and were getting on; but we never dreamed that you would get an amount of money more than that all of our Eastern Societies put together."

He then spoke of the different Eastern Societies, their increase and their early struggles. The old Portland Society, after long struggles, got together $8,000 or $9,000, and fixed up an old building to meet in. A fire destroyed it, and we had to begin all over again. In the Museum of Comparative Anatomy, at Cambridge, we have what we may call a rich association. The State gave $100,000, the people, $75,000, and Gray gave $50,000; but the museum has an income of $15,000 only. The Peabody Institute received $140,000 from Mr. Peabody, and the building cost $40,000, so that the interest on $100,000 supports it. At the Boston Society of Natural History, in the early days, they met in a small room; then they got a larger room, but had no working funds, being supported by contributions. They worked and struggled along until they procured a few sums of money, amounting to $15,000 or $20,000, altogether. By and by the State gave it $100,000, and the land upon which the building was. The building cost $120,000, and was more ornamental than useful. More money came in after a while, until now the society is on a good basis. The old New York Lyceum of Natural History is poor now, and meets in a small room. They have no money to publish their Annuals, and have to resort to personal subscriptions to publish them.

Add all these sums together, and the sum given to the Academy of Sciences by Mr. Lick beats all the funds of the natural history societies East. The California Academy now starts with a sum equal to all. Mr. Lick has gone ahead of Peabody, as far as science is concerned, for Mr. Peabody endowed educational institutions liberally, but gave only about $300,000 to purely scientific societies. The position occupied on the globe by the California Academy is a fine one, as it is the only endowed society on the Pacific Ocean. It has plenty of money and a large area for investigation.

Professor Morse in the course of his remarks said: "Science has changed a great deal in the last ten years. Our old proceedings of societies were merely technical; now they are broader. As your President said in his last report, 'There is no money in this country for individual pursuits.' In Europe this is done, but not here. There large sums are appropriated to assist Professor Blank in his investigations. In this country our naturalists are poor. So in a society they must label and paste and do miscellaneous work, and get no time for investigation. The primary object of your Society is to furnish original investigators. Now you have ample funds to employ specialists, and you must impress upon them that they must give the results of their investigations to you. Do not let them be too practical. Do not let the bread-and-butter idea preponderate. There are other things for men to do beside eat and drink and make money."

Mint Operations.

The mint in this city is now closed for annual settlement. The coinage for the year was large, the amount in gold being $22,302,500 and in silver, $2,550,500, making a total of $24,853,000. The gold coined was 74 tons and of silver, 140 tons. The coinage of trade dollars has been enormous, but its immensity can only be appreciable to the general reader by comparison. The number of trade dollars coined was 2,121,000. Each of these pieces required precisely the same work in all the stages of its manufacture that is bestowed on a $20 gold piece. Had the same work, therefore, been bestowed on double eagles, the coinage of these pieces would have represented a value of $42,420,000, in addition to the other coinage specified. Nearly all these trade dollars have gone into the China trade. The coinage for June amounted to $2,393,000, of which $2,120,000 was in $20 pieces, and $259,000 in trade dollars, the balance being in dimes. The coinage statement is as follows:

COINAGE FOR THE YEAR—GOLD.

Double Eagles	$21,950,000
Eagles	10,000
Half-Eagles	156,000
Quarter-Eagles	87,500
	$22,302,500

SILVER.

Trade Dollars	$2,121,000
Half-Dollars	241,000
Quarter-Dollars	129,000
Dimes	59,500
	$2,550,500

RECAPITULATION.

Gold	$22,302,500
Silver	2,550,500
	$24,853,000

NUMBER OF PIECES COINED IN TWELVE MONTHS—GOLD.

Double Eagles	1,098,000
Eagles	12,000
Half-Eagles	31,000
Quarter-Eagles	27,000
	1,168,000

SILVER.

Trade Dollars	2,121,000
Half-Dollars	482,000
Quarter-Dollars	515,000
Dimes	595,000
	$3,714,000

RECAPITULATION.

Gold	1,168,000
Silver	3,714,000
Total number of pieces coined	4,882,000

AMOUNT OF GOLD AND SILVER WORKED BY THE COINER.

Gold Ingots (ounces)	2,170,113.90
Silver Ingots (ounces)	4,070,051.88
	6,240,165.78

Amount in avoirdupois—Gold, 74 tons; Silver, 140 tons.

Lower Rates of Interest.

There are many who manifest a sort of pride in referring to the high rates of interest prevailing in California; considering it as an indication of great energy; and declaring that the fact that we are paying rates of interest double those of our Eastern competitors is evidence of our superior advantages. But how is it that at this time, when the energies of all departments of trade and industry are exerted as they never were before, dividends on loaned money are particularly low? Savings banks, it is understood, will declare a lower dividend for the month just ended, than any previously offered. According to the theory of those who favor high rates of interest, the money-lender should have reaped as bountiful a harvest of real gold in June, as the farmer is reaping of the golden grain in July. But instead of this, their money went begging at six and seven per cent. throughout the month. We look upon this as the best evidence yet produced of our real prosperity at present, and of general confidence in the future. For either our producers and dealers had money of their own to carry them through, or the confidence of capitalists in California enterprise was so strong, that they preferred trusting their money in these currents, even on terms extremely advantageous to the borrower. One of these suppositions must be true, and they are alike in their healthy indications.

LANGLEY'S NEW DIRECTORY FOR 1874 gives the population of this city at 200,770; a gain since March, 1873, of 12,447, or about 7 per cent. The same authority gives the number of buildings erected during the year ending March 1, 1874, as 671, of which 53 were brick. The entire cost of these improvements is estimated at $4,250,000. The number of buildings in the city and county of San Francisco is estimated at 22,600, of which 4,200 are brick. The expense of maintaining the Municipal Government for the year ending June 30th, 1873, is $3,780,000. The bonded debt, March 1st, 1874, is $3,237,000. Actual debt, including floating, $3,503,000. Total assessed real and personal property, October 1st, 1873, was $212,207,535. The directory to which we refer, aside from its usefulness as a means of reference, is interesting in many other particulars, as the carefully compiled notes and figures give the best possible idea of the growth of our flourishing city.

A VEIN of extraordinary richness was struck a few days ago in the mines of the English company in Holcomb valley.

Blatchly's Compound Engine and Boiler.

The first attempt at using steam successively in two cylinders appears to have been made by Horublower, about 1781; but the low pressure at which steam was then used caused it to be a failure. Latterly it was revived by Woolf with higher pressure and better success; but it is only in the last few years that compound engines have occupied a conspicuous place in mechanics.

In a work published this year, Mallet, after comparing the indicator diagrams taken from a single cylinder engine and a double one, says: "It is seen that the final pressure is exactly the same in the two systems, except that there is a defect of area of work in Woolf's engine, corresponding to the loss due to dead space. Calculating the area of this portion, we find the loss due to the use of the two cylinders to be nearly 15 per cent. The majority of authorities rest here, and take this result as a text for condemning the compound engine—at least in principle." Still, it has steadily worked its way into favor, until at the present time the largest and best ocean steamers are provided with compound engines.

The first thing that attracts attention in the ordinary compound engine, is the great back pressure in the first, or high-pressure cylinder. This, however, entails no loss except friction, as the back pressure on the small piston is exactly equal to the front pressure on the large one; and as the small piston advances, it increases the pressure on the large one in perfect ratio with the resistance which it encounters, occasioned by the steam only.

In the Blatchly engine, herewith illustrated, it is proposed to unite several cylinders of different sizes endwise, one opening into another, the largest being in the center, the others decreasing in size each way to the end ones, which are the smallest. Each cylinder is provided with a piston, which is packed with steam packing, and so arranged that, in all of the cylinders except the two smallest, the steam expands the rings before it enters behind the pistons. The steam is first admitted into one of the smallest cylinders, and forces its piston along it and into the piston in the next largest cylinder, when the two pistons are locked together, forming the piston for this larger cylinder. The steam then enters behind this compound piston and forces it along this cylinder and into the piston in the next larger cylinder, where the pistons are locked together as before, and proceed to the end of the stroke, which is at the further end of the largest cylinder. The piston in this cylinder is the only one that receives steam on both sides alternately—that is, double acting.

For the return stroke the steam is admitted into the other small cylinder, and the operation is the same as for the forward stroke. The steam is cut off at the end of the small cylinders, and works in the others expansively. Each stroke arranges the pistons in the other cylinders for the next stroke.

Our engraving represents a longitudinal section of one large cylinder, *A*, with two smaller ones, *B* and *C*, joined to each end. The large cylinder is divided to facilitate opening and for ease of construction. If a greater number of cylinders were employed, they would all be cast together except this division at the middle of the largest cylinder. *a*, *b* and *c* are the pistons, *a* and *c* being joined together by the bars, *dd*; *e* is the piston rod; *I*, the crosshead; *hh* is a sleeve working over the piston rod, *e*, and joined to the piston, *b*.

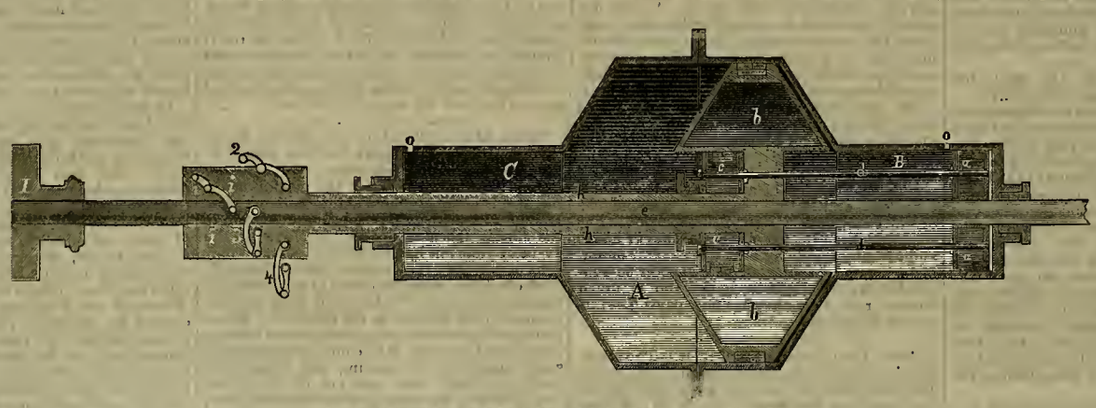
This sleeve, joined to the slider, *i i*, which is connected to the piston-rod, *e*, by pairs of jointed rods, 1, 2, 3 and 4; *oo*, are the ports for the admission of steam.

Steam is admitted behind the piston, *a*, which forces it along the cylinder, *B*; the rods, *d d*, also force the piston, *c*, towards the cylinder, *C*. At the same time, a rod, not shown in the engraving, moved by an eccentric, bends the jointed rod, 1, and the rod, 3, begins to expand. This continues until the piston, *a*, enters into the piston, *b*, and the jointed rods, 1, are closed up, and 3 forced fully open by a rod worked by an eccentric locking the pistons, *a* and *b*, firmly together, and at the same time bending the rod, 2, which moves the piston, *b*; steam entering at the same time drives the pistons, *a* and *b*, to the other end of the cylinder, *A*, which completes the stroke, the piston, *c*, being moved to the further end of the cylinder, *C*, which, in its turn, is ready to receive steam for the return stroke, which is effected in the same manner from the cylinder, *C*, as it was from *B*. It will be seen that the "dead spaces" in this engine are no greater than in the single cylinder engine.

This represents the simplest form of the engine, but the expansion may be continued as far as desired by additional cylinders.

The steam is cut off at the ends of the small cylinders and expands into the others, the sizes of which can be predetermined to give a uniform power throughout the whole length of the stroke, or to increase it at any point, as may be desired. The arrangement allows any desired extent of expansion, with the length of stroke under perfect control. By making the series of small cylinders at each end of the large one of different sizes, steam of different pressures can be used in this engine, the size of the cylinder at each end being in inverse ratio to the pressure of the steam. It is held by many engineers that high steam is more economical than low; but, as it is a mooted point, probably there is not much difference within ordinary pressures. It is however certain that if the flues or tubes in a boiler carrying 150 pounds pressure, are prolonged so that the temperature of the gases from the furnace, passing through them falls below 358°, they cool instead of heating the steam; but if these gases passed through the tubes of a boiler, carrying 35 pounds pressure, they would generate steam until they parted with 100° of heat, and all of the steam in the low pressure boiler would be clear gain over the production of the high pressure boiler. A boiler might be constructed on this plan and both pressures could be utilized in the Blatchly engine, or in the ordinary compound engine, but not in the single cylinder. And there is no doubt that the compound boiler will be as great a success as the compound engine.

Parties desiring further information, or an interest in this invention, should address Dr. A. Bletchly, of this city.



BLATCHLY'S COMPOUND ENGINE AND BOILER.

Work done by the Burleigh Drill.

A short time since we made a statement of the number of Burleigh drills and air compressors on this coast, and the mines in which they were employed. At that time we mentioned those of the Idaho mine of Grass valley. There are four drills at this mine and another will soon be ordered, for shaft sinking. Only two of the drills have been at work so far and the Grass Valley *Union* gives us some information about the work they are accomplishing. The average time of drilling in the Idaho quartz is five feet of hole in each hour, the hole being two inches in diameter. In hand drilling the average is for three men to put in six feet of hole during a shift of eight hours. It will be seen, at once, that while three men are drilling six feet of hole, with hand drills and hammers, three men with a Burleigh machine will drill forty feet of hole.

As an item of interest to the mining community we give below a letter from Gold Run, giving details of the work done by the drills in the Gold Run company's property. R. H. Brown, Secretary of the Gold Run Ditch and Mining company, writes under date of June 5th, 1874, to Parke and Lacy, Agents of the Burleigh drill in this city, as follows:

In reply will say we ran two of the Burleigh drills in our tunnel, which is 8 x 8, 24 days during the month of May, and made 126½ ft. of tunnel, through hard rock, at an expense as follows:

XX Hercules Powder	$1064 43
Fuse and Caps	15 00
Piping Air and Water	129 25
Wood for Boiler	175 00
Coal	16 38
Steel and Iron	60 00
Oil for Lights and Machinery	76 00
Lumber Tracking	25 00
Labor	1400 00
	$2,953 06

The first week in June we made 31 feet of tunnel; the second week struck the most difficult rock to drill we have ever had. However, we made 26 feet of tunnel last week. We count on making 100 feet a month sure and I believe we will average 125 feet until the branch is completed. We are running our rock out by hand. By using mule or steam power I think the expense could have been reduced materially this month. We have worked the car men eight hours and have not been delayed with rocks in the way of the drillers.

NEGOTIATIONS are pending between the Leopard company, at Cornucopia district, Nev., and some Chicago capitalists for the erection of a first-class 16-stamp mill, to be erected for a portion of the claim. If, however, there is no conclusion reached by the parties in question, looking to an early erection of a mill, the company will themselves build one during the summer.

Aaron's Amalgamation Process.

[Written for the MINING AND SCIENTIFIC PRESS by the Inventor.]

No. 1.—Preliminary.

In describing this process I will be as brief as is consistent with clearness, but will beg permission to make a few pertinent remarks before going to work.

The process was invented by me in 1867, while in the employ of the Silver Sprout Company, in Inyo county. That company failed to derive any benefit from it, simply because, rejecting the evidence not only of their ears, but of their eyes also, they refused to have anything to do with it.

I was led to the invention by considering the reactions of the patio, the mother of all silver amalgamation. However, I afterwards ascertained that its chemistry was similar to that of the Mexican process, called in some places "fondo;" in others, "caso y cocimiento." In a pamphlet published some years ago, I stated that the essential principle of the process was old—referring to the chemical reactions—but it will be seen that the *modus operandi* differs greatly from that of Alonzo Berba, who invented the fondo, as now practiced in Mexico, in 1590; of which process the late Professor Rowlandson said, in his articles on the Frieberg process: "It (the fondo) is not likely to be much used in any country where civilization has made much progress," so utterly unfit is it for our times and places.

The process under consideration was never used or known—at least in this country—till I introduced it, and worked successfully ores which not only ignorant people, but assayers and metallurgists, pronounced to be "very rebellious," and to absolutely demand roasting; and the results are so good as, even now, after over four years' working, to tax the credulity of scientific operators.

If I seem, in some points, to differ in opinion from some wiser persons, it must be remembered that circumstances alter cases, and the dictum of any authority, no matter how eminent, must be considered with regard to the conditions under which it was pronounced. It is not possible in metallurgy to lay down fixed rules where conditions so vary. Rules are necessary for novices, but in the life of every intelligent operator there comes a time when experience and judgment take their place and authority cases to be paramount.

The books tell us that an ore to be roasted with salt, must yield thirty per cent. of regulus when assayed for sulphurets; yet, we know that many ores which will not do so can be well chloridized, notwithstanding. A Mexican amalgamator puts in his mercury even when working a Wheeler pan, little by little, so as to keep always a very thick amalgam, while a Frieberg man insist on five hundred pounds with a thousand pounds of ore. The former gets his idea from the patio, in which there is a reason for it; the letter from the usual Frieberg practice, as described in books. There are, however, cases and places for both methods, and for a medium course. So, also, in regard to the consistency of pulp, which is made thick in the patio, to prevent the mercury from going to the bottom, and staying there; and in the Frieberg barrel chiefly for the reason that otherwise the scrap iron would wear out the wooden staves. I have reason to know, however, from repeated experiment, that it is not necessary to work a thick pulp in pans or barrels, especially when, in barrels, copper instead of iron is used for reduction; as in that case every piece of copper becomes coated with quicksilver, and reduction takes place in contact with the latter, so that amalgamation is simultaneous with it. Certainly, the wear of barrels is greater with this pulp, and the solution of salt, etc., is more dilute, but with lined barrels the wear is a small matter, and the saving in power is sometimes a great one; also a thin pulp circulates more perfectly.

Again, in regard to settlers, the general practice is to have a wide, shallow vessel, with very slow motion of the muller or stirrer, which is fitted with teeth like those of a harrow, or with plowshares and cultivators, the result being that sand and quicksilver go to the bottom, where the unhappy mercury is not allowed to remain in peace, but is harrowed, and vexed, and scratched up with the sand by the plows and cultivators, where any coarse metter is difficult to get rid of, without losing quicksilver. An experienced mill man in San Francisco was horrified to hear that any separator, six feet in diameter, made over twenty revolutions per minute; yet, a better one I have never seen, and it throws coarse sand out at eighteen inches from the bottom, while rocks, or pieces of copper, etc., as large as walnuts, simply get out of the way, and wait till it is convenient to remove them.

Now for business. It is a common saying among the Mexicans that "mercury has no teeth," and although, for roasting, a rather coarse pulp may sometimes answer best, yet for amalgamating, especially in raw working, the ore cannot be too fine. There is, however, a great difference in ores in this respect. Samples from the Comstock vein yielded readily 90 per cent. of the silver, and 80 per cent. of the gold, without very fine crushing, while the Blind Springs ore requires to be passed through at least a 60-mesh screen to give first-rate results.

It is immaterial whether the ore be crushed wet or dry, but, in wet crushing, the slime must be carefully saved; I have always found it as rich as the ore it came from. I think, when the ore does not contain too much clay, filter vats should be used instead of the usual settling tanks; the retention of the slime with the sand would not only prevent loss, but would also greatly facilitate handling.

I have not yet tried Penl's pulverising barrel, but it would appear that no machine could be better adapted to preparing ore for this process, using screens of 80 or 100 meshes to the lineal inch. An arrastra does very well, but, though it grinds very fast when first charged; yet in working big charges, if fine work is to be done, it becomes slow and tedious; and, if there is much clay in the ore, it is impracticable to get all fine, as the pulp must be kept thick enough to work in the barrel, unless indeed large vats are provided for settling, and then the slime from some ores will hardly settle in a week. This machine will work very well without water, but I have not found a satisfactory way to get the dry pulp out.

An arrastra, however, can be made to work continuously, like a battery, not by floating—at least I have not succeeded in that way—but by placing a sufficiently firm screen around a part of its circumference. The screen must not extend quite to the bottom, and the supply of ore and water must be so regulated that, while the pulp is thin enough to pass through the screen, it is also thick enough to prevent the sand from packing. I commend this plan to the attention of parties working gold rock; it will of course be requisite to use amalgamated plates, etc., the same as with a battery, when working for gold.

The bottom of an arrastra should be formed of thin pieces of rock, set vertically, and where only grinding of silver ore, and not amalgamating, as with gold, is required, no tamping with clay or other special care is needed. It should be, however, tolerably level, and the pavement should not extend all over the bottom; but a space about six inches wide should be left around the side and center post, which must be filled with beaten clay. Without this precaution the grinding surface cannot be kept level. The drags should be as heavy as the power will allow, and so hung that the front edges will be raised a little, otherwise they will not run smoothly.

I give these particulars because, though not likely to be used in large operations, the arrastra is a better machine than is generally supposed, and may be used with advantage by persons of small means, being cheap to construct and requiring less attention than a battery.

If convenient, a pen may be used to reduce the pulp to the requisite fineness, though the amalgamation can not be done in it for chemical reasons. With poor ores free from copper carbonate, and therefore requiring limestone, the iron ground off the shoes and dies would be objectionable on account of consuming bluestone and making poor bullion.

OAKLAND BAR.—The city of Oakland has expended at one time and another about $30,000 to deepen the water on the San Antonio bar. The Congressional appropriation of $100,000 will only be sufficient to put in training walls to keep the channels from filling up. This being done, it is expected that further appropriations will be made, so that in the end from a quarter to half a million will be expended for the improvement. When the channel across the bar carries a depth of six feet at the lowest tides, it is expected that a line of ferry-boats will be put on the creek route. At present, both the Ball and "Clam-shell" dredgers are at work on the bar, and in a few weeks more it is expected that the channel will be deepened to the required depth.

Pioche Mines.

We take the following items from the Pioche *Record* of June 21st; Though there has nothing striking occurred during the past week, we think we will be justified in stating that the feeling is more cheerful, and more confidence ie expressed in the future. Looking over the returne of the export of hullion from this place, we find that for the five months ending the 31st of May, it amounts to several thoussnds over one million dollare. This, considering the unexsmpled depression of the mining interest of Pioche during the eame period, certainly cannot be said to be a bad showing. It should also he recolleoted that the two great mining enterprises of this region—the Raymond & Ely and Mesdow Valley—are self-sustaining, if nothing more. In both mines an immense amount of proepecting and desd work is being done, yet the shsreholders are not being called npon for aseessments. In fsct, it can he said for the Raymond & Ely, what it is doubtful can he affirmed correotly of any other company, the shares of which are quoted on the Stock Bosrds, thst ite shareholders have never yet been asked for a dollar in the shape of assesements. Though it seems to be tbe fsshion in San Francisco and other places to give the mines of Pioche "a black eye," we feel very certain that eo soon as the region below the water level in the Rsymond & Ely and Meadow Valley ie explored, tbe yield of the Pioche mines will be greater than ever, and that a lssting period of permanent prosperity will commence. In this counection we are glad to learn that the Raymond and Ely Co. has commenced preparing the necessary pumping machinery to free the mine from water. From the greet depth of the ehaft—1,200 feet—the machinery will have to be very msssive snd costly, but while the enormous msss of tailinge collected at the mills psy in tbe mauner they do, it will be very unlikely that the expensee of purchasing and putting the requisite pumping gear in plsce will not he taken out ss fsst as they are incurred.

The export of bullion for the week, per Wells, Fargo & Co., amounts to $41,412.70.

Yesterday, when we were at the Raymond & Ely, we leerned that no ore whatever had been taken oot or raised during the past week. The only operations that ars heing actively prosecuted are opening the eastern branch of the 1,200-foot level, and continuing the oross-cut through the cross-head on the western side. The first is in 75 feet, and the latter 49 feet from the point where the vein was first intersected. The face of the eastern drift has not changed since our lsst report, and shows no ore. The western drift, of course, does not exhibit any, as at present it is running through the cross-head. Tbe Magnet company continues to raise oonsiderable ore, eay from 20 to 25 tons daily. The grade, though still somewhat low, ie slightly improving, and is also yielding the metal a little more freely.

At tbe Meadow Valley Company's shaft, No. 3, we found that the western drift of the lower level was in a length of 82 feet from the point where the vein was cut. The face has improved considerably since this drift was commenced, and now ehows some low grade ore, and is very promising in its appearance. The eastern drift of this level is 44 feet in length, and is progressing through a break or fault. On the lowest level but one, No. 11, the eastern drift ie 235 ft. in lengtb. The face shows many emall etreake of ore, and looks as if it might ehortly make into a solid ore body. On the western side of this level a winze has been sunk about 150 feet from the shaft. It ie now 114 feet in depth, and showe a strong vein, bot little or no ore. On tbe ninth, the eastern drift has reached a total length of 860 feet, 15 feet beyond the junction with tbe crosscut from the Summit shaft. The fsoe ie the same as usual. On the western aide of this drift and above it, stoping ie going on as heretofore. The quality of the ore taken ont is abont the eame. If there ie any difference, it is a trifle lower grade. Four hundred feet from the shaft on the eastern eide of this level a winze has been sunk to the depth of 117 feet, and the bottom looks well. Altogether the appearances in this portion of the Meadow Valley ground certainly look much more cheering tban they have for some time, and afford some reasonable ground for expecting a brighter future.

Mexioan Mines.—A report from Jilila, in the State of San Lnis Potosi, mentions that the eaid valley may be considered the richest in all Mexico, offering all the produce of the three Mexican zones, from the hottest to the coldest; while it freezee at five leagues north, tropical fruits are gathered at Portla, a forest, only three miles off, where coffee trees are found which yield from 20 to 30 pounde per tree; and the mines of eaid district are so rich that a certain ore (containing silver and platinum) is worth two dollare per pound by the assays made at Pachuca. Five hundred men are at work now to build a road from there to Queretaro. At Sain, a quioksilver mine hae been discovered, of such richness that it is eaid to beat the Spanish Almaden. This would be a veritable God-send for Mexico. In the district of Cosala, State of Sinaloa, a mine of bismuth has been discovered, similar to the bismuth of areenic found in other countries, and rather scarce.

In a French industrial establishment employing 630 men, chiefly vegetarians, the introduction of animal food eaved twelve days' work a year per man, which had previouely been lost through illness or fatigue.

The Livermore Coal Mine.

In our ieeue lsst week we gave eome interesting points in regard to the H. A. mine, located near Haywood, in this connty. We now furnieh our readers with the following fscts in regard to the Livermore coal nine, which is located about seven miles south east from this place, through the kindnees of W. W. Winn, Esq., President of the oompany.

In 1869 Mr. Thomas Harris and Mr. Jenkins Richard, both gentlemen being experienced coal miners on this cosst and in Englsnd, concluded that the indications for coal in Corral hollow were very flattering, and accordingly eank a shaft about 60 feet, in a promising location, and struck a fine vein of coal eix feet in thioknese. But owing to their capital being limited, they could not proceed witb the develonment of tbe mine, and accordingly eold it to a company of gentlemen in Stockton. About the same time two other veins were discovered in the eame neighborhood, one of which is known as the O'Brien mine, and the otber ae the Commercial. The O'Brien had a vein of cosl nine feet in thioknese and of excellent quality, and the Commercial one of eight feet in thickness. The vein struck by Harris and Richsrde and these two were parallel with each other, and ran nearly esst and west, with a dip to the north of ahout 45 degrees. The dietance between the three veins was about 300 feet.

The two gentlemen above named having become familliar with the direction and surface formations here followed the oouree of the vein weetward nntil they reached the sonthseetern border of the Livermore valley, where they located 160 acres of land, npon which tbey discovered fine croppinge, but owing to the unsettled titles nothing was done towards developing the mine until a ehort time since, wben they procured title to the land, and now an organized company have taken hold and are actively pushing the work ahead. A shaft has already been sunk to a considerable depth, and a fine body of coal found. From tests already made this coal ranks high, and the company anticipate taking out eufficient to supply a considerable market hy the first of September next.

We have not made a personal visit to thie mine, but are perfectly satisfied thst from the energetio character of the managere and the general description given, we shall have a coal mine opened here that will not be excelled hy any in the State. The approach to the mine ie a fine one, and Nature hae supplied abundance of water and timber in the neighborhood. Tbe company intend to put on a donble set of hands and run night and day next week. Our mannfacturing and machine ehops will soon be supplied with coal right at home and at much cheaper rates than they are now paying.—*Livermore Enterprise.*

Santa Rosa Branch N. P. R. R.—The stockholders of the Santa Rosa Branch North Pacific Railroad Company met last week and elected the following Directors: W. S. M. Wright, George A. Tupper and A. T. Farmer of Ssnta Rosa, and John F. Keseing and L. B. Latimer. The Directore eleoted the following officere for the first year: John F. Kessing, President; W. S. M. Wright, Vice-Preeident; E. T. Farmer, Treasurer; W. W. Morrow, Secretary, and L. B. Latimer, Attorney. The Treasurer was autborized to open books for the subscription to stock at Santa Rosa. The survey of tbe road will be commenced immediately. This rosd will be from 12 to 15 miles in length, and connect with the North Paoific Coast Railroad, either at Freestone or Valley Ford. The President and Attorney were authorized to confer with the Directors of the North Pacific Coaet Railrosd Company, and arrange in regard to connectione, passage and freigbts and other matters relating to the connecting linee. The Directors expect to have this road completed by the time tbe main line is finisbed from Ssucelito to the point of connection.

Cassiar Mines. — The Portland, Oregon, *Bulletin*, of the 22d ult., furnishes us with the following, relative to the Cassiar mines:

"The news from the Caseiar mines is to tbe effect tbat the greater part of the auriferous region has been over-run with high water, and it is thought that active work will commence about the first of July. There were about 900 men in the mines on the fourth of June, and the majority of these were waiting for the flood to subside before going out prospecting. The mines on Dease creek that were being worked were turning out very well. Before the freshet came on, three men on the creek are reported to have taken out 174 ounces in four days.

A private letter received in this city states that the place is a terrible one, and that the population are feeling the extremes of heat and cold in each 24 hours. Several parties have been taken down with lung fever in consequence of these changes, among them A. J. Knott, of this city, who narrowly escaped with hie life. Tbe camp is represented as being a fraud, and that but few of those in the district are making expenses. The writer was working at $10 per day, and we doubt not will soon start for home."

The Yakima Mines.—Henry Cook, Esq., who returned to the city on Thnrsday from a visit to the Yakima country, informs us that the miners have all left Swauk creek and have croseed over to tbe Yakima river, where they found good prospects, but owing to high water have been unable to perform any considerable amount of work. There are 75 men on the river waiting anxiouely for the water to reeede.—*Walla Walla Statesman.*

Indian Creek Gravel Mines.

The Trinity county *Journal* ssys: We visited this mining camp on the 20th inst., but found little of interest to report. There are ahout 100 men—including Chinese—mining in that eection, and all are doing well.

The gravel mines of Indian oreek and vicinity are among the richest in the county, and about the hardeet to work. The creek bars, to whioh the mining is confined, lie on a level, and, in some instancee below the bottom of the creek, and are exceedingly rocky. Worked nnder attending disadvsntages, they all pay largely, the yield to the ton or cuhio yard of earth prohably averaging larger than in any other dietrict in this county. In fact, it is an absolute necessity that the gold must he plenty, or the slow manner in which the low bars have to be worked would not pay expenses, let alone affording the handeome profits to owners which they do. On either side of Indian creek are large beds of grsvel, several hundred feet above the jstream, in which no work and hut little prospecting hss heen done, there being no ditch high enough to cover them. So fas as ascertained, there are not as msny nor as large rocke in the high deposits as in those below, but tbe extent and richnees of the gravel forming the upper benches has yet to be found out.

"Quartz on the hrain" wss the prevailing malsdy when we were there. In the mountains, several miles eoutheast of the town, pockets of rich float qnartz are found, and mnoh time hae been spent hnnting for the ledge. On Saturday lsst, Siegfried and party returned from a prospecting trip and reported having discovered the lode. They bronght with them sbout 50 pounds of thie rock, in much of which free gold could be seen. Four pounde of this rock, crushed in a mortar and panned out, yielded 50 cente, or at the rate of two hundred and fifty dollars per ton. A day or two later Stoddard, Bowie and otbers found a ledge about three quarters of a mile from the point discovered by Siegfried. The quartz ie eimilar in character, and it ie prohable that both partiee have found the same ledge, tbough at different points. Men will be put to work at once to discover the extent of tbe lode.

Emma Mine.—The London *Mining World* saye: The following report hae been issued hy the nndermentioned gentlemen, and is ae follows: "For a full report of tbe general meeting of thie company, held at the Csnnon Street Hotel on the 15th of May, we must refer you to the *Mining World* of the 16th of May. In tbe event of your not having been present, we may inform yon that the meeting was principally controlled by certain members of the Stock Exchange, a msjority of whom had only recently acquired their intereet in the compsny. These gentlemen, professing opinions opposed to thoee entertained by your late committee of conference, succeeded in electing one member ae their nominee on the board of direction, and in adjourning the meeting until the 9th of June, for the purpose, amongst other msttere, of electing another director. For reasone which are apparent, it is to be regretted that the articles of aesooiation grant to all shareholders power to vote—without reference to the period of holding their shares. We therefore desire your assietance towards arreeting any undue exercise of such power by the gentlemen referred to, and in vindicating the right of such sbareholders who have had a more permanent interest in the company to their legitimate voice in controlling its affairs. The 'independent management' which tbese gentlemen desire, can only, in the present state of the company's affairs, result in fresh compliostion, and possibly further disasters.—Msjor-Gen. R. B. McCrea, J. Wood."

The Use of Paper.—Accordiog to a recently published etatement, it appears tbst there are 3,960 paper manufacturers in the world, employing 80,000 meu and 180,000 women, besides 100,000 employed iu the rag trade; 1,800 millions of pounde of paper are produced aunnally; one-half is used in printing, a eixth for writing, and the remainder for packing and other purposes. The United Statee, with 3,000 machines, produce yearly 200,000 tons of paper, which, for a population of 48,000,000 averages 17 lbs. per head; an Englishman only consumee 11¼ lbs.; a German, 8 lbs.; a Frenchman, 7 lbs.; an Italian, 3½ lbs.; a Spaniard, 1¾ lbs.; and a Russian only 1 lb. aunually, on an average.

Lung Power.—Dr. W. H. Stone, who has been studying the pressnre on the lungs during performance on wind instruments, has ascertained that the extreme hight of a column of water supported by the muscular act of expiration transmitted by the lipe is about 6 ft. He also desired to discover what was the actual pressure corresponding to tbe full production of a note on each of the principal wind instruments. It was found that with the majority of wind instruments the pressure required by the high notes ie considerably greater than that reqnired for the low notes, each instrnment having a pressure-ratio of its own. The clarionet is an exception to the rule.

The Terrible company commenced operations with one end of their new concentrating works this week, which has a capacity of 20 to 25 tone per day. It ie expected the remainder of the worke will be in readinees for operation next week. As soon as these works are in complete rnuning order, it is probable that they will be operated day and night, and the amount of ore added to the ehipping liete will be very great.—*Colorado Miner, June 20th.*

Alpine County Mines.

Why Mining did not pay in Alpine.

No carefully observant eilver miner who examines it can fail to be impressed with the belief that Alpine ie one of the most exteneive eilver mining districts of either California or Nevada. Nor can he fail to wonder how it has hitherto failed to attract the attention of intelligent miners and mining capitalists. But should he be accurately informed of the history of mining operatione here he would probshly cease to wonder at anything. However, we cannot accurately give tbe information as to the history, because we don't know. But possibly, like many other promising and rich districts, it was killed in its infancy by ignorance and stupidity, or else by bad, foolieh and dishonest mansgement. One fact, however, ie nndieputed—that it started off well, but early ceased to he a bullion producing region, and the minere left for the many other new fields of excitement then attracting the attention of miners all over the country, from the failing or exhausted gold placers of California to the new and rising silvor minee of Nevada.

An examination of tbe high mountains sonth and eset of Monitor reveals the fact thet st an early day the country was run over snd slightly prospected by gold miners from the western slope of the Sierrss, and it ie evident that these early prospectors or explorere knew little if anything about silver mining. This early proepecting was all done ae far hack ae '61 or '62, and notwithstanding the many fine looking and perfectly formed quartz ledges, bearing silver, and some aseaying very highly, not a liok of work bas been done since. In fact, for more tban a dozen years this whole region hae been totally neglected by minere. Trne, the country is rough and insocessible, hut not more eo thsn most otber rich mining regions. The same as the above is eaid to be true of much of tbe country and many ledges in the neighborhood of Silver mountain. So it eeems the first attempt at prospecting the country was abandoned without even an effort being made to prove the value of the ledgee eituated on the higher and more inaccessible mountsins.

In 1864–5 many claime on Monitor creek and near Carson river fell into the hande of, or were controlled hy a lot of Eastern men, of whom the most charitable thing that osn be said is that they knew very little aud cared mnch lees about the real value of the minee. Companies were formed, high-sounding ciroulore, adorned with charte and maps and plane of mines and mills and tunnels and wagon losds of eilver bricks, were gorgeously printed and scattered all over the Eastern States, and stock sold from New York to tbe furtheet bounde of Wisconsin and Michigan. Even Johnny Bull opened his plethoric pnrse and with golden guineas tickled the palm of hie sharp-noeed cousin Jonathan by taking etook in Alpine. Experts and profeesors who didn't know a quartz rock from a briokbat were eent out to examine and report upon the mine, and lef badly frightened at the story about a grizzly or at sight of the yawning chaem of a hole in the ground. Clairvoyants and spiritnal medinme were consulted, mille were built, tunnels run at rsndom and in all possible directione, reeulting of course in loes and failure to all save the wily projeotore of enterprises at once grand and magnificent.

Besides all this, numerous home companiee were duly organized and incorpotated, snd stock iesued and sold by the busbel—and all on claims located on the banks of Monitor creek, within a spsce of about one mile, and of eaey access, being directly on the publio highway or main street within the corporate limits of the town of Monitor! Tbese maguifioent locations were assumed to be the only olsime in Alpine county; all others were eeverely if not politely ignored. A few men claimed everything, and assumed to rule everything. Tbey made money at the expense of foreigu viotims, but failed to attract an influx of real enterprising working miners, without which no distriot ever did or ever will succeed. So of oonrse mining here hss hitherto proved to be a total and disastrous failure, and tbe district died—was killed as dead ae a mackerel, and no roee blooms over its untimely grave. Foreaken and abandoned by those who ought to have been its fostering guardians, the qnestion now is, can the district be galvanized into a new and more healthy life? The mountains are teeming with ledges of rich ore, unworked, unclaimed and unprospected, awaiting tbe pick and drill of the faithful miner to unlock and open nature's rich storehouse of wealth.—*Alpine Miner.*

The Lida mill, which haa recently come into possession of General A. L. Page, will be started up some time next month, heing now in complete running order, and only waiting the arrival of quicksilver and some other necessary eupplies. At the "Frenchman's mine," there are about 200 tons of ore on tbe dump which will work an average of $150 per ton, and a large amount of first-claes ore is being ehipped to Columbns, which works $400 per ton and upwards.—*Reese River Reveille.*

Battle Mountain.—The bullion mines are looking up. C. W. Fraser has juet received encouraging reports from the Lone Star mine, in which he is interested. At the depth of 20 feet in the shaft they have eight inches of pay ore, yielding at the rate of $198 to the ton. The "pay streak" as it is called is widening—so that the promise for a heavy mine is good. Bullion bids fair to justify the title given it, before tbe aummer is out.—*Measure for Measure.*

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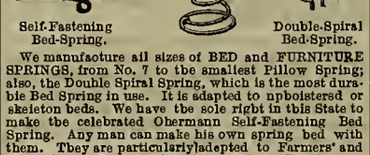

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ATTORNEY AT LAW,

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NEVADA COUNTY MINES.—The present will be a prosperone year for Nevada county. Many new mines have been opened, and some of the old ones have been extended or more extensively opened, and the gold yield is much greater than for many yeare. Up to the end of this month the ehipmente exoeed those of last year, for the same length of time, over four hnndred thousand dollars. The present month exceede those of the same month last year over $70,000.

PURCHASE OF MINING PROPERTY.—General A. L. Page, of Oakland, has purchased the entire property of the Lida Mill and Mining Company, eitnated in Lida valley, near the boundary line between Esmeralda and Nye counties, in Nevada. The property conoists mainly of a ten-stamp mill, eight mining locations, incldng the town site of Lida City, together with a large amount of chattels.

A RUMOR DENIED.—Prominent railway offioials aeoert that there is no truth in the rumor that Charles Crocker is to supereede Governor Stanford in the Presidency of the Central Pacific railway. They eay that there has been no thonght of ench a change.

W. KENNEDY, while sinking a well for the new hotel, in East Napa, on the 26th nlt., discovered a stratum of gravel mingled with clay, which, on washing, showed a fair prospect of gold. The metal was in small grains, some as large as a pin's head, mixed with black sand.

IT IS stated that samples of agricultnral produots are being secnred in Dixon for the Centennial exhibition. Let them be exhibited to our own oitizens at the Mechanics' fair. We wonld like to see a department in the fair for articles intended for the Centennial exhibition.

STICKEEN. — Mr. Gallagher, who retnrned from Stickeen on the 26th ult., says that perhaps 50 men now in the Stickeen mines stand a chance of making big money, and 1,200 stand a chance of getting out alive, if they are in luck.

LAET week the San Bruno mill, Calaveras county, yielded 121 ounces, worth $2,117.50—an average of $30.25 per ton—from 70 tons of ore. Twenty thousand dollars have been netted from the San Bruno during the paet six weeks.

THE Calaveras *Chronicle*, of June 27th, saye: Work ie progreesing with very favorable resnlts at the Quaker City mine, near the Junction. A fair grade of ore is now being taken from the level.

HON. JOSEPH G. WILSON, formerly Commissioner of the General Land Office of the United States, snbsequently President of the Enropean and Oregon Land Company in San Franciaco, died last week in Washington.

WILLIAM CRONAN, one day last week, picked ont of the widow Hennessy's olaim, at Brown'e Flat, Tuolumne oonnty, a chnnk of solid gold weighing 15 onnces, valued at about $280.

STEEL rails are being procured by the Virginia and Truckee Railroad Company, and soon will replace the iron onee on all the cnrves of the company's road.

HENRY G. HANKS, President of the San Francisco Microecopical Society, has been elected Corresponding Fellow of the Royal Microscopical Society, of London.

THE miners of Egan cañon and Cherry creek have etruok, to resist a rednction ot their wages from four dollare to three dollars per day.

THE circulation of trade dollars is daily diminishing in Nevada, owing to the fact of their being bought np hy the Chinese merchante of San Francisco.

THATCHER & Co., of Monte Cristo, Sierra conuty, took out abont $2,000 last week, three men working.

CORNUCOPIA just now is very dull, owing to the cessation of work by the principal companies on their mince.

THE mill being pnt np on the Zacetero mine, at West Point, Calaverae conuty, ie nearly completed.

THE Contra Costa Water Company has 1,500 regular customers. The daily coneumption of water is 2,500,000 gallone.

THE Crown Point Mining Company are at present putting in the heaviest hoisting maohinery on the Comstock lode.

A NEW city is epringing np on the Jefferson river, Montana, coneequent on the recent mining developments there.

THE reduced throngh fare on the overland road will be $125 for first-olass, and $100 for second-olase tickets.

CHINAMEN are buying nearly all the mining olaims in Timbuctoo, Yuba conuty.

THE York Bros., near Downieville, took out 54½ ounce of gold laet week.

BASKET-MAKING is a new industry at Carson City.

THE road to the Panamint mines, by Surprise cañon, from Los Angeles, is fully completed.

General News.

A TRYING scene was recently witneseed in one of the departments at Washington. It eeems that some 500 employees have recently been dismissed, a large portion of whom were females, many of whom were adults, with families depending upon them for their daily labor. A few days eince, when the names of a large number were read off and diecharged, some 14 immediately fainted at the announcement, and phyeicians had to be called in to reetore them to conscionsnees. The scene ie described as having been heart rending in the extreme, and showe to what straits the poor are driven in that great city, where so many millione of dollare are being abstracted by Government offices and contractore to bnild up princely fortnnes for a few. Surely the day of retribntion can not be far away.

ARCHITECT MULLETT is now accused of letting the contract for stone for the Cincinnati Custom House at a price less than the cost of transporting the same from the qnarry to Cincinnati. The mystery connected with this eingnlar contract appears to have been solved by the discovery that by an agreement with Mnllett, the granite company are also to have the cntting of the stone at an enormous profit. When will the Government officials be compelled to deal honorably and above board with the people?

THERE is a probability of a coming soarcity of rice. A notification has been published by the British Minister to the effect that the Japanese government again prohibit the exportation of rice and grain from Japan, after the 1st of August. The rise in price is looked upon with some seriousnees by the government, and they have not oonfidence in that sufficing to prevent the export, and to induce import, even should it continne.

MACMAHON appears to be quite defiant of late, and according to *La Patrie* has recently declared that he would not cede his anthority to any one for a single day, and he refused to hear of either a Stadholderate or the Lieutenancy-General of the Kingdom. Thie ie snbstantially confirmed by a declaration to the same effect in an order of the day congratulating the troops on the succese of the late review at Longchamps. The Legitimists are very indignant at these expressions of the President.

THE total expenditures by the United States on public buildings and other improvements, in the Dietrict of Colnmbia, from 1850 to June 30th, 1874, amonnts to $65,746,929 29. We are not told how many of these millions have gone into the bands of Government officials and sontractore, in excese of what was necessary to secure an honest performance of the work.

THE Beecher-Tilton scandal has been the general topic of conversation the past week. Beecher simply puts in a flat denial to his friends, privately; while Tilton re-iterates, and says the half has not been told. It is a most unfortunate and deplorable controversy, which, it would appear, for the interest of all partiee, should be definitely settled one way or the other.

THE great California ship "Three Brothers," Captain Cummings, sailed a few days since on her voyage to San Francisco, crossing the bar at Sandy Hook, nnder fnll sail, with an eight knot breeze. She waa accompanied down the bay by a large party of gentlemen. She bringe over 4,800 tons of freight to this oity.

THEY have a child at Athol, Mass., which possessee the singular propensity of gnawing aud chewing its own fingere. He has pursued thie habit with such fatal persistency as to reduce all the fingers of both hands to raw and bleeding stnmpe, while of the thnmb of the left hand nothing whatever remains. His parents were first cousins.

THE Collector of Customs, at San Diego, was called to his door a few evenings since, when he was seized by ruffiane, who searched his pockete, found a menorandum of the combination of the safe lock, opened the safe and abstracted therefrom some $3,000, with which they made good their escape.

FOREIGN correspondence shows that the Irish mob demonstrations against Rochefort were incited by Reuter's New York telegram, saying that he had published a letter approving of the Communists' burning and executing, which included the massacre of the late Archbishop of Paris.

THE English locked-out farm hands are largely agitating their cause. A deptation of 100 have started on a tour, in a body, intending to pass through all the principal agricnltural counties, to address and stir up their fellow laborers, and enlist them in the same canse.

FRESH complications are threatened in Asia. Caravans arriving from Central Asia bring reports that the Yankoab Bey ia arming against Russia. It is believed that he is prompted to this by agents of Great Britain. There is also a possibility of a collision between Russia and Chiua.

HENRY GRINNELL, the well-known New York shipping merchant, died in New York a few days since, at the age of 87 years. He will be remembered by many as having fitted out two vessels, at his own expense, to search for Sir John Franklin.

THE Pope, it is said grows weaker daily, and several foreign representatives have notified their Governments to that effect.

MR. William L. Hoover, a well known oitizen of Gilroy, largely interested in the California tobacco cnring proceee, shot himself dead at the Cosmopolitan hotel, in this city, a few days eince. No definite cause hae been assigned for the rash act.

NEW POST OFFICES.—Among the new post-offices announced the past week are 20 for California; 1 for Nevada; 4 for Utah; 3 for Arizona; 3 for Oregon, and 7 for Waehington Territory—38 in all for the Pacific Coaet in one week.

GRAND DUKE NICHOLAS, in addition to banishment to the Caucasns for life, has been deprived of the Cross of St. George, which wae bestowed npon him for his achievements in the Khiva oampaign.

THE *China Mail* says that the project of introducing telegraphs into the country is something more than rumor, and that the Canton Viceroy ie interesting himself in it to an unexpected extent.

JOHN BAKER, who murdered the mail-carrier Kline, near Burgotville, Shasta county, last winter, was oonvicted of murder in the first degree. Penalty, death.

THE Salinas and Monterey railroad will be completed by the first of September, and the Sonthern Pacific contemplate building one between Castroville and Monterey.

CHARLES CROUCH, the half-breed tried in Shasta county for the murder of Mrs. Radler, hae been fonnd gnilty of murder in the first degree; penalty, death.

A THOUSAND year old clock from Japan has been received in San Francisco. From its announced age one wonld presume it to be a sun dial, which it ie not.

VERMONT, this year, tnrne ont 7,500 tons of maple sugar, worth $1,500,000. She ie the banner State in this enterprise, exceeding the yield of New York.

THE office of Commiesioner of the Diatriot of Columbia has been tendered to Gen. Ketchnm, of New York, bnt he has not yet signified his acceptance.

THOSE Paris journals lately suppressed have now re-appeared.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., June 30th, 1874.

FOR WEEK ENDING June 16th, 1874.*

PEACH AND PLUM-CUTTING MACHINE.—Philo J. Isbell, Placerville, Cal.

AMALGAMATOR AND CONCENTRATOR.—William H. Patton, Oakland, Cal.

GRAINING MACHINE. — Charles Rapp, S. F., Cal.

BELLOWS.—James Campbell, S. F., Cal.

DRAFT EQUALIZER.—Josiah Dodge, Grass Valley, Cal.

COMBINED PUMP AND CONDENSER FOR STEAM ENGINES.—Charles C. Farioot, S. F., Cal.

TANK ROOF.—Henry G. Fiske, S. F., Cal.

VAULT COVER.—William Lynch, S. F., Cal.

GUIDING BALLOONS.—Charles F. McGlashan, Truckee, Cal.

ARTIFICIAL STONE.—Ernest L. Ransome, S. F., Cal.

MOLD FOR MENDING CRACKED BELLS.—Daniel L. Riggs, Salem, Oregon.

DESIGN.

CENTERPIECE.—Samnel Kellett, S. F., Cal.

*The patents ara not ready for delivery hy tha Patent Office until soma 14 daye after the date of ieena.

NOTE.—Copies of U. S. and Foreign Patents furniehed by DEWEY & Co., in the ehortest time poeeible (by telegraph or otherwise) at tha lowest ratee. All pstent hnsinese for Pacifio coaet inventors transacted with perfect security and in the ehortest time poeeible.

METALS.

WEDNESDAY M., July 1, 1874.

The anticipated further rise in Quicksilver has not yet come, it seems. The Iron and Steel market is dull. Pig ie still very low.

American Pig Iron, ₱ ton	—	@	40 00
Scotch Pig Iron, ₱ ton	—	@	40 00
White Pig, ₱ ton	—	@	50 00
Refined Bar, had assortment, ₱ lb	—	@	— 3½
Refined Bar, good assortment, ₱ lb	—	@	— 4
Boiler, No. 1 to 4	—	@	— 5½
Plate, No. 5 to 9	—	@	— 5½
Sheet, No. 10 to 13	—	@	— 5½
Sheet, No. 14 to 20	—	@	— 5½
Sheet, No. 24 to 27	—	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	— 9½	@	— —
Norway Iron	— 8	@	— —
Rolled Iron	— 6	@	— —
Other Irons for Blacksmiths, Miners, etc.	— —	@	— 4½
COPPER.—			
Braziers'	— 31	@	— 33
Copper Tin'd	— 45	@	— —
G. Nie's Pat	— 50	@	— —
Sheathing, ₱ lb	— —	@	— 24
Sheathing, Yellow	— —	@	— 25
Sheathing, Old Yellow	— —	@	— 12½
Composition Nails	— 24	@	— —
Composition Bolts	— 24	@	— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	—	@	16 00
Plates, I C Charcoal	14 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ lb	33	@	— 37
SEEL.—English Cast, ₱ lb	— 20	@	— 25
Anderson & Woods' American Cast	— 10	@	— 17
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC	— —	@	— 11
Zinc, Sheet	— —	@	— 11½
NAILS—Assorted sizes	— 5¾	@	— 8
LEAD.—			
Pig, ₱ lb	— 5¾	@	— 6
Bar	— 6½	@	— 7
Sheet	— —	@	— 9
Pipe	— —	@	— 8½
QUICKSILVER, per lb	— —	@	1 35

LEATHER.

WEDNESDAY M., July 1, 1874.

City Tanned Leather, ₱ lb	25@29
Santa Cruz Leather, ₱ lb	25@29
Country Leather, ₱ lb	24@28
Stockton Leather, ₱ lb	25@28
Jodot, 3 Kil., per doz	$50 00@ 54 00
Jodot, 11 to 19 Kil., per doz	66 00@ 90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55 00@ 72 00
Cornellian, 12 to 16 Ko	57 00@ 67 00
Cornellian Females, 12 to 13	60 00@ 64 00
Cornellian Females, 14 to 16 Kil	66 00@ 74 00
Beaumorville, 15 Kil	60 00@ —
Simon, 18 Kil, ₱ doz	61 00@ 63 00
Simon, 20 Kil. ₱ doz	65 00@ 67 00
Simon, 24 Kil. ₱ doz	72 00@ 74 00
Robert Calf, 7 and 9 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 15
California Kip, ₱ doz	40 00@ 80 00
French Sheep, all colors, ₱ doz	8 00@ 15 00
Eastern Calf for Backs, ₱ lb	1 00@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 4 50
Best Jodot Calf Boot Legs, ₱ pair	5 00@ 5 25
Good French Calf Boot Legs, ₱ pair	4 00@ 4 75
French Calf Boot Legs, ₱ pair	4 00@ —
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	17@ 19
Eastern Wax Leather	—@—

Ayer's Cherry Pectoral,

For Diaeases of the Throat and Lunga, snoh as Conghs, Colds, Whooping Cough, Bronchitis, Asthma and Consumption.

The few compositions, which hava won the confidence of mankind and hecome household words, among not only ona, hnt many nations, muet hava extraordinary virtnee. Perhaps no onè ever secured so wida a reputation, or maintained it so long, as AYER'S CHERRY PECTORAL. It has been known to the publio ahout forty years, hy a long continued eerice of marvellous cures, that hsva won for it a confidence in ite virtnes, never equalled hy any other medicine. It still makes the moet effectual curee of *Coughs, Colds, Consumption*, that can he made by medical skill. Indeed the CHERRY PECTORAL has really rohhed theee dangerous diseases of their terrors, to a great extent, and given a feeling of immunity from their fatal effecte, that is well founded, if the remedy he taken in eeason. Every family ehould have it in their closet for the remedy and prompt relief of its members. Sickneee, euffering and even life is eaved hy this timely protection. The pruoent ehould not neglect it, and the wise will not. Keep it hy you for the protection it affords hy its timely uee in sndden attacke.

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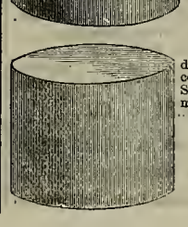
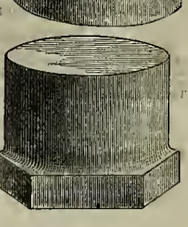
CAST STEEL SHOE & DIE CO.,

Room 28, Hayward's Building,

No. 419 California street, - - SAN FRANCISCO.

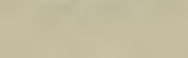


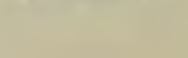


Cast Steel Shoes & Dies for Quartz Mills.

[PATENTED MAY 26TH, 1874.]

An improvement greatly needed, being stronger, more durable and economical than iron.





We guarantee the STEEL SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper, Price, 20 cents per pound, shipped from San Francisco. It takes 40 days to fill orders from the manufactory East.

Address all orders, with dimensions, to

CAST STEEL SHOE & DIE CO.,

Room 28, Hayward's Building, San Francisco.

1v29-3m

A MAMMOTH FREE PAPER.

—THE—

MECHANICS' FAIR

DAILY.

Having been awarded the publication of the Daily Newspaper in the Pavilion during the Fair of the Mechanics' Institute of the City of San Francisco, commencing August 18th, 1874, we would respectfully announce that no efforts will be spared to issue a

LIVE AND DESIRABLE SHEET.

Its immense circle of readers will include all admit visitors at the Fair, embracing during the exhibition a large proportion of the most intelligent, energetic and influential citizens throughout the Coast.

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Every Bar Warranted and Guaranteed equal to any English Brand.

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MR. SOTHERN.

Prices of Admission:

Dress Circle and Orchestra.....$1 00
Dress Circle and Orchestra, Reserved 1 50
Balcony..... 50
Balcony, Reserved..... 75
Family Circle..... 25
Boxes, according to location.....$10 & $5

Doors open at half past seven; Commence at eight o'clock. ja24-tf

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A Good Bindsr for $1.50.

Snbscribers for this journal can ohtain our Patent Elastic Newspsper Fila Holder and Binder for $1.50—containing glit title of the paper on the cover. It presarves tha papers compietely and in such shape that they may ha quickly fastened and ratained in hook form et the end of tha voluma, and the hinder (which is very durable) need continuously for snhseqnent voinmese Post paid, 25 cts. extra. It can be used for Harper's Weekly and other papers of similar size. If not entirel, pleased, purchasers may return tham within 30 days. Just the thing for libraries and reading rooms, and all who wish to file the Press. lambp

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To Mining Secretaries.

An amendment to Section 335 of the California Code, taking effect July 1st, 1874, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the lsw:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the M. & S. Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements

---

Calaveras Gold Mining Company—Location of principal place of business, San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock on account of assessment levied on the thirteenth day of May, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Brooks	145	300	$150 00
J Brown, Trustee	150	50	25 00
George Congdon	15	300	150 00
George Congdon	63	400	200 00
George Congdon	111	250	125 00
J S Niswander	2	1000	500 00
J S Niswander	20	1000	500 00
J S Niswander	28	500	250 00
J S Niswander	39	100	50 00
J S Niswander	40	100	50 00
J S Niswander	41	83½	41 67
J S Niswander	66	200	100 00
J S Niswander	87	17	8 50
George Congdon, Trustee	10	100	50 00
George Congdon, Trustee	52	50	25 00
John G Congdon	11	300	150 00
John W Coleman	122	50	25 00
O W Osborn	127	400	200 00
George E Webber	46	1000	500 00
Frances A Edwards	45	200	100 00
E A Richardson, Trustee	55	50	25 00
E A Richardson, Trustee	57	100	50 00
E A Richardson, Trustee	80	100	50 00
E A Richardson, Trustee	51	100	50 00
E A Richardson, Trustee	152	500	250 00
B J Burns	38	50	25 00
J Clem Uhler, Trustee	113	100	50 00
J Clem Uhler, Trustee	123	100	50 00
T B Wingard, Trustee	105	200	100 00
John Brooke	144	1000	500 00
L Lion, Trustee	143	750	375 00
J Brown, Trustee	151	50	25 00
T B Wingard, Trustee	117	40	20 00
T B Wingard, Trustee	125	10	5 00
T B Wingard, Trustee	158	2555	1327 50
T B Wingard, Trustee	154	1200	600 00
T B Wingard, Trustee	155	1418⅔	708 33
David N Bradstreet	106	500	250 00
Morris Cohen	110	300	150 00
Morris Cohen	115	48	24 00
T B McCauley	141	1000	500 00
J A Robinson	142	1000	500 00
James A Parsons	97	100	50 00
W H Stearns	78	100	50 00
James Billis	95	50	25 00
P L Traver	96	50	25 00
Webster & Soule, Trustees	101	50	25 00
W C Parker, Trustee	103	200	100 00
W C Parker, Trustee	133	225	112 50
W C Parker, Trustee	134	25	12 50
B B Minor, Trustee	104	300	150 00
H A Charles, Trustee	112	100	50 00
Adam Kelliber	114	25	12 50
George Sleeper, Trustee	119	250	125 00
George Uishofer	126	100	50 00
Samuel Theodore	128	200	100 00
Samuel Theodore	137	50	25 00
H G Knhl	130	100	50 00
R J Nichols	139	300	150 00
B J Nichols	140	100	50 00

And in accordance with law, and an order of the Board of Directors, made on the 13th day of May, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 326 Pine street, San Francisco, on the 8th day of July, 1874, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—No. 318 California street, San Francisco Room No. 13. jn20

Diamond Silver Mining Company.—Location of works, East Tintic Mining District, Juab County, Utah Territory. Principal place of business, San Francisco.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 1, levied on the 18th day of April, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm Sherman, Trustee	7	550	$55 00
Thos W Moore	15	550	55 00
H T Felton, Trustee	22	100	10 00
J P Chamberlin	23	110	11 00
S L Marston	34	110	11 00
S L Mrston	207	110	11 00
H C Oregory	35	110	11 00
I Salz	36	55	5 50
I Salz	37	55	5 50
L E Osgood	38	110	11 00
Wm Walton	39	110	11 00
I S Marston	40	110	11 00
Solomon Jewett	43	550	55 00
Mrs. Angie Eager	49	22	2 20
John J Duffy	50	11	1 10
Hartwig Bornamann	51	220	22 00
Hartwig Bornemann	53	330	33 00
Mrs. Hartwig Bornemann	54	11	1 10
Carl Leutgel	55	11	1 10
E S Hamilton	52	60	6 00
W M Brewer	69	1130	113 00
F Palmer	72	227	22 70
Medallion Mining Company	73	910	90 00
Geo Heim, Trustee	33	275	27 50
Geo Heim, Trustee	132	50	5 00
Geo Helm, Trustee	134	25	2 50
Oeo Heim, Trustee	135	50	5 00
Geo Heim, Trustee	136	50	5 00
Geo Helm, Trustee	137	50	5 00
Geo Helm, Trustee	138	50	5 00
Geo Helm, Trustee	139	50	5 00
Oeo Heim, Trustea	140	50	5 00
Oeo Helm, Trustee	129	125	12 50
Geo Helm, Trustee	122	100	10 00
Geo Helm, Trustee	130	75	7 50
Geo Heim, Trustee	145	55	5 00
Mary Van Reynegom	147	25	2 50
A M Vines	148	25	2 50
J L Van Reynegom	149	50	5 00
J L Van Reynegom	150	50	5 00
J A Fairchild	184	100	10 00
N J Street	185	110	11 00
A J Stevens	186	100	10 00
R M Anthony	197	400	40 00
V P Terry	198	50	5 00
James E Bienthen	199	50	5 00
Benjamin Corey	200	50	5 00
Benjamin Corey	201	50	5 00
Benjamin Corey	202	50	5 00
Benjamin Corey	203	50	5 00
Joseph Fowler	210	50	5 00
Joseph Fowler	211	50	5 00
C A Washburn, Trustee	221	150	15 00
C A Washburn, Trustee	222	100	10 00
C A Washburn, Trustee	223	25	2 50
C A Washburn, Trustee	224	25	2 50
C A Washburn, Trustee	243	150	15 00
R M Anthony, Trustee	225	50	5 00
E C Morton, Trustee	227	100	10 00
E C Morton, Trustee	228	100	10 00
E C Morton, Trustee	229	100	10 00
E C Morton, Trustee	230	100	10 00
E C Morton, Trustee	231	100	10 00
E C Morton, Trustee	232	100	10 00
E C Morton, Trustee	233	100	10 00
E C Morton, Trustee	234	100	10 00
E C Morton, Trustee	235	100	10 00
E C Morton, Trustee	236	100	10 00
E C Morton, Trustee	237	50	5 00
E C Morton, Trustee	238	50	5 00
E C Morton, Trustee	239	43	4 30
E A Colson	244	50	5 00
M Fahndrick	251	25	2 50
M Fahndrick	253	25	2 50
M Fahndrick	254	25	2 50
M Fahndrick	255	25	2 50
M Fahndrick	256	25	2 50
M Fahndrick	257	25	2 50
M Fahndrick	258	15	1 50
M Fahndrick	259	15	1 50
M Fahndrick	261	12	1 20
Frank Emenegger	289	25	2 50
Chas Munch	290	10	1 00
O C Miller, Trustee	75	50	5 00
O C Miller, Trustee	76	50	5 00
O C Miller, Trustee	79	50	5 00
O C Miller, Trustee	81	50	5 00
O C Miller, Trustee	82	50	5 00
O C Miller, Trustee	83	50	5 00
O C Miller, Trustee	88	50	5 00
O C Miller, Trustee	89	50	5 00
O C Miller, Trustee	90	50	5 00
O C Miller, Trustee	91	50	5 00
O C Miller, Trustee	95	50	5 00
O C Miller, Trustee	153	100	10 00
O C Miller, Trustee	154	100	10 00
O C Miller, Trustee	155	25	2 50
O C Miller, Trustee	161	100	10 00
O C Miller, Trustee	162	100	10 00
O C Miller, Trustee	166	100	10 00
O C Miller, Trustee	167	100	10 00
O C Miller, Trustee	171	100	10 00
O C Miller, Trustee	174	100	10 00
O C Miller, Trustee	178	50	5 00
O C Miller, Trustee	179	50	5 00
O C Miller, Trustee	180	45	4 50
O C Miller, Trustee	212	100	10 00
O C Miller, Trustee	213	100	10 00
O H La Grange, Trustee	215	100	10 00
O H La Orange, Trustee	210	100	10 00
O H La Grange, Trustee	217	100	10 00
O H La Grange, Trustee	218	100	10 00
O H La Grnge, Trustee	219	100	10 00
O H La Grnge, Trustee	220	50	5 00
O H La Orange, Trustee	289	100	10 00
O H La Granga, Trustee	270	100	10 00
O H La Grange, Trustee	275	100	10 00
O H La Grange, Trustee	276	100	10 00
O H La Orauge, Trustee	277	100	10 00
O H La Granga, Trustee	278	100	10 00
O H La Grange, Trustea	279	100	10 00
Isaac M. Brower	123	1000	100 00
O D Munson	105	100	10 00
N Hamilton, Trustee	118	100	10 00
N Hamilton, Trustee	119	100	10 00
N Hamilton, Trustea	120	100	10 00
N Hamilton, Trustea	26	275	27 50
N Hamilton, Trustee	27	55	5 50
N Hamilton, Trustee	42	110	11 00
N Hamilton, Trustee	53	50	5 00
N Hamilton, Trustee	116	43	4 30
N Hamilton, Trustee	143	100	10 00
N Hamilton, Trustee	144	50	5 00
N Hamilton, Trustea	145	50	5 00
N Hamilton, Trustee	193	400	40 00
N Hamilton, Trustee	205	100	10 00
N Hamilton, Trustae	112	100	10 00
N Hamilton, Trustea	114	100	10 00
N Hamilton, Trustea	115	57	5 70
N Hamilton	183	100	10 00
N Hamilton	172	200	20 00

And in accordsnca with law, and an order of tha Board of Directors, made on the 18th day of April, 1874, so many shares of each parcal of said stock as may ha necessary, will he sold at public auction, at the office of the Company, No. 123 Post street, San Francisco, Csliforuia, on the 25th day of June, 1874, at the hour of 12 o'clook M. of said day, to pay said delinquent assessment thereon, together with costs of sdvertising and expenses of the sala. O. C. MILLEB, Secretary.

Office—No. 123 Post street, Ssn Francisco, Csl.

POSTPONEMENT.—The above sale is hereby postponed until Thursday, the twenty-third day of July, 1874, at the same hour and place. By order of the Board of Trustees.

O. C. MILLER, Secretary.

San Francisco, June 22d, 1874. jn27

Electric Mining Company — Principal place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, State of California.

Notice is hereby given, that at a regnlar meeting of the Board of Directors, held on the 10th day of June, 1874, an assessment of Ten Cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, in San Francisco.

Any stock upon which this assessment shall remain unpaid on the 15th day of July, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the fifth day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—318 California street, San Francisco, California. Room No. 13.

Enterprise Gold and Silver Mining Company.—Principal place of business, San Francisco, California. Location of works, Meadow Lake District, Nevada County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 22d day of June, 1874, an assessment of ten cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 411½ California street, room 3, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the 22d day of July, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Saturday, the 15th day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

E. E. RICE, Secretary.

Office, Room 3, 411½ California street, San Francisco, Cal. jn27

Land Purchasers' Association—Office, No. 425 Kearny street, San Francisco, Cal.

Notice is hereby given, that at a meeting of the Directors, or Trustees, of this corporation, held on the 9th day of June, 1874, an assessment of ten dollars per share (being the 41st monthly instalment on the subscription to the stock) was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at No. 425 Kearny street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 11th day of July, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on the 4th day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

O. S. WRIGHT, Secretary.

Office, No. 425 Kearay street, San Francisco, California. Room No. 2.

Hereafter stockholders allowing their stock to be sold as delinquent, cannot redeem it, except at the option of the Board of Trustees. jn13

Manhattan Marble Company of California—Principal place of business, San Francisco. Location of works, Oakland, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of June, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 20th day of July, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 11th day of August, 1874, at noon, to pay the delinquent assessment, together with costs of advertising and expenses of sale. SAMUEL B. POPE, Secretary.

Office—212 Sansome street, San Francisco, Cal.

Stockholders' Meeting—Spring Valley Canal and Mining Company.

Notice is hereby given, that the annual meeting of the stockholders of the above named company, for the purpose of electing Trustees for the ensuing year, will be held at their office, No. 402 Front street, San Francisco, Cal., on Tuesday, the 21st day of July, 1874, at one o'clock P. M.

By order, EGBERT JUDSON, President.

jy4-3t L. GLASS, Secretary.

Ohio Consolidated Gold Mining Company.

Location, West Point, Calaveras County, Cal. Principal place of business, San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the Thirtieth day of May, 1874, tha several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
E L Peckham	9	400	$80 00
E L Peckham	206	300	60 00
E A Richardson, Trustee	68	100	20 00
W A Knapp, Trustee	91	150	30 00
W A Knapp, Trustee	238	100	20 00
H H Hubbard	94	100	20 00
Jno J Crawford	97	100	20 00
B Dore, Truetee	289	50	10 00
B Dore, Trustee	296	100	20 00
B Dore, Trustee	290	50	10 00
B Dore, Trustee	308	100	20 00
B Dore, Trustee	309	100	20 00
B Dore, Trustee	310	100	20 00
B Dore, Trustee	311	100	20 00
B Dore, Trustee	314	200	40 00
J W Searles	207	100	20 00
J H Wood, Trustee	211	100	20 00
J H Wood, Trustee	313	100	20 00
J H Wood, Trustee	325	100	20 00
J H Wood, Trustea	322	200	40 00
J H Wood, Truetee	335	100	20 00
J H Wood, Trustee	334	100	20 00
J H Wood, Trustee	348	100	20 00
W B Boydeu	299	500	100 00
W B Boyden	300	100	20 00
W B Boyden	301	100	20 00
W B Boyden	302	100	20 00
W B Boyden	303	100	20 00
W B Boyden	304	100	20 00
Wm Azel	305	50	10 00
D W Spear	376	100	20 00
D W Spear	377	50	10 00
F Franks	344	50	10 00
W A Knapp, Trustee	241	100	20 00
W A Knapp, Trustee	242	100	20 00
W A Knapp, Trustee	243	100	20 00
W A Knapp, Trustee	244	100	20 00
W A Knapp, Trustee	245	100	20 00
W A Knapp, Trustee	247	800	160 00
W A Knapp, Trustee	253	100	20 00
W A Knapp, Trustee	273	100	20 00
W A Knapp, Trustee	279	100	20 00
H C Hnds	255	1000	200 00
Robt Clifford	389	100	20 00
Robt Clifford	390	100	20 00
W J Hamilton	338	100	20 00
W A Knapp, Trustee	262	50	10 00
W A Knapp, Trustee	264	50	10 00
W A Knapp, Trustee	266	50	10 00
W A Knapp, Trustee	267	50	10 00
W A Knapp, Trustee	268	50	10 00
W A Knapp, Trustee	269	50	10 00
W A Knapp, Trustee	271	50	10 00
W A Knapp, Trustee	282	50	10 00
W A Knapp, Trustee	283	50	10 00
W A Knapp, Trustee	277	100	20 00
W A Knapp, Trustee	278	100	20 00
W A Knapp, Trustee	316	100	20 00
W A Knapp, Trustee	317	100	20 00
W A Knapp, Trustee	318	100	20 00
W A Knapp, Trustee	320	100	20 00
W A Knapp, Trustee	323	50	10 00
W A Knspp, Trustea	325	50	10 00
W A Knapp, Trustee	280	100	20 00
W A Knapp, Trustee	281	100	20 00
W A Knapp, Trustee	326	100	20 00
W A Knapp, Trustee	327	100	20 00
W A Knapp, Trustee	328	100	20 00
W A Knspp, Trustee	329	100	20 00
W A Knapp, Trustee	331	100	20 00
W A Knapp, Trustee	332	100	20 00
W A Knapp, Trustee	333	100	20 00
W A Knapp, Trustee	341	100	20 00
W A Knapp, Trustee	342	200	40 00
W A Knapp, Trustee	345	300	60 00
H P Wood, Trustee	383	100	20 00
W A Knapp, Trustee	363	100	20 00
W A Knapp, Trustee	364	100	20 00
W A Knapp, Trustee	366	100	20 00
W A Knapp, Trustee	368	100	20 00
W A Knapp, Trustee	369	100	20 00
W A Knapp, Trustea	370	100	20 00
W A Knapp, Trustee	371	100	20 00
W A Knapp, Trustee	373	100	20 00
W A Knapp, Trustee	375	100	20 00
W A Knapp, Trustee	384	400	80 00
W A Knapp, Trustee	385	500	100 00
W A Knapp, Trustea	386	100	20 00
W A Knapp, Trustea	387	100	20 00
W A Knapp, Trustee	388	200	40 00
W A Knapp, Trustee	400	50	10 00
W A Knapp, Trustee	401	100	20 00
W A Knapp, Trustee	402	100	20 00
W A Knapp, Trustea	403	100	20 00
W A Knspp, Trustee	404	100	20 00
W A Knapp, Trustee	414	100	20 00
W A Knapp, Trustee	415	100	20 00
W A Knapp, Trustee	416	100	20 00
W A Knapp, Trustee	417	100	20 00
W A Knapp, Trustee	418	100	20 00
W A Knapp, Trustee	380	100	20 00
Woodhull Williams	250	100	20 00
J J Birge, Trustee	396	100	20 00
1 Pollard	405	50	10 00

And in accordanca with law, and an order of the Board of Directors, made on the 30th day of May, 1874, so many shares of each parcel of said stock as may be necessary, will he sold at public auction, at the office of the company, No. 115 Leidesdorff street, on Monday, the 20th day of July, 1874, at the hour of 1 o'clock P. M. of said day, to pay said delinqnent assessment thereon, together with costs of advertising and expenses of sale.

W. A. KNAPP, Secretary.

Office—115 Leidesdorff street, San Francisco, California. jy4

South Fork Mining and Canal Company.

Principal place of business, San Francisco, California. Location of works, Placer County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 30th day of May, 1874, an assessment, of five (5) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at the office of the Company, No. 306 Montgomery street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the sixth day of July, 1874, will he delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 27th day of July, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

P. H. BLAKE, Secretary.

Office—No. 306 Montgomery street, San Francisco, Cal. jn6

Taylor Mill and Mining Company—Location of principal place of business, City and County of San Francisco, California. Location of works, Garden Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the first day of July, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 607 Montgomery street, in the City and County of San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the eighth day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the twenty-eighth (28th) day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. SAMUEL S. MURFEY, Secretary.

Office, 607 Montgomery street, City and County of San Francisco, California. jy4

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James D. Walker.

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JOSEPH MOORE...Vice-President and Superintendent
LEWIS B. MEAD.....Secretary
24v17-qy

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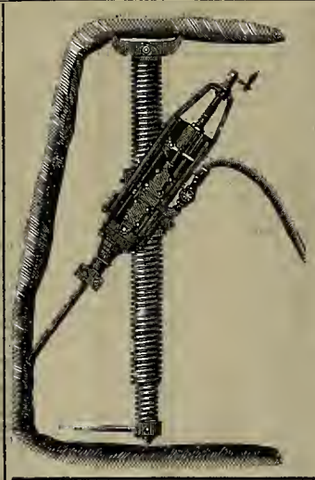

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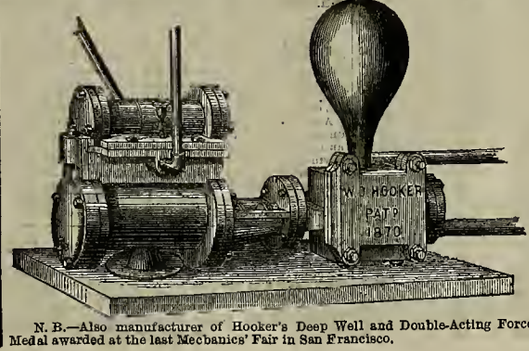
NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches...	4	5	6	6½	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches...	2	2½	3	3½	3½	4	4½	5	6	7	8	9
Stroke of Piston, in inches.....	1–6	0	7	7–10	10	11–6	21–0	12	15	18	21	24
Capacity per double Stroke, in gallons.	15	25	45	60	80	105	240	300	470	675	900	1200
Capacity at Ordinary Speed, per minute.	30	45	80	100	135	180	350	425	600	...	...	...
Number of Strokes per Minute.....	40	40	40	40	40	40	40	40	40	40	40	40
Boilers in horse power they will supply.	25	40	80	120	160	225	350	425	600	...	...	...
Size of Steam Pipe, in inches.....	¾	¾	¾	¾	1	1¼	1½	1½	1½	2	2½	2½
Size of Exhaust Pipe, in inches.....	1	1¼	1½	1½	1½	1½	2	2	2½	3	3	4
Size of Suction Pipe, in inches.....	1	1¼	1½	2	2½	2½	3	3	4	5	6	8
Size of Discharge Pipe, in inches.....	¾	1	1½	1½	2	2	2	2	2½	3	4	6
Weight of Pump, in pounds.....	186	235	400	425	610	875	1180	1600	1612	2450	3375	4800
Length over all, in feet and inches.....	3–4	3–4	3–10	3–10	4–11	4–11	5–4	5–8	5–8	6–10	7–7	8–6
Height over all, in feet and inches.....	1–6	1–9	2–3	2–8	3–1	3–1	3–7	4–3	4–3	4–7	5–1	6–0
Width over all, in feet and inches.....	1–1	1–0	1–1	1–1	1–3	1–4	1–6	1–10	1–10	2–1	2–9	2–10
PRICE..... $												

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS, { No. 4, 24-in. Stroke, $ / No. 5, 24-in. / No. 6, 30-in. Stroke, $ / No. 7, 30-in. Stroke, $ / No. 8, 36-in. $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

Hooker's Patent Direct Acting Steam Pump.



N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump... Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco.

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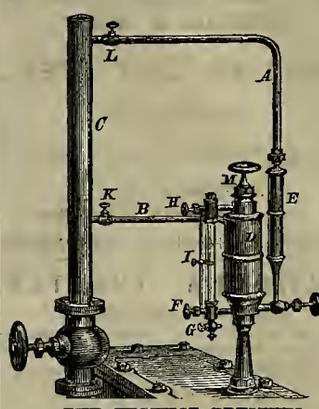
Machinery and Castings of all kinds.

Machinery.

N. Seibert's Eureka Lubricators.



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Machines of all sizes always on hand.

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For rapidity puiverizing and amaigamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient avidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Opsratss as Follows:

The pan being filled, the motion of the mulier forces tha pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into tha quicksilver. The curvad plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a ragular flow between the grinding surfaces and into the quicksilver, until tha ore is redneed to an impalpable powder, and the metal amalgamated.

Setlars made on tha same principle excel all others They bring the pulp so constantly and perfactly in contact with quicksilver, that the particles are rapidly and completely absorbed.

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66	27	93	39	129	48	175	58	263	67	500	77		
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76	31	100	42	142	52	210	62	300	71	800	81		
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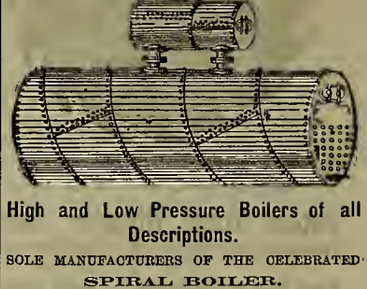

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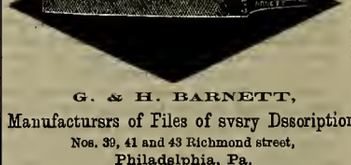

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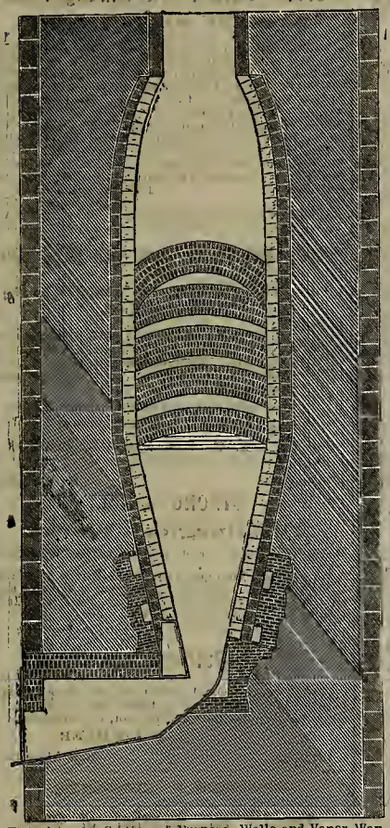

Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches.

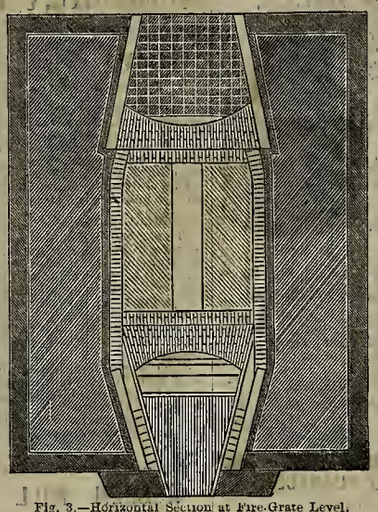

Fig. 3.—Horizontal Section at Fire-Grate Level.

THIS FURNACE REDUCES CINNABAR, AND

WORKS CLOSER TO AN ASSAY

And at **LESS COST** per ton than any other furnace. It will work continuously Twelve to Twenty-four months without stopping.

No Man Has Ever Been Salivated

Or otherwise affected by the mercury about the furnace, either in operating it or making repairs. For full particulars, plans, etc., apply at

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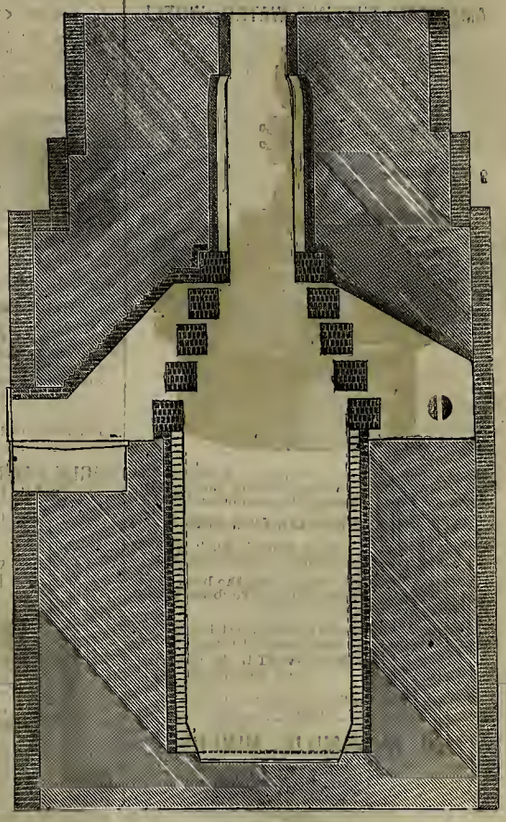

Fig. 2.—Cut Transversely from Fig. 1.

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MANUFACTURER OF

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They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect.

Particular attention paid to construction of

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MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices.

THE ONE-PLUNGER JIG,

Delivered on R. R. Car at Denver, Col., or St. Louis, Mo.,

CONTAINING SIX SIEVES, END TO END,

Separates in one and the same operation—1. galena and sulphide of silver; 2. pyrites or blende; 3. tailings, containing no valuable parts; or, 1. gold; 2. pyrites; 3. tailings (quartz, etc.) containing no valuable parts; or, 1. copper; 2. tailings, containing no valuable parts. The One-Plunger Jig can be combined with existing stamp-mills with highly important advantages, as after amalgamation it will recover completely all fine metal and all base ores and all mercury out of tailings. It concentrates all fine metal ores to such cleanness that low grade ores can be shipped, after concentration, as first-class ores. Its feed and discharge are automatic. Its construction offers better guarantee against loss and repairs than any other apparatus in use. For particulars, apply to the inventor,

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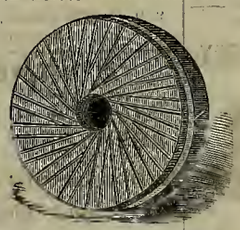

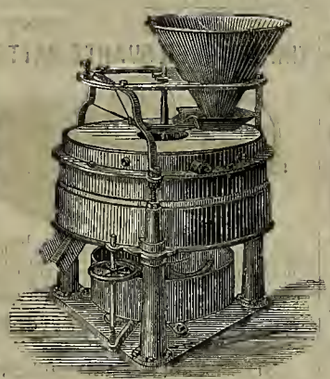

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Eureka Smut Machines, Bran Dusters, Mill Irons, Spindles, Baits, Drivers, Steps, Regulating Screws, Silent Feeders, Pulleys, Proof Staffs, Hoisting Screws, Baits and Pins, Conveyor Flights, Plaster and Leather Belting.

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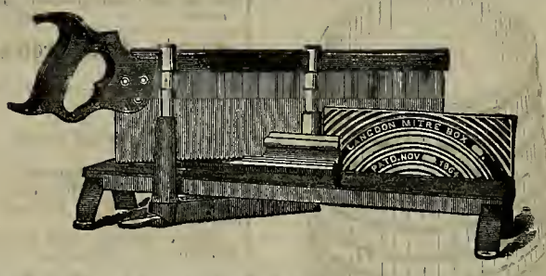
Mill Stones Balanced with FELLENBAUM'S PATENT BALANCE, of which I am sole proprietor for California, Oregon, and Washington Territory.

LANGDON'S ADJUSTABLE MITRE BOXES.



Common Mitre Boxes, 6 in. right angle, 4 in. at mitre; price, with Diston's Saws, ready for use, 18 in., $9.00; 20 in., $9.50.

Mitre Boxes with Extension Lever and Dado Stop, 9 1-2 in. right angle, 6 1-4 in. mitre, with Diston's Saws, 22 in., $11.00; 24 in., $11.50. For Metal Moulding, 20 in., $9.50.

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SAN FRANCISCO, SATURDAY, JULY 11, 1874.

VOLUME XXIX Number 2.

Improved Water-Wheel and Pressure Regulator.

The accompanying illuetration represents an improvement in water-wheels and pressare regulators, recently patented by J. E. Le Blanc, of Gold Hill, Nevada, throngh the patent agency conaected with this office. The improvement cousists in eo coastracting and moanting a water-wheel, and connecting it with the water-reservoir from which the water-preesure is obtained, that the same hydroetatic presenre can he maintained when the flow of water which snpplies the reservoir is rednced as when it ie abnadant, thns obtaining a greater per cent. of power from tbe water than if the water-preesure were allowed to run down proportionately with the decrease of flow.

By referring to the engraving the details will he understood. Let *A* repreeent the reservoir or water-pit, in which the stream of water which furniehea tbe water-power is directed, in order to provide the reqnired hydroetatic pressnre. A tnhe or tunnel, *B*, is made through the lower part of this reeervoir, so that the water in the reservoir will entirely enrronad the tube with an eqaal presanre at all pointa. Connecting with the reservoir at variona pointa around this tabs or tunnel are fonr or more pipea or tubee, *C C*, the opposite onds of which are snpporrted by an upright plate or enpport, *D*, the tuhes being arranged in a circle around the tunnel, and snpported likewise in the plate, *D*. Each alternate tuhe, *C*, is provided with a cock, *E*; or, if preferred, each tube may he provided with one, as moat convenient, eo that the water from all or a portion of the tuhee may be cut off at will. The water-wheel ie eecnred tn a shaft, *G*, the shaft passing through an opening in the plate or aapport, *D*, and throngh the center nf the tube or tannel, *B*, ita ends bearing in enitable supporta.

Tbe water-wheel will thus be eecured vertically close np against the plate or enpport, *D*, as shown.

The wheel naed consists of a solid ceutral portion or hab, *f*, the onter rim of which is made conical or heveliug, the largest diameter heing next to the plate, *D*. To thie beveled periphery ia secnred a eeries of radiating hucketa or wings, *g*, which stand obliquely in one direction to the shaft npon which the wheel is secnred. The outer ends of these buckets are made beveling in an opposite direction to the bevel of the hnb, *f*, and an ontside rim, *h*, is aecnred arnund them. The hnh or central portion, *f*, of the wheel is jnst large enough to bring the ende of the tnbea, c c c, directly opposite the opening on the narrow side of tbe buckete, sn that when the reservoir ia filled and the water issues through tho tuhe, *C*, the streama will atrike the angular bnckete and drive the wheel. Thia conatrnotinn of water-wbeel is very economical, aa the preesnre of the water is exerted with great efficiency npon the series of hucketa, and at the outer rim of the wheel.

Now, aa long as the quantity of water from which the power ia derived ia ahnndant, all of the cocks, *E*, may he left open, and the full force of the several streams he directed upon the wheel; bnt when the supply of water ie reduoed, eo that when all the cocke are opened the reeervoir will not he full, one or more of the cncke can he closed, thus ehutting off a qnantity from the wheel, and causing it to rise in the reservoir until the full pressure is obtained. By thia meane an equal hydrostatic preeaare can be maintaiaed in the reservoir, which will give a larger per cent. of power thau if the level of the water were allowed to rnn down with a full bead npon the wheel.

The wbeel can he caaed in, if deaired. It can he operated either vertically or horizontally, as moet convenient, ae will he readily eeen by any nne conveeant with water-wheels, and numerous devicea can be employed for redncing the delivery of the water upon the wheel, in order to maintain the level and presenre in the reaervoir.

Steam or compreeeed air can he employed in tbe eame manner, hy connecting a pipe with a reaervoir, *A*, through which the eteam or air is delivered upon the wheel. Further information concerning this invention can he pnrcured hy addreseing the inventor as ahove.

Giant Powder for Fishing.

We all know that giant powder has heen ueed in our rivere and lakes for killing fish, and that there is now a law agaiust it, hut ite use for deep sea fishing is somewhat novel. Mr. A. W. Chaee, of the U.S. Coast Survey, daring the winter of 1873 made eome experiments off the island of Santa Cataliua with giant powder, which have some points of intereet. They were not nndertaken at firet as offeriag any field of research, bnt for the more ntilitarian purpnse nf obtaining fish for "chowder."

At the last meeting of the California Academy af Sciences Mr. Chase read a ehort paper on the subject, in which he communicated enme interesting facts. He was much strnck with the variety and number of fish procured, and also with some curious facte connected with the euspension of animation in the nerve centere of the fish etnnned. He says: I have found that the ordinary waterproof fase will burn ahont one foot to every twenty-five aeconds, and hy experiment that a cartridge will explode in from four to aix fathome with from three to four inchea of fuee. I have, however, made no exact experiment ou tbe subject. The shock nf the explosion is most severely felt downwards, as the resistance is greater; and the different varieties of sea fish found near the rocky ahoree of the ielanda as a rule heing fonnd on or near the hottom, it ie desirable to explnde your cartridge about midway between the eurface of the water and the rocka heneath, aa you thus reach both the deeplying fish and thoee, like mackerel and smelt, which swim hetween.

The modue operandi adopted hy Mr. Chase was to take a small akiff and row out tn the kelp beds surrounding the island. Here in eix or eight fathoma of water, the hottom is diatinctly visible. When an unusually large schonl of fish would swim hy, I would quietly light the fuse and drop the cartridge into the water gently. If the water wae eay eight fathome deep I wonld graduate the fuse fnr explosion at fonr. The cartridge would alowly aink—generally in a apiral—and a few bubhlee of air or smoke arise to the anrface.

The fish did not seem, as a general rule, to he mnch alarmed. (Once I remember a large red fish took the cartridge for something gond to eat, and reached it just in time to allow a small portion of bia tail to reach the earface.) When the fire reached the fulminate of mercary, there wnuld be a audden white flash, then a quick sharp detonation, the hlow striking the bottom of the skiff as if some one had struck it with a hammer.

Then in a epace of time varying from eight to ten minutes, every fish within a radius of 40 to 50 yards wonld slowly come tn the surface. Thoee within the immediate vicinity of the explosion, of courae, were killed hy hnrsting the hadder and injury to the large intestiues, and had to be epeared up from the hottom. Those, bowever, at a greater distance, wonld be eimply etunned, and could be taken iu witb a net. Care had to be taken to avoid touching thoae only elightly stunned until the net wae fairly aroaad them, as the slighteet blow would aroaae them from their torpor.

I am now ahont to relate what will, perhaps, he called a gennine "fieh story;" but ae I have, in addition to my own, the testimony of my men to the fact, I give it as it occurred:

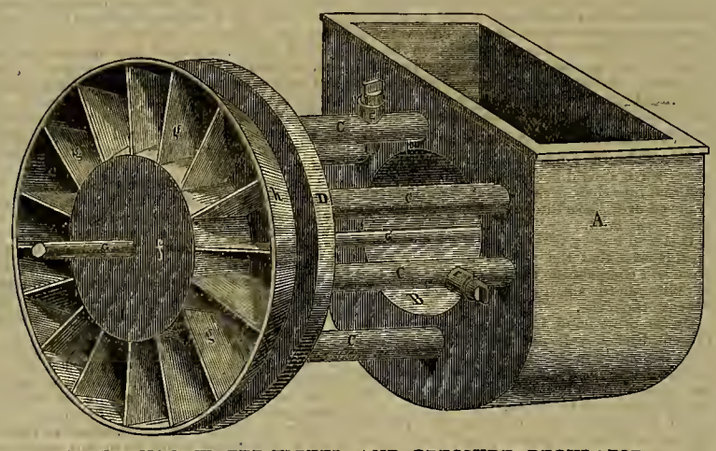
I had brought np by an explosiou a uumher of yellow base fish, weighing abont four pounds each. These are delicious in chnwder, and so instead of pntting them in alcohol I had them cleaneed, which wae done hy scaling, removing the intestines, end cutting off the fine and tail. The head, however, still remained joined to the back hone. These fish from the time they hed been taken from the water up to the time of cleaning remained apparently lifeless. Nor did the removal of the inteetinea arouse them. They were then taken up to the old barracks, where I wae temporarily camped, and hung upon nails driven in the clapboarde. Some little time after they had been thus diepoeed of, one of the men came in and asked me to go ont to look at the fish. I did ao, and found every individual bass elapping around in as lively a manner as if he had heen freshly caught and hung up.

They had, in fact, recovered from the explnaion, and proceeded to die in the common fashion. I took one down and hroke the backhone where it joined the head.

Ite struggles ceased inetantly, thus showing that the vital force had heen arrested in the nerve centera and brain at the time of explosion, and when the effect had passed away that the fiah had resumed a galvanic life.

It wae probahly ahout half an hour from the time of explosion when tbia occurrence took place. I have not heen able aince, however, to secure the same result, although I must state that the only time since then that I have tried the experiment waa on the Oregon coast, where I brought np a school of salmon, all of which were pickled for Agaesiz. These fish were, however, too cloee to the explosion, as they were killed outright.

Mr. Chase found that an nrdinary aized redfish, weighing eay five or eix pounds, which happened to be ten or twelve yards from the explosion, would remain thoroughly stunned ahout twenty-five or thirty minutes; then, reviving, wnuld die from asphyxia, in a aimilar manner ae if caught with hook and line. He procured many curione varieties of the emaller fish auch aa are eeldom caught, as they will not take bait. The hrilliant red mullet, for inetance, will not tonch bait, and livea in hollowa in tbe rocks or around the kelp, where uets could not he dragged. This fish is far baudeemer than the gold fish for our aqaariums. Mr. Chaee thinks that hy this eimple expedient many valuable specimene for the naturalist may he taken from the sea.



LE BLANC'S WATER-WHEEL AND PRESSURE REGULATOR.

MINING activity prevails in Amadnr county.

Academy of Sciences.

The regalar semi-montbly meeting of the Califoraia Academy of Sciences was held on Monday evening last, President Davidsoa in the chair. Wm. B. May and C. H. Wakelee were elected rssident members. Donations to the cabinet were announced as follows: Ore from the Little Giant mine, San Jaan, Colorado. The dark line in the epecimens is said to yield $20,000 per ton. Also, specimens of argentiferone galena and of silver aseociated witb heavy spar. T. J. Butler, of Reddiug, preseated a epecimen of what he supposes to be *kaolin*, from the banks of Pitt river, Shaeta connty; a piece of lava from the etronghold of Captain Jack; also, specimeue of copper, coal and iron from the same region. G. W. Harford presented a pair of slippere used by the fiehermen of the Japanese island, Strick.

H. Edwarde presented numernne natural history specimens, principally entomological. A number of pamphlete aud hooke were presented to the library.

The President donated a seriee of photographe of the hieroglyphic inscriptioas on wooden blocks, at Easter island. He alao read a letter from Mr. Croft, giving all the information within his knowledge of the origin of the inscriptions. It will be remembered that some time eince Mr. Croft wrote from Papeite, giving an accouut of certain blocks of wood upon wbich strange hieroglyphics were carved. He endeavored by every meana to get a translatiou of aome of these characters, hut he found it exceedingly difficult. At laat he found a native nf Eaeter island, who said he could translate the hieroglyphice, and promised to do eo. When this man wae examined, however, he failed tn translate them satisfactorily, giving at different times three differeut renditiona of the eame paesege.

A paper hy Henry Edwarda waa received, heing the fifth of a eeriea on "Pacific Coaet Lepidoptera." The President read a memorial hy Henry Edwarde on George Robert Crotch, the naturaliet, lately deceaeed. Mr. Crotch, during a short visit to thie coast, added aome 200 or 300 specimens to the local collectiona. Mr. Edwarde remarked of him that he was an ahle natnraliet, a true and generous friend, and an accomplished and genial gentlemaa. His death was due to consumption, whicb had been hastened hy his persisting in working in the room of comparative zoology at Cambridge, without fire, thus bringing on a cold whicb settled on his lungs.

Mr. A. W. Chase, of the United States Coast Survey, read a paper on the use of Giant Powder, for nhtaining specimene of fish at sea, detailing experiments made by him at Catalina ieland.

Professor Davideon annonnced that at a futnre meeting he could communicate in detail the reeults of the sonnding expedition to Japan from San Diego. Cnmmander Belknap has forwarded to him all the informatioa necessary.

The President atated that George H. Munford haa telegraphed to him, etating that he ia making arrangementa by which he hnpee to he ahle to accede to the requeat to transmit musical aounde from the office in New York to the rooms in the academy.

Professor Davidson communicated tn the academy aome of the results obtained in ascertaining altitudes by leveling, vertical angles and harometric measures. The experiments were conducted hy himself and Charles A. Schott, of the Coast Survey, and they laeted seven days. The altitude of Ross Mount was ascertained from Bodega Head, hy the process known as double zenith distancee, to he 598.74 metres; hy leveling, 598.53 metres; and by harometer, 598.80. The barometer used was the Smitheonian. It wae found over the whole series of ohservatione that sèven o'clock in the morning was the best time to use the barometer. At one o'clock in the afternoon the difference noted in the barometer, on the average, amounted to 37 feet. The heat radiated from the earth did nnt appear to affect the atmosphere on the line of eight between the Head and Ross Mount, the air heing almost constant in its temperature. Close to the grouud, however, the temperature changed considerably. In this respect, varying results might he expected in other localities.

CORRESPONDENCE.

How our Swamp Land may be Reclaimed.

[Written for the PRESS.]

The Comparative Value.

Land of a similar nature and of equal productive capacity to the overflowed land of California sells readily in Holland and North Germany for from two hundred to eight hundred dollars per acre; in California it sells for less than one twentieth that amount, notwithstanding the greater difficulty of reclamation and of keeping in repair the works of reclamation, and the storms and rains which may come suddenly and with disastrous effect at any time and in any month of the year, in these European countries.

In the brief space allowed the writer in your journal it is impossible to give a satisfactory description of his observations upon the Delta of the Nile and the low lands of the Enropean contiuent; and as your readers are probably acquainted with the characteristics of these countries, it becomes unuecessary. But that many persons in California do not seem familiar with the proper manner of reclaiming overflowed land, is obvious from the abortive efforts they have made in that direction.

The Difference befween Tidal Overflow and the Overflow from Rivers.

It is very proper to make a distinction in the manner of enclosing land by dykes, when such land is subject only to tidal overflow, which may be for one, two or three hours twice a day, and with a drainage of several hours between each tide; for with such land the system of reclamation now adopted may give satisfactory results.

Very different must be the character of the dykes enclosing land subject at any time to an overflow which may continue for one or more weeks; for in the tide overflowe drainage is effected twice a day, bnt in the overflow from the rivers, drainage can only be effected when the water falls below the lower level of the overflowed land.

There will probably be no serious damage ever resulting to either stock or crops upon land in Suisun bay, below Sherman Island, or upon the marsh land of the bay of San Francisco from defective levee.

On the other hand, the high watsrs in the rivers of California have this year clearly demonstrated how thoroughly improper has been the mode of dyking adopted in many places on the margins of these rivers.

Turf Levees Peculiar to California.

Ontside of California the world does not present the picture of sane men being engaged in building levees of turf that will burn by fire, or float away by water. No bears ever worked so effectively in the stock market to depreciate values as the present owners of overflowed land have to render valueless their own lands.

The amount of mouey expended already by several parties in leveeing with turf levees and in planting of seed, would, if wisely used, have given a permanent protection to their lands and crops, and they would not now have to contemplate grain almost ready for the sickle and hearing sixty bushels to the acre perishing because of a foot of water being over the land.

Subterranean Channels Under the Levees.

It is rare to find any laud bordering water courses that will not have subterranean channels or cracks extending for some distance in the land. Old logs, dscaying roots, often afford conduits for water; sometimes a subterranean drainage may have formed a channel, or the surface vegetation may have bridged over a crack, a heaver cut, or a small water course.

What is known as *float* land ie found in Holland, Egypt and, perhaps, among all large bodies of overflowed lands. It is in most cases formed by aquatic plants taking root in land several feet below the surface, and sending to the surface their dense vegetation. Upon this dense surface vegetation, sufficient earth accumulates to sustain additional vegetation, and when this rscsives the deposit of the rivers sufficient to close the light from the subaqueous plants, they perish, and thus the hond between the float and the lower land becomee severed. With a great probability that the dense sod on the margin of the river has bridged over some cracks, roots, logs or water chanuels, is it wise to expeot a levee will protect your land when built over such conduits?

The first rule laid down by continental engineers is to dig a narrow, deep ditch and fill it well in with good earth, and no levee is ever built in those countries without these precautions. Upon thia ditch the center of the levee rests.

The Necessity of Trenching before Leveeing.

Grand Island is the most successful reclamation among the islands of the interior of the State. Ite levee is of pure sediment, with neither sod or turf except a cross levee at tho lower part of the island. This cross levee is defective because it ia composed of turfy material, and because there are subterranean ohannels beneath this levee.

Upon this island they have found it necessary during the high water, in many places, to dig ditches bsneath the inside of or undsr the levee, and fill them up with compact earth, and thus cut off the subterranean water chanuels. The experience of Grand Island confirms the importance of the first directions of the European engineers to "cut off your subterranean channels."

Levees Should be from Material Taken from the Bed of the River.

Nearly all the lands overflowed by the San Joaqnin are compoaed of a light, turfy material which will float or burn. The value of this land is very great, as its productive capacity is not excelled by any in the world. The attempt to guard this land from overflow with levees composed of the material found on the spot has this year resulted in a failure. The proposition to take the turf nearer the edge of the bank to cover over the present levees will result in a greater failure. First, because there is not enough of pure sediment unmixed with vegetable matter to make a permanent levee, and its weight will tend to elevate the ditches. Second, the experience on Sherman Island has been, that cutting outside of turfy land tends to open subtsrranean conduits for water and to furnish starting points for fissures.

There is no material suitable for levees on the larger portion of the low lands of the San Joaquin river, unless that material is taken from the bottom of the river or slonghs.

Dredging, nof Ditching, Machines Required.

Had the money and genius which has been expended in the creation of ditching machines been employed in building old-fashioned dredging machines, and had suoh machines been used in raising the bottoma of the rivers to make levees upon the land, then the reclamation of such land would have become a success.

Upon the Isthmus of Suez a large number of dredging machines were nsed, being more economical than the labor of fellahs, whose wages were much lsss than the wages we pay Chinamen. Those machines dug to the depth of 26 feet, and with their many buckets carried the dirt to ench a hight that through sluices they cast it 200 or more feet from them on the land or in dump carts. In Holland they have many dredging machines digging out lakes and rivers, elevating the earth to a proper hight and casting it on land, thus forming levees.

As before stated, a small ditch is dug, into this ditch good earth is well stamped, and upon this the levee is constructed of earth, free of decomposing vegetable matter. The value of money in California has prompted men to disregard the experience of centuries in older oountries. A few more failures and we will find that by borrowing the experience of such countries we would have saved money.

The Foundation of Levees should be in Ditches.

To reclaim the land of the San Joaquin river, heavy earth should be taken from the rivers and cast into their present ditches until a levee is raised over these ditches sufficiently high to protect the land.

It is well known that so tenacious is tbe turf on this river that the weight of no ordinary levee will compact the earth beneath, sufficient to obliterate the small channels which may be beneath the levee.

On the other hand, heavy earth cast into the present ditches will not have the resistance from the cohesion of the surface sod, bnt it will tend to bring the float land to its bearing, and close all communication between the outside and inside of the levee.

The objection urged to using the present ditches as a base for levees is that the amount of earth required will be too great, and that it can not be afforded at present.

To this we may reply that earth may be cast upon the land from the bottom of the rivers for about five cents per cubic yard, by the many bncketed dredging mschines; whereas, the cutting of turf by Chinamen costs 10 cents. Further, it may be stated that overflowed land is valuable in proportion to the security to stock, crops and improvements. Land feebly leveed briugs fear to settlers upon such land, and they hesitate long before they venture either to improve or cultivate, and they do neither as well as if they were acting upon a certainty. In Holland they reclaim land submerged, as the land in the bottom of the bay of San Francisco; but they reclaim such land in a manner to give them confidence; they then build towns of brick, 18 feet below the surface of the water they have excluded.

There is uo body of land of greater productive capacity to be found on this earth than the land bordering on the rivers of California; and yet, to save these lands from an overflow of three or four feet, which may come every three or four years, money is dealt out so sparingly as to render their so-called reclamation a *fraud* and a *deceit*.

To doubt the practicability of successfully and certainly reclaiming these lands, is to refnse to accept that which has heen demonstrated for ages in other countries.

Chcaper fo Reclaim by Levees than Pay Tribufe to Railroads.

The interest of the money expended in reclaiming swamp lands is, as a general proposition, lesa than the amount paid to railroad companies by the owners of upland; for the swamp lands are accessible to sail vessels which will take the producta of the soil to market for about one dollar per ton; whereas the average paid by farmers in the winter may be *three* or more dollars. An acre in the great valleys of this State which producea two tons of marketable produce, paya the interest on $40 for the transportation of that produce more than a similar acre of lowland does. If there is reason in this ststsment, surely the owner of lowland should not refuse to expend, if necessary, as much as $10 or $15 per acre to reclaim with certainty land that will produce double as much as the most favored upland.

By a latitude of expression we may say that upland in the interior is reclaimed and made available by railroads, to which they pay tribute to the extent of the interest on from $20 to $60, according to distance and the productions of each acre. The difference of cost of transportation is more than the interest on the cost of the most expensive reclamation which may be required on the most exposed swamp laud.

If a company were guaranteed the privilege of transporting the products of the now submerged lands for a period of years at prioss charged by the roads of the Sacramento and San Joaquin valleys, they could, with great profit to themselves, build all the levees required and present them without cost to the owners of the land.

W. M. RYER.

Foreign Corporations and American Mines.

EDITORS PRESS:—In view of the possibility of the bill introduced by Mr. Pratt, providing for the compulsory patenting of all mining claims which have produced $5,000 or upwards, though at present indefinitsly postponed, passing into law, I may be excused if, as manager here of several English companies, I attempt to direct your attention to the anomalous position occupied by foreign corporations in this matter of patents—a positiou which will be rendered still more anomalous should the bill referred to receive the sanction of the legislature.

I must not be supposed to object to the bill itself; on the contrary, I think it should pass; but not before the way has been paved for it by an important emendatiou of the act kuowu as "The Mining Act of 1872."

To make myself intelligible to the general reader, it will be necessary to go back to the year 1866. Up to that time, digging for minerals on the public domaiu—no matter by whom—was a trespass; and, as such, punishable. On the 26th July, of that year, an Act was passed by Congress, section 1st of which provides "That all the mineral lands of the United States, surveyed and unsurveyed, are laid open to all citizens of the United States, and to those who have declared their intsntion to become such, subject to statutory regulations, and also to the local customs and rules of the miners in the several mining districts not in conflict with the laws of the United States.

This license to search for minerals, and the right of possession acoruing thereon, is all that has been recognized by the legislature in the way of title, until the fee simple should be acquired by ths purchase of the solum; but this title, such as it is, has always had the protection of the law, if properly acquired, and subsequently maintained by custom-work, and could be transferred to, and held by an alien on the same conditions.

The mining act of May 10th, 1872, while prescribing the mode of procedure necessary to convert this possessory right into a fee simple title, carefully preserves and even enlarges rights previously acquired. "Provided," says Section 16, "that nothing contained in this act shall be coustrued to impart in any way rights or interests in mining property acquired under existing laws."

But, unfortunately, and although section 7 makes it lawful to convey a patent "to any psrson whatsoever," no foreigner or foreign corporation, however faithfnlly he or they may bave complied with all the laws regulating his tenure, or however valuable his claim, can procure, by direct application, this indispensable safeguard to the security of his title. See sections 1 and 7.

This, however, is the etate of the law as it stande at present. If I can show that this condition of things not only entails a gross hardship on the alien, but a positive pecuniary loss, capable of correct estimation in dollars and cents, on the people of the United States, I shall have gone far to have secured your advocacy, to have furnished you with a potent argument with which to press for an early reviaion of the statute, not more in the interest of the alien than of the Amerian citizen.

As the law now stands, the government loses five dollars an acre for every acre of mineral land held by a foreigner, for they can't take his money without giving him a patent, and they can't take his mines from him and sell to a citizsn, for his rights are specially protected by Section 16; unless, indeed, the foreigner choose to resort to a subterfuge, born of the exigencies of the position, and divest himself of his property in favor of a friendly citizen, who obtains the patent and re-conveys.

Many foreigners would rather cling to the title they have, with all its drawbaoks, than have recourse to what is clearly an underhand evasion of the law. Many, again, are so circumstanced in remote camps and otherwise, as to be beyond the pale of a friendship ao disinterested that he would care to entrust to it interests varying from ten thousand to a million of dollars, for even the period necessary to apply for and procure the patent.

Still it is done; patents as a matter of fact have been obtained by foreigners iu this way; and what I wiah to convey is, that the government of the United States would lose nothing but gain much by conceding to the alien as a matter of right what, in the present state of the law, is really obtainable in an underhand way, though expressly forbidden by it—the right to a patent when he has purchased from an American citizen, and complied with the laws regulating his holding.

I do not mean, and this must not be overlooked in dealing with the question, to claim for the foreigner the right to go on the public domain and locate mines for himself. That ia a privilege very properly reserved to the people of the United States to the exclusion of all others except those who have become citizens; a privilege however which, it eeems to me, would be of more value to the American, were the right of possession acquired by location to carry with it the right to a patent to all purchaeers alike.

It cannot he the intention of the government to prevent the public lands being held by foreigners in fee simple, otherwise the owner of a patent would not have been specially permitted to convey his patent to any person whateoever. A patent in this country carriee with it the same absolute title to the land as a crown charter does in England, not to the grantee only, but to his disponees.

"That aliens are in possession of patente alone and associated with American citizens is a well known fact, and that foreign capital has materially assisted in developing the mineral resources of this conntry cannot be denied. There is no provision in the law to deprive the foreigner of his claim by confiscation, and his title to mining property is not inconsistent with the other lawe of the United States or with the State constitution and laws."

So says Gregory Yale in his standard work on the Mining Laws of California, p 363, written long before the coffers of the old country had poured their gold so profusely into the mining districts of California, Utsh, Colorado and Nevada.

I have myself, during my six years' residence in this county, expended for my English friends ou the development of mines here upwards of $240,000 besides paying for the ground; and now that the mines begiu to show themselves likely to be worthy ths expenditure, wo wish naturally to put our title beyond the resch of attack, by paying the government of the United States the price they demand for the fee, so that what we have made productive we may be allowed peaceably to enjoy.

If Pratt's bill passes, and the aot of 1872 remains unaltered, every foreigner owning a miniug claim which has produced $5,000 would be robbed of it; because, while this bill compels him to apply for a patent, the mining act says he ehall not, and the consequence of noncompliance is forfeiture, forfeiture not of the ground only, but of all that has bseu expended upon it.

True, a foreign purchaser of mines can *now* protect himself by insisting on a patent as a *sine qua non*, but how is it with those who either acquired their land previous to the existence of the act of 1872, or neglected the precaution because unaware of its importance? What of those who bought their claims in good faith from American citizens as far back as 1866, before patents to mines were heard of? What of those, who, relying on the protection of the laws under which they purchased, spent their last dollar and the best part of their lives in making them remunerative; but who, it is alleged, cannot even defend the title that they have—the right of possession and their improvements—by maintaining an adverse claim against an enoroaching patent applicant?

Suppose the unfortunate foreigner, surrounded by Amerioan miners, who are applicants for patents, is he to be curtailed foot by foot, first by one, and then by another, until he is left nothing—nothing, at all events, worth continuing to work—nothing but this "right of possession" which has cost him so much money, so muoh anxiety, and so much time—this, which he has regularly paid his taxes to both county and State to defend—a right of possession to nothing, except, perhaps, a bitter sense of a grievous wroug, a wrong to last him a lifetime?

And yet such is the effect of the present law, uninteutional on the part of your legislators, I am satisfied; but the effect all the same.

Assist me to get it amended; evoke the assistance of such men as Sargent, Jones and others, who have the interests of the miner at heart, be he citizen or alien, and the thing is as good as done. A rider of six lines to the act of the 10th of May will do all that is desired.

Apologizing for the length of my letter, I remain, Sirs, your very obedient servant,

LEWIS CHALMERS.

Exchequer mill, Alpine county, Cal.

INCOMBUSTIBLE PAPER.—This paper, although not regarded as absolutely indestructible by fire, retains its form after passing through such ordinary fires as occur in houses, factories and other buildings, and may therefore be regarded as incombustible. The pulp, which is manufactured in the uanal way, is composed of vegetable fiber, one part; asbestos, two parts; borax, one-tenth part; and alum, two-tenths parts.

CLEOPATRA ORE.—About four tons of ore from the Cleopatra mine, Peavine, are now on tbe railroad platform awaiting transportation to Truckee, where the rock ia to be smelted. We understand the Cleopatra oompany eell their rock for $10 per ton to the Truckee smelting company, who take it from the mine to Peavine and ship it to Truckee at their own expense.—*State Journal.*

Scientific Progress.

Ozone—A New and Correct Method of Supply.

The use of ozone os a disinfectant in hospital wards and public buildiogs has amply demonstrated its virtae as a purifier of air exhausted by breathing or poisoned with emsnations from corrupt or decaying organic matter. The only bar to its more extended use has been the lack of a simple and trustworthy means of generating it, safely and contionously, by a process not involving scientific skill or costly materials.

The latest means suggested certainly bears the palm for simplicity, cheapness, and accessibility to all. It coosists simply in the exposure to atmospheric action of common phosphorus matches moistened by water, the alleged result being the production of nitrite of ammonia and ozone—both active purifiers of air.

Knowiog the efficiency of molstened phosphorous as a generator of ozone, the aothor of the match method, Mr. S. Beer, of New York, set out one day to procore a quantity of that substance to use in sweeteoing the atmosphere of a room whose musty smell had successfully resisted the power of ordinary disinfectants. Failing to find any phosphoras at the drug stores in his neighborhood, it occurred to Mr. Beer that possibly lucifer matches might furnish the needed element in a condition suited to his porpose. He tried them, dipping them into warm water for a few moments, then suspoading them in the obnoxious room. Their effect was prompt and salutary; and tbereafter, hy continuiog their use, he wos able to enjoy "the luxury of pure and refreshing air," notwithstanding the room was in the basement of an old cellarless house on made land, the air of which was further tainted by a quantity of moldy books and papers. In a paper lstely read before the Polytechnic bnoch of the American Iostitute, Mr. Beer narrates a number of subsequent experiments with the same simple materisls, the success of which convinced him that he had made a veritable discovery of great importance.

Touchiag the safety of the method he proposes, Mr. Beer is confident that no overchargiog of the air with ozone or other injurious matter may be apprehended from the use of matches in the manner he deecribes. Both the ozone and the nitrite of ammooia are generated slowly, and their force is swiftly spent hy combination with the impurities tbey are intended to remove. It is obvious that the supply of the purifying agents can be easily rcgulated by increasing or diminishing the oumber of active matches. In the room above meotioned, six bundles of matches were kept active—some near the ceiling, others near the floor—by daily watering.

In another instance a single bunch is meotioned as having sufficed for quickly purifying the oir of a room in which several adults and children were lying sick, hut in this case the air was fanned against the motches while they were carried about the room, tbus hightening their activity. How long a match retains its ozonizing power, Mr. Beer does not say. In conclusion, Mr. Beer claims that, whatever may be ssid of his theory of match action, the fact is indisputable that, in the use of mstches as he suggests, we have a handy, wholeaome and inexpensive means of freeing our housea from noxious exhalationa and the long train of evils attending on the prevalence of bad air. The matter is easily tested and certainly well worth trying.—*Scientific American.*

Audible Safety Lamp.—An ingenious and efficient apparatus for preventing explosions in collieries haa been invented by Mr. Aldis (manager) ond Messrs. Hyde Brothers (engineers), of the Seend Iron Worka. On one side of the flame of an ordinary aafety lamp they affix a amall brass plate, which proteots from the flame a small brass rod, at the upper part of which is a smoll piece of fusible metal. In the presence of a dangerous accumulation of gas the fusible metal melts, detaches a brass rod, and releasea a aliding brasa csse, which falls over the flame and instantly extingoishes it. By the same action thia case falls upon the electric detent, aod an alarm is given throughout the whole workings, even to the pit's mouth, if required. The improved lampa are suspended from the roofa of the different workinga where the gaa would be supposed to accumulate; and the bells communicating with each other, all the bells in the colliery would simultaneously give an alarm upon the presence of a dsngerous quantity of gas. Thua every man in the pit would have ample warniog of danger, and efficient time to secure his property and make his escape.—*London Mining Journal.*

Sound.—In a paper on the duration of the aensation of sound, Prof. Mayer ssid that experiment proved that the residual aensation only occupied one five-hundredth of a second in the case of 40,000 vibrationa per aecond; but in the case of forty vibrations to a second, tbe residuol vibration was one-eleventh of a second. He concludes that the whole ear vibratea as one mass, and the durations of these oscillations of the whole ear are far too short to remain one-thirtieth of a second. He thinks that this explains our inability to distinguish the actual pitch of sound when that pitch exceeds certain well known limits.

Facts and Fancies about Heat.

Our scientific contemporaries, upon whose knowledge we hang as lovingly as the infatuated and blind Capid hangs upon the neck of Venus, will persist in belittling our stupeodous globe by iastituting comparisons of an odious character. Professor Proctor made us feel much smaller than a Liliputian gnat; and now Professor Langley, of tho Alleghany Observatory, cites us as the representative of coal and iron, before his glowing and caloritio majesty, King Sol. The Professor says, in answer to the question, "How hot is the sun?" tbat Sir John Herschell and Father Secchi place it at *at least* 10,000,000 degrees of Fahrenheit, while Sir William Thompson thinks it is something near thirty or forty times as hot as one of our hlssting furnaces, which vaporizes a small portion of the iron it renders, while the aggregate amount of iron which annually passes out of the Pittsburg chimnoys in the vaporized state, may be estimated at 5,000 tons. Tbis would appear to be a great waste, hut when we come to compare it with that of the great furnace of the sun, whose fire-grate area is reckoned not in yards, hut in square miles, of which its surface includes 2,300,000,000,000, is a very small affair. The learned gentleman then proceeds to show that, as a calculation of the exact omount of heat given out from a furnace of known size can essily be made; so, likewise, can we calculate accorately how long a given amount of coal will lsst. Comparing the sun to such a furnace, we ascertain the area; and adopting a probable value for the rate of emission, it becomes a simple problem in practical engioeering to determine how loog a given quantity of coal would last if burned at its surface at the rate of combustion which would just maintain this known heat. A careful computation hascd upon the above hypothesis shows that the entire cosl fields of Pennsylvania would keep up the actusl solar heat *not an entire second*. The amount of fuel required to keep up the everlasting combustion that gives off the heat that even our little globe eojoys is inconceivable.—*Coal and Iron Record.*

The Moon and Vegetation.—A correspondent writes: "It is a popular belief among the mass of farmers that the influence of the moon has sn important bearing upon various young plants as they happen to come forth either in her light, as full moon, etc., or in her wane. This idea is ridiculed and entirely disbelieved by what are called the mcst intelligent and scientific farmers. Is it not a fact that the light of the full moon on a young plant just come forth would have some effect on it, different from tbe darkness which prevails in tbe moon's absence, and do not these tender plants reqoire extra sleep, as an infant does? And in the absence of it, does it not essentially change their cbsracter and production?" When the moon is shining, the clouds are wholly or in a great part absent, and the effect of the absence of clouds becomes very evident wben a thermometer is placed in the focus of o silvered mirror and turned towards the unclouded sky. The thermometer falls with great rapidity, its heat being radiated out into the abysses of space, which are estimated to have a temperature vastly below the zero of our thermometric scale. When a cloud passes between the mirror and the sky, the thermometer rises rapidly, the loss of heat being interrupted. The clouds act like a woolen blanket, preventing the escape of heat. Now whst the thermometer is in this experiment, so in nature is the plant. On a moonlight (cloudless or partly clouded) night, it moy radiate so much heat that injury may arise to its tender organization. The Earl of Rosse'a great teleacope has detected the beat radiated by the moon, hut it is an incredibly minute quantity, and can have no effect on vegetation.—*Scientific American.*

Naphthaline.—A receot Eoglish patent relates to the applicotion of naphthaline. 1. As a substitute for sulphur, wax, resin or other inflammable materiala used for dippiog or impregnating matches and firelightera. 2. As on addition to the phosporus paate in which the eods of wax and other matches are dipped. 3. To increase the inflammability of candles, tapers, links and torchea. 4. For burning in lamps in the form of a hollow candle, provided with an independent wick and douhle air current, the flame serving to melt the solid naphthaline to feed the wick. Naphthaline is a white crystallizable aubstance evolved by the distillation of bituminous coal. When crystallized it is a very delicate film, yielding to the gentlest touch, yet, under favorable circumstances, it compacts and is capable of coosiderable resistaoce. It has a peculiar, faintly aromatic odor, not unlike narcissus; ia heavier than water, and is readily dissolved by naphtha.

Flame.—W. Stein has publiahed a criticism of Frankland's statementa concerning the illuminating power of flames. Frankland, abandoning the old theory of incandescent carbon particles, auggests that the illuminating power of flamea is owing to very oondenaed vapors of hydrocarhons. The author of thia article brings forward a number of known facta in support of the old hypothesia.

Tellurium.—On the aide of a piece of arsenical pyrites, Harmay observed a metallic aubstance between which and the pyrites were a few scalea resembling specular iron, but of a brownish color. The metallic-looking substance proved to be tellnrium, and the intermediate mineral a tellurium sulpharsenate.

Mechanical Progress.

Making Match-Sticks.

The process of outting small, rouud sticks used for mstches is an interesting one, and in writing thia descriptiou we shall eodeavor to make it clear to tbe reader in as simple language as possible. It must be borne in mind that makiag match-sticks is one branch of busioess—applying tbe compositiou another. After the pine logs are redoced to plank, the next operation is to cut them into blocks four and five inches in length, by means of small circular saws. They are then assorted by hoys, preparatory to being fastened to the great wheels, to be cut into match-sticks. Pine slsbs, obtained from the sawmills, to maoufacture blocks, are found to answer the purpose well, as the lomber in them is of the best quality. In thus utilizing the refose lumber there is great soving. Few people have a correct idea how match-sticks are made. In the first place, there is an immense wheel, 20 feet in diameter, with two six-feet faces or breasts, much resembling sn old-fashioned "overshot" waterwheel, on which these blocks are fastened in rows by means of clamps or screws. The machioery is of such a powerful character that the frsme-work on which this ponderous wheel is hung, is composed of heavy oak timhers, 12 by 16 inches, resting on o solid stone foundation, 25 feet by 12, and 5¼ feet deep, laid in cement. The necessity for snch a firm foundstion will he readily seeo, when the reader is informed that tbis wheel makes 21 revolutions in a minute, snd most not vary a hair's breadth in its motion. The face of the wheel being "loaded" with blocks, the process of cutting the sticks is commenced. A rest, similar to an iron lathe, is placed in front of the breast of the wheel, which is moved right or left, on the lathe principle, by means of screws, etc., on wbich a number of small steel cutters, with holes like an eyelet, are fastened. These cutters are adjusted so as to face the blocks, and as the wheel revolves, eoob one cuts a splint out of the wood, and drops it below. There are 16 of these cutters, or punch-like chisels to esch wheel, and the number may be increased to 32, if necessary. The principle upon whicb tbe match-stick is made is the same as that used in olden time for making rake-teeth round, which consisted in driving a piece of wood througb a steel tool, having a hole in it with sharp edges. In this case the large revolving wheel scrves as the propelling power, and forces the faces of the blocks, that are securely fastened to its outer surface, through the smsll steel eyelet-like hole in the eud of tbe tool, and a splint is cut out almost with the rapidity of lightning, and dropped below. The machine is so perfectly adjusted, and works with snch exact minuteness, thst it cuts 100 splints from every solid inch of timber—no more, no less. This fact has heeu demonstrated. The delicate cutting tools ore moved horizontally at right angles with the face of the wheel, by a screw which moves the row of cutters exactly the thickness of a match-stick, from left to right, at each revolution of the large wheel. Each pair of cutters hos a section of blocks to pass through, six, eight to ten inches, as the csse may be, which, when performed, the tender, by the turn of a smsll wheel, brings them back to the stsrting point, sets the cutters by the turn of onother sma l wheel, and they start again across the breast of the large wheel. Aa the rouod splints are cut out of the face of the block, it assumea o corrugated appearance, not unlike the face of an ordinary washboard, and when the machine starts on the next cut, the projections, forming one-half of the splint, are cut out, thus alternating the corrugations. The two machines thus in operation will cut 24 gross of aticks (7,200 to the gross), per minute, with 16 cutters to each, or, in the oggregate, 172,800 per minute, 10,368,000 per hour, or 103,680,000 per day of 10 houra.

[To be continued.]

Metallic Floors.—A method has been devised for renderiog floors in good degree fireproof, by employiug long, flat bars of tbin sheet metal, with a perpendicnlor flange turned on each edge. Other long, thin bars, which are curved or arched, aod riveted at or near the edges to the first-named strips, are placed edgewise vertically, one between each two, the connection being so arranged that the tops of the arches do not riae quite as high as the tops of the first aet of bars. Narrower atripa are also arranged across and riveted to the lower flaogea at anitable intervals apart, to serve as lath to hold the ceiling plaster to be applied to them, aa well as to brace them laterally. Similar strips are arranged across and riveted to the upper flanges, or wood pieces may be bolted on to receive and support the floor boarda. The outside flangea are built into and rest in the wall, and other flanges may be applied, if desired, to the outside strip for letting into the wall. For a floor of great length the bars are lapped and riveted.—*American Manufacturer.*

Private trials of a new steamhoat for use on the canals are now engrossing the attention of several eminent engineers. In this boat the old paddle-wheel and the screw are discarded, and a new method of propulsion ia used, in which the loss of power is reduced (it is said) to a minimum.

Fish Scale Ornaments.

Amoog recent patents is that of E. aod J. Heubner, of Newark, who have invented certain new and usefal improvements in preparing fish scales for use in the arts, of which the following is a specification:

The object of the iuvention is to atilize the scales of several varieties of fish, hitherto thrown away as useless, and prepare them for application in the arts, by producing articles of jewelry, artificial flowers, and similsr objects. This invention coosists in the process of cleansing and purifying the scales, till the clear, horny substance or core of the ssme is obtained, which produces a new article of manufacture, which may be stamped into various orosmental shapes, aud dyed in all colors, for use in the arts.

Large scales are tbe most advantageous, taken from fresh fish. Old scales cannot be used, as they lack elasticity and clesrness. The fresh scales are exposed for twenty-four bours to the action of pure salt water, for looseoing aod partly separating the outer layers of organic matter. They are then transferred to distilled water, being plsced every two or three hours in clean water, and washed therein five or six times, which renders the scales soft and olear. Each scale is then carefully rubbed with clean lioen rags, then passed throogh a press hoving a linen lining, so as to remove tbe moisture in the scales. The scales are finally plsced for ooe hour in alcohol, and again rubbed and pressed, when they are dry and have a perfectly clear appearonce, a mother-of-pearl-like hne, and great elasticity and durability.

Tbe scales are used in this prepared etate, or they may be dyed with auiline and other colors, in the usual manner, to be stamped into various kinds of ornamental shspes, leaves and flowers, snd applied to the manufacture of jewelry and artificisl flowers, for embroidering and inlaying wood, and other uses in the arts.

Steel Boilers.

The assertion is made by the engineer of the Austrian state railway compaoy, Mr. Haswell, that, in order to obtain steel hoilers onswering all requirements, only correspondingly thick plates, and plates of the best moterial, witbout any addition—for otherwise the steel is not homogeoous—ought to he used; and they ought to be scrupulously assorted according to the texture and the tensile strength. After boring or punching tbey should be carefully annealed, the riveting must be formed with great particularity, and the bending only with wooden hsmmers.

That steel plates msnufactured in Austria are of excellent quality, Mr. Haswell says, is proven by the monner in which boilers are there constructed; the box-front plate, down cover, and the sides of the tubes are only furnished with sn edge or border, while in Eoglsnd they are compelled to use angle iron for these connections.

Mr. Haswell is one of those who regard steel plates as preferable to iron plates, owing to tbe fact that they possess the ssme degree of elasticity in all directions—from twelve to fifteen per cent.; in iron plates, however, it is in the direction of the fihers, and about 15 per cent., but in a cross direction only five per cent. If ooe proceeds in the right manner, says Hsswell, steel plates may be used with perfect safety. The hoiler manufacturer has the advantsge that he finds less plates to throw aside, and the railways will have more carefully constructed, strooger, and, in the end, cheaper boilers.

Lacquer.—It haa been generally aopposed that the beauty of Japan lacquer work was dne to ingredients derived from unknown plants, and that the aecret was confined to the Oriental workmen. Recently, however, in Holland, objects of art have been produced, lacquered and covered with mother-of-pearl, in pieces *fac similes* of those made in Japan. The lacquer used is prepared from the hardest varieties of gum copal, principally that of Zanzihar, which ia colored black with India ink. The articles are covered with several layers of thia substance, upon which, while still wet, or rather pasty, the mother-of-pearl is inlaid. Dryiog in a furnace follows, another coat of lacquer is applied, then more drying and smoothing with pounce. These operations are repeated until the aurfaces are perfectly united and smooth, when a final polish is given with tripoli.—*The Engineer.*

Coating Metals.—An invention has been patented, the object of which ia to coat metal plates without immersing them in o bath, or otherwise requiring a large quantity of the coating metal to he kept in a molten state. Rollers are employed to apply the coatiog metal to the surface of the plate, and the molten coating metal is supplied little by little to the rollers aa it is required. In a similar way flux is applied to the plates, and the use of batha of flux is avoided.

Penholders.—A new method of making metallic penholders consists in making tbe barrel part and the internal tube or binder from one piece of sheet metal. A blank of a T shape, or provided at ita head with wing pieces, is cut from sheet metal, and the said wing piecea by a series of processes are folded flat or nearly so upon the blank. The blank is next raised into a trough form and afterwards into a cylindrical form. The barrel part and internal tube or hinder are tbus made from one piece of metal.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, July 8, 1874.

NAME OF COMPANY.	IN MINE.	IN MINE.	SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.							
Alamo	300	6000	13TH	12½T			½
Alpha Con	3600						
Alta							
American Flat		30000	8W	8W	1		
Bacon M. & M	65	24000	5W	3¾TH		¼	
Baltimore Con		54000	8¼T	7½TH		⅛	
Belcher	1040	24000	86W	83TH	1		
Best & Belcher	224	22400	26TH	25W			
Bowers	20	5000					
Buckeye		16000					
Sullion	2500	25000	8¾T	8TH		⅛	
Caledonia	5000	20000	19¾TH	18W		⅜	
California			37½W	37W			⅛
Chollar-Potosi	2800	28000	72W	69W			1½
Confidence	130	24960	13½TH	11¾W			
Con. Gold Hill Quartz	341¼	20000	4¾T	3½TH		1¼	
Con. Virginia	1150	108000	82½T	82W			½
Cook & Geyer	1600	24000					
Crown Point	600	100000	62½W	61½T			½
Caledonia	2000	24000	2¼W	2¼W		⅛	
Dardanelles	1200	24000	6W	5T			
Dayton			5W	4¾TH			
Eclipse	70	25000	7W	6¾TH			
Empire M. & M	75	50000	7¾T	6½W		¾	
Exchequer	400	8000	66T	60TH	6		
Fairmount							
Flowery	3000	12000					
Franklin							
Globe		20000	1½W	1W			⅛
Gould & Curry	1200	48000	23TH	22W		1	
Hale & Norcross	400	16000	54TH	48W		2	
Imperial	184	100000	8W	7¾W			
Indus							
Insurance	2000	30000					
Jacob Little							
Julia	2000	30000	3½W	3¼T			⅛
Justice	3000	21000	7¾T	7W			¾
Kentuck	95	30000	16T	15W			½
Knickerbocker	1200	24000	6W	4¾T			
Kossuth			1¾TH	1¾TH			⅛
Lady Bryan							
McMeans	3600	36000					
Mint	1600	50000					
Nevada	1000	50000					
New York Con	3600	36000	3¼T	3W			⅛
Occidental	800	10000	4W	4W			
Ophir	1400	16800	18¾TH	18W		⅛	
Overman	2000	37500	36T	32½W			
Phil. Sheridan	1200	12000					
Pictou	2000	20000					
Rock Island		24000	3½W	2¾T		⅛	
Savage	800	16000	90TH	83½W	1		
Seg. Belcher	160	6400	88T	87W			
Seg. Caledonia		10000					
Seg. Rock Island			⅜W	⅝T			
Senator		24000	1W	¼TH			
Sierra Nevada		20000	25W	24W			⅛
Silver Hill		54000	7¾T	6¾W			⅛
South Comstock							
South Overman		24000					
Sucoor M. & M	7600	22800	2W	1T			¼
Sutro		24000					
Trench	20	50000	9T	7TH	2		
Tyler	2200	30000	1.05W	60TH	30c		
Union Con	803	20000	12½TH	11T	1		
Utah		20000	6W	6W			1½
Woodville	1400	28000	3¾W	3¼W			⅛
Yellow Jacket	1200	24000	91TH	89W			3½
NEVADA.							
Adams Hill		50000					
Alps	800	30000					
Amador Tunnel							
American Flag M. & M		30000					
Arkansas	300	30000					
Belmont			5½W	4¾W			¼
Bowery		30000					
Chapman M. & M		30000					
Charter Oak	1000	30000					
Chief of the Hill		30000					
Chief East Extension		36000					
Columbus M. & M	10000	50000					
Condor		25000					
El Dorado South			4¼T	3¾W			⅛
Eureka Con		50000	18¼TH	16⅝W			⅛
Excelsior		12000					
Harper		30000					
Hayes							
Hermes	1000	30000					
Home Ticket							
Huhn & Hunt	3600	30000	60cW	60cW	10c		
Ingomar	1000	40000					
Ivanhoe		30000					
Jackson		50000					
Josephine							
Juniata Con	5000	50000					
K. K. Con							
Kentucky	1000	30000					
Kinston	1000	30000					
Lehigh	1000	30000					
Lillian Hall	1000	15000					
Louise	2400	30000					
McMahon	1000	30000					
Marion		30000					
Meadow Valley	24023	60000	8¾TH	8W		¼	
Mooking-Bird	1200	30000					
Monitor-Belmont							
Murphy	2000	60000					
Newark	800	32000	2W	1¾TH			⅛
Pacific Tunnel							
Page & Panaca	2400	40000	1W	1W			
Peavine	1000	30000					
Phœnix		50000					
Pioche	1000	20000	7¼TH	6¾W			2¾
Pioche West Ex		25000					
Pioche-Phœnix		40000					
Portland							
Raymond & Ely	5000	30000	11⅝W	11⅝W			
Rye Patch			20½T	19¾W			
Silver Peak		30000	1¾T	1¾T			¼
Silver West Con							
Standard M. & M							
Star Con	18000	50000					
Starlight	6900	25000					
Sterling		30000					
Spring Mount		25000					
Spring Mt. Tunnel		20000					
Ward Beecher							
Washington & Creole							
Watson	200	30000	2¼T	2T			
Yellowstone							
CALIFORNIA.							
Alpine	1200	12000					
Belleve	8000	20000	2½W	2½W			
Calaveras	3200	20000					
Cederberg		24000					
Chariot Mill			6½W	6½W			
Con. Amador							
Cottonwood Creek		20000					
Dunderberg M. & M							
El Dorado							
Eureka	1630	20000	8¼T	7½W			¼
Gillis		24000					
Independent	1800	25000					
Keystone		10000					
Mt. Jefferson	1500	25000					
Oakville							
St. Lawrence M. & M							
St. Patrick	1800	20000					
Tecumseh	3000	30000					
Yule Gravel	400	10000					
IDAHO.							
Empire		25000	6¼TH	5¾W			
Golden Chariot	750	30000	10¾TH	7¼T			7
Ida Elmore	1300	10000	2TH	1¾W			4¾
Mahogany	720	10000	5T	5T			⅛
Red Jacket			2¼W	2T			2¼
South Chariot	660	20000	12T	11¾T			1¼
War Eagle	1000	10000	3T	2¾W			½
WHITE PINE.							
General Lee	1000	20000					
Mammoth	1800	36000					
Noonday	1000	20000					
Orig. Hidden Treas	800	21333					
Silver Wave							
Ward Beecher		24000					
UTAH.							
Deseret Con	2400	30000					
Wellington		50000					
OREGON.							
Virtue		20000					

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
Adams Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	E Landers	507 Montgomery st
Arizona & Utah	Washoe	9	1 00	June 13	July 15	August 4	Joseph Maguire	419 California st
Baltimore Cons M Co	Washoe	8	1 00	May 28	July 2	July 25	D P Bagley	410 California st
Bowery Cons M Co	Ely District	5	20	May 14	June 28	July 16	C E Elliott	419 California st
Caroline M Co	Ely District	5	25	June 30	Aug 8	Aug 31	R H Brown	402 Montgomery st
Chief East Extension M Co	Ely District	3	10	July 7	Aug 12	Sept 9	R Wegener	414 California st
Europa M Co	Nevada	2	25	June 9	July 15	Aug 7	F G J Margetson	418 California st
Globe Cons M Co	Washoe	2	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Globe M Co	Washoe	7	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Golden Chariot M Co	Idaho	10	3 00	July 3	Aug 7	Aug 27	L Kaplan	Merchants' Ex
Hale & Norcross S M Co	Washoe	43	5 00	June 8	July 14	August 4	J F Lightner	438 California st
Hayes G & S M Co	Cal	6	1	June 4	July 13	August 10	Geo R Spinney	320 California st
Imperial S M Co	Washoe	19	1 00	June 5	July 8	July 30	W E Dean	419 California st
Independent G M Co	Cal	6	50	June 4	July 9	July 31	G T Grimes	240 Montgomery st
Julia G & S M Co	Washoe	18	1 00	May 23	June 29	July 20	A Noel	419 California st
Justice M Co	Washoe	10	2 50	June 13	July 14	August 3	Frank Swift	419 California st
Kossuth M Co	Washoe	1	25	June 29	July 31	Aug 18	E F Stone	419 California st
Lady Washington M Co	Washoe	1	50	July 1	Aug 3	Aug 31	H C Kibbe	419 California st
Leo M Co	Washoe	3	50	June 8	July 16	Aug 14	C J Eaton	Express Building
Mint M Co	Washoe		10	June 30	Aug 5	Aug 27	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	July 7	Aug 13	Sept 7	W W Hopkins	411½ California st
New York Cons M Co	Washoe	9	1 00	May 12	June 12	June 30	H C Kibbe	419 California st
Overman S M Co	Washoe	29	3 00	June 9	July 13	July 31	W W Stetson	414 California st
Pauper M Co	Idaho	2	25	June 16	July 25	Aug 17	D Wilder	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	O S Neal	419 California st
Quintette M Co	Nevada	2	10	May 27	June 30	July 19	H C Kibbe	419 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	July 27	Aug 27	A C Ryce	308 California st
Senator S M Co	Washoe	10	50	June 3	July 11	July 31	H Boyle	Stevenson's Building
Silver Cord M Co	Idaho	4	50	July 3	Aug 6	Aug 31	F Swift	419 California st
Silver Hill M Co	Washoe	3	2 00	June 25	July 29	Aug 20	W E Dean	419 California st
Spring Mountain Tunnel Co	Ely Dist	9	10	May 22	July 3	July 25	J M Buffington	Merchants' Ex
St Laurence M & M Co	Placer Co Cal	7	1 00	June 25	July 27	Aug 13	R B Noyes	411½ California st
Table Mt Alpha M Co	Cal	4	25	June 18	July 28	Aug 18	T F Croniee	438 California st
Tyler M Co	Washoe	5	30	June 4	July 9	July 29	G K Durhrow	Merchants' Ex
Union Cons S M Co	Washoe	6	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
War Eagle M Co	Idaho	6	50	June 19	July 23	Aug 12	L Kaplan	Merchants' Ex
Woodville M Co	Washoe	7	1 00	May 23	June 27	July 15	A Noel	419 California st
Yule Gravel M Co	Cal	4	15	June 10	July 15	Aug 6	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Amador Cons S M Co	Nevada	8	15	May 18	June 22	July 13	S E Holcombe	422 Montgomery st
Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
El Dorado Water & Gravel M Co	Cal	4	5 00	June 19	July 20	Aug 5	H Elias	416 Montgomery st
Electric M Co	Cal		10	June 10	July 15	August 5	A B Paul	318 California st
Emma Hill Cons M Co	Utah	1	50	June 3	July 13	August 10	L C Fowler	302 Montgomery st
Enterprise G & S M Co	Nevada		10	June 22	July 22	Aug 25	E E Rice	411½ California st
Equitable Tunnel M Co	Utah		7	25	June 12	July 12	Aug 4	C S Healy
Glasgow G M Co	Yuba Co Cal		3	25	June 16	July 29	Aug 7	D L Thomas
Gold Basin M Co	Cal		6	25	May 22	June 29	July 20	C C Parker
Heckerdorn G & S M Co	Cal		13	25	July 7	Aug 10	Aug 29	P J Roberts
Independence G M Co	Cal		6	50	June 4	July 9	July 31	Geo T Grimes
Keystone No 1 & 2 M Co	Arizona		3	50	June 17	July 18	Aug 3	W R Townsend
Knickerbocker M Co	Nevada		4	1 50	June 23	July 25	Aug 14	H Boyle
Magenta G M Co	Grass Valley Cal		1	75	June 27	July 30	Aug 13	L Kaplan
North Bloomfield G M Co	Cal		32	1 00	June 15	July 20	August 10	Thomas Derby
North Fork M Co	Cal		3	1 25	June 1	July 25	A Martin	520 Washington st
North Star Tunnel & M Co	Butte Co Cal			10	May 11	June 13	July 14	F J O'Reilly
Ohio Stone M Co	Calaveras Co Cal			20	May 30	July 1	July 30	W Aug Knapp
Phœnix Tunnel & M Co			5	20	June 12	July 12	Aug 4	C S Healy
Pioneer Cons M Co	Eureka Nevada		2	10	July 1	Aug 6	Aug 27	C S Neal
Prussian G & S M Co	Nev		1	75	May 26	June 30	July 22	R H Brown
Sanderson G M Co	Cal		11	20	June 11	July 13	July 30	W Stuart
San Marcial S M Co	Mexico		14	1 00	June 28	July 28	Aug 12	C F Schulze
South Fork M Co	Placer Co Cal			5	May 30	July 6	July 27	P H Blake
Starr King S M Co	Nevada		6	25	June 11	July 14	Aug 3	L Kaplan
Umpire Tunnel & M Co	Utah		3	5	June 29	Aug 3	Aug 24	P A Eakins
Valley Copper M Co	Nevada			16	June 15	July 15	August 1	Wm H Martin
Venus G & S M Co	Cal		1	3 00	June 8	July 18	August 8	S Pattee

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Alhambra M Co	Cal	Called by Trustees	210 Front st	Special	Aug 3
Best & Belcher M Co	Washoe	W Willis	419 California st	Annual	July 13
Chollar-Potosi M Co	Washoe	W E Dean	419 California st	Annual	July 13
Dardanelles M Co	Washoe	W S Duval	402 Montgomery st	Annual	July 16
Eastport Coos Bay Coal M Co	Oregon	I L Pool		Annual	July 22
Eclipse Winters & Pinto M Co		J Marks	419 California st	Annual	July 20
Edith Quicksilver M Co	Cal	Charles A Bacon	318 California st	Annual	July 22
French Gold Hill M Co	Washoe	J Marks	419 California st	Annual	July 15
Pauper M Co	Idaho	D Wilder	Merchants' Ex	Annual	July 16
Picton M Co	Washoe	W Phillips	408 California st	Annual	July 22
Savage M Co	Washoe	E B Holmes	419 California st	Annual	July 16
Sierra Nevada S M Co	Nevada	Called by Trustees	414 California st	Special.	July 29
St Laurence M & M Co	Cal	R B Noyes	411½ California st	Annual	July 13
Tecumseh G S & C M Co		F J Hermann	418 Kearny st	Annual	July 16
Union Cons M Co	Washoe	J M Buffington	Merchants' Ex	Annual	July 18
Utah S M Co	Washoe	W E Dean	419 California st	Annual	July 14
Washington & Creole M Co	Ely District	F D Cleary	Merchants' Ex	Annual	July 15
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Annual	July 20
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Special	Aug 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.		W. L. Oliver.	316 California st.	30	June 10
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	5 00	July 10
Cederberg G. M.'Co.	California.	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Con. Amador M. Co.	Cal.	J. B. Latham.	402 Montgomery st.	50	April 8
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 10	July 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	July 11
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 60	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener.	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	S. B. Minor.	411½ California st.	50	Dec. 5
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

Stocks are very quiet, there being very little business doiug eitber in tbe Board or on the street. Fluctuations have not been large either one way or the other. Iu speaking nf the state of affairs on the Comstock, the *Enterprise* of Satnrday ssys: Altbough we are hsving no sudden or startling strikes, good developments are being msde in not a few of our mines, and these are likely to gradually expand into something permanent. In the case of the Consolidated Virginia there never was any grand, startling strike. From small streaks and bunches of ore tbe vein wss followed until these led to deposits which now make the mine the finest on the lead. The Opbir Co. are now progressing in tbe same way, and tbe indications are, that tbe Hale & Norooross and the Imperial-Empire are traveling in the same direction.

Variations in price in prominent stocks bave been as follows: Belcber, between $83 and $86; Best and Belcber, $25 and $26; Bacon, $3.75 and $5; Caledonia, $18 and $19.75: Chollar, $69 and $72; Confidence, $11.50 and $13.25; Cons. Virginia, $82 and $82 50; Crown Point, $81.50 and $82.50; Excbequer, $60 and $66; Gould & Curry, $22 and $23; Hale & Norcross, $48 nnd $54; Overman, $32.50 and $36; Savage, $83.50 and $90; Trencb, $7 and $9; Yellow Jacket, $89 and $91; Empire, (Idaho,) $5.25 nnd $6.50; Golden Chariot, $7.25 and $10.50.

Arizona Mineral Lands.—Tbe Tucson *Citizen* is complaining tbat some of tbe most valuable lands in the Territory are reserved to the Indians, and says in its issue of June 27th: Tbe large areas covered by the Chiricahua and White Mountain Indian reservations are even now retarding enterprise. Especially is tbis true with reference to the White Mountain reservation wherein it covers the copper mines about Clifton. It is expected at Washington that Agent Roberts will recommend tbe reduction as requested by the miners, so tbat tbe department can make it with tbe approval of all the officers wbo are in a position to know that the Indians bave no use for, and hardly any knowledge of, the mining lands sought to he excluded.

Eureka Bullion.—Following are the shipments of bullion made by the different companies of Enreka for the month of June: Richmond, 1,000,000 pounds; Eureka Consolidated, 879,420; Ruby Consolidated, 533,527; Hoosac, 360,707. A total amount of 2,793,744 pounds shipped, besides whicb there are nearly 500,000 pounds produced not yet delivered.

Sale.—The Jefferson mining company, Jefferson cañon, Nye county, Nevada, bave sold two-thirds of tbe Prnssian Soutb and Jefferson mines to a party in San Francisco for the sum of $75,000 gold coin, one-third being retained by tbe former owners—Stephen Roberts and George R. Williams.

The Bellevue mining company, Placer county, sbipped last week a bar valued at $5,400, the result of a ten days' run.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

Edith Quicksilver Mining Co.—June 2. Location: Sonoma county. Directors: Morris Jacobson, Chas. A. Bacon, Henry P. Bowie, Chas. A. Lowe and David A. Jenning. Capital stock, $400,000.

International Gold Mining Co.—July 6. Location: Greenwood District, El Dorado Co. Directors: T. G. Bilty, Vincent Antonelli, Joseph Muriatha, J. M. Buffington and Geo. H. Hallett. Capital stock, $1,400,000.

Meetings and Elections.

California Iron and Smelting Co.—Meeting held at Sacramento on the 6th inst. Directors: N. Greene Curtis, F. Mier, I. B. Potter, M. J. Smith and J. M. Avery. The Directors subsequently elected N. Greene Curtis as Chairman, J. M. Avery as Secretary, F. Mier as Treasurer, and I. B. Potter as Superintendent.

California Pioneers.—The annual election of this association was held on the 7th inst., with the following result: President, James Lick; Vice-Presidents, David J. Staples, of San Francisco; Frederick F. Low, of San Francisco; Edgar Mills, of Sacramento; F. A. Hihn, of Santa Cruz; A. K. P. Harmon, of Alameda; Secretary, Louis R. Lull; Treasurer, Howard Havens; Marshal, William Huefner; Directors: Charles H. Chamberlain, Henry Schmeidell, David N. Hawley, Thos. D. Mathewson, John F. Pope, Charles R. Peters, John H. Turney, John A. Drinkhouse.

Correction.

Editors Press:—In speaking of the economy of quicksilver recently, I stated that the means of preventing tbe large loss nsually experienced in processes of the patio class, were "appsrently not understood" in Mack's mill.

Mr. Julius Psrtz, metallnrgist in that establishment, feels somewhat nggrieved by this, and informs me that he has long been aware of tbe proper method, but was prevented from carrying it out by circumstances beyond his control.

Why, under these circnmstances, tbe proprietor has allowed the waste to go on for a year and a hslf, it is not my business to inquire; but my object in making the statement was not to disparage Mr. Partz but to remove the impression thst so large a loss as Mr. Mack has stated to occur, is unavoidable, as I was aware that the matter bad been msde a subject of discussion between that gentleman and some metallurgists in San Francisco. As the contriver and promoter of the process used, I was natnrally desirous of having it understood tbat nn unduly large loss is not a necessary concomitant, nor is tbe heavy expense in otber respects in tbat mill to be taken as a criterion, being largely due to defects in the construction and arrangement of the mill, which defects, however, can be easily remedied, and in regard to whicb tbe builders were warned in vain.

C. H. Aaron.

Benton, June 29th, 1874.

White Pine.—Tbe people of White Pine are very hopeful that tbe old camp will make another prosperous start before long. The mines of Treasure Hill are all looking well, and tbe people of that section are anticipating a speedy change for tbe better.

Ditches in Montana.—A Helena, Montana, paper says that over $100,000 have been invested in the construction of new ditches in that Territory this year, but the supply of water will be very short, unless abundant showers of rain set in.

Reports from tbe cinnabar mines in Santa Barbara county are of tbe most favorable character. Notices of the location of claims in the Santa Cruz mining district, adjoining Santa Inez mining district, in this county, have been filed in the County Clerk's office.

Chrome Ore.—There are six hnndred tons of chrome iron ore from the mines at Cloverdale lying at McNear's wharf, Petslnma. It will be shipped to San Francisco next week, and from thence to New York in the ship *General McClellan*.

Butte Flume.—Work on the Butte Flume and Lumber company's new finme is progressing at the rate of 1,100 or 1,200 feet per day. It is now complete a distance of about thirty miles, leaving only about five miles to be finished.

New Tannery.—The new tannery in Santa Rosa will soon be in operation. The vats are msde, work-sbop up, and tbe proprietor expects to be turning out leather within tbe next ten days.

Good Yield.—One of the largest yields of quicksilver yet recorded in Napa county is that of the California company. On last Satnrday tbey sbipped 67 flasks of this metal from their mine, all the result of one week's work.

Recent explorations have developed excellent cinnabsr indications in Alexander valley, on Sausal creek, about 20 miles west of Calistoga. At least a hundred locations have already been made.

The dam of the Exchequer mill, at Silver mountain, Alpine county, whicb was swept away about a month ago, has been rebnilt, and the mill is again in operation.

Geologist Condon is in King connty, W. T., exnmining the various coal mines for geological specimens and scientific purposes.

During June there were 23,870 tons of ore shipped from the Comstock mines.

Mining Summary.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

Richer.—*Chronicle*, June 27: The Exchequer quartz wagon passed our office to-day loaded with very rich ore. Many pieces, the size of a man's head, were bespangled with native silver. Next week ore will be taken out in larger quantities.

AMADOR COUNTY.

Mining.—*Ledger*, July 4: Reports from the various mining localities in the county come in very favorably and give assurance that the gold yield will be very considerable before water will become scarce.

The placer mines in the vicinity of Volcano, Pine Grove, Aqueduct city and Fiddletown are returning fair pay for labor bestowed.

The tunnel at Volcano is progressing expeditiously.

About Enterprise, a number of quartz ledges partially developed, are now being systematically worked.

At Plymouth, the Phœnix more than holds its own, and can be classed among the valuable mines of the county.

At Drytown, work is steadily progressing on the Govsr, and with increasing evidence of a permanent valuable mine.

The Gold Mountain mining company, near Lower Rancheria, are pushing on with every encouragement. The White Mountain and Golden Crown companies are located on the same ledge, and work on each is vigorously carried on.

The developed mines are turning out their usual monthly harvest of gold in rather increased quantities, and all bid fair so to continue.

The tunnel under the Butte mountain is being rapidly driven in, and although it will require time to reach the interior basin, yet it will be accomplished in good time, and the long buried treasure beneath this grand old land-mark will be brought to light.

The Republic.—This mine is situated near Jackson, on the great mother lode passing through this county, and at its present stage of development shows a good vein of very rich rock. We know of no undeveloped mine offering better inducements to capitalists to invest than this. Mr. Joseph Sayers left for San Francisco on Wednesday morning for the purpose of making arrangements to prosecute the work of developing the mine. We hope he will be successful in enlisting capital in the development of this mine.

McKay & Love.—The tunnel on this mine is being pushed forward with commendable energy, and at the present time the ledge is looking and prospecting finely, much better than the owners expected to find it at the point the tunnel has reached. The tunnel is now in about 200 ft., and has been run on good rock the entire distance. Two hundred ft. more will strike the main chimney.

Amador Canal.—This splendid work is now about completed, and in a short time every kind of business in this county will begin to feel its beneficial effect.

BUTTE COUNTY.

Record, July 4: The Bull Creek diggings are paying from $2 50 to $50 to the hand per day. The miners complain of a scarcity of water.

CALAVERAS COUNTY.

Contract Let.—*Chronicle*, July 4: The contract for sluicing off the surface of the Quaker City quartz mine, for the purpose of obtaining a solid foundation for the machinery, has been let to Cowan & Co.

San Bruno.—Everything is progressing favorably at the San Bruno. Three stopes are being worked and the tunnel run ahead. The ledge continues wide and rich. About 20 tons of ore have been mined since the late clean up.

Mill Nearly Completed.—The mill in process of erection on the Austrian mine at Jesus Marie is nearly completed.

The Horse-thief Mine.—Good rock is now being obtained from the Horse-thief mine at Jesus Maria. The running of a new tunnel to strike the vein is completed, uncovering a good quality of ore. The water-power arrastra connected with the mine will be set at work upon the rock soon.

Sandeason Mine. — The work of sinking the shaft in the Sanderson mine, at Railroad, proceeds steadily. It has reached a depth of 295 feet. A first-class quality of rock is being obtained.

COLUSA COUNTY.

Rich Strike. — *Sun*, July 4: The Abbott Quicksilver Mining Co. have heretofore been working on two tunnels, about 2,000 ft. apart, out of which they have been taking rich ore. In order, however, to get ready for their furnace, they commenced on Monday a new tunnel, and we learn that they have struck the richest body of ore ever found in any of the mines in the Coast mountains.

MONTEREY COUNTY.

Monterey Coal Mines.—*Democrat*, July 4: The company working the original claim have now quite a force of men employed. It was found, sinking upon the 4-ft. seam heretofore reported as reached by a tunnel, that it thickened as the workmen went down upon it an inch to the foot. To save time, therefore, a new tunnel was projected a considerable distance below the first, and this is expected soon to strike the seam. As to the quality of the mine, we have but to repeat that there is coal enough in sight to warrant any reasonable expenditure of capital in preparations for working it.

NAPA COUNTY.

Gold in Napa City.—*Register*, July 4: The workmen employed in sinking a well for the new hotel in East Napa, over the Third street bridge, on Saturday, when at the depth of 22 feet, struck a stratum of gravel mingled with clay, which, on washing, showed a fair prospect of gold. The metal was in small grains, some as large as a pin's head, mixed with black sand. It may be that there is one of the ancient river beds that have at other points been found so prolific in the precious metal. Further excavations will tell the story. The discovery was made by Mr. W. Kennedy.

This morning work was continued to a depth of 25 ft. In the morning, Mr. Henry Fowler washed out a pan which he estimated to be worth from two to three cents. A boy picked up among the gravel a piece worth from 25 to 30 cents, washed and water-worn. A pan was washed out in our presence at 2 P. M. to-day, which we think is worth about four cents. Who knows but Napa has not some gold mines yet?

NEVADA COUNTY.

Omaha. — *Foot-Hill Tidings*, July 4: This mine, near Missouri Hill, is looking first-rate. The drift running east from the bottom of the shaft recently opened a ledge 2 ft. thick, which shows gold to the naked eye and abounds in sulphurets.

Hawley Brothers own a gravel mine near Columbia Hill, in this county, and also a water ditch, enabling them to work their mine with great profit. A clean-up made last week, after a 6 week's run, turned out gold to the value of over $3,700. As the expenses are said to be only about 9 per cent. of the gross product, owing to the fact that they have free water, this mine may be said to be a good thing to have, and as the ground owned by the brothers covers nearly 40 acres, and the gravel thereon is 60 to 80 feet deep, they are likely to have paying work for some time to come.

The mines of Grass Valley are giving out, indeed, and in the most approved manner. We saw at Delano's bank on Wednesday two gold bars valued at $13,000, from the Empire—Ophir—mine, the result of 14 days' run.

Perrin's mine, Slate Ledge, is turning out ore that mills over $20 per load; and the workmen struck a ledge in the west drift on Saturday last which shows good rock and is 1½ ft. thick. The last clean-up was $672 from 28 loads of rock.

Burleigh Drills.—The machine drills at the Idaho are proving all that has been claimed for them. One drill it is said will put in 60 inches of holes an hour. The average made by hand drill, three men to a drill, has been 9 inches in the same kind of rock.

A brick worth $2,174 was the product of the run of Larrimer mill on New York hill rock, mentioned by us last week. There were 57 loads of rock worked, which makes the average about $38 per load.

PLACER COUNTY.

The Bellevue Mine.—*Herald*, July 4: From this mine we have the following good news. After a short run of ten days, on average ores, cleans up $5,426; 155 tons crushed, yielding $35 per ton. A large portion of the rock crushed, was taken from shafts Nos. 4 and 5, where the ore is not as rich as the chute of ore in shafts Nos. 1 and 2. The latter is now open, and stopes in shape for the extraction of high grade ores. The next clean-up should be proportionately larger.

PLUMAS COUNTY.

Copper Specimens.—*National*, June 27: Mr. Sanderson, of Long Valley, has sent us some fine specimens from his newly discovered ledge, near Summit. The rock shows splendid indications, and the discovery is close enough to the railroad to make it valuable at once.

Heath's claims at Argentine will turn out well, as he is driving through an immense quantity of rich dirt. Bolinger & Simmons in their new claim on Spring Garden creek, are taking out good pay, and think they have a valuable and extensive piece of ground. Bushman's claims, on the head of Black Hawk, are paying first-rate, and the indications are that they will continue to do so.

SISKIYOU COUNTY.

Good Pay.—Yreka *Union*, July 4: The claim of Spangler, Moore & Co., on lower Humbug, is paying well. Since they commenced to wash up the yield has been over $50 a day to the hand. This we call doing well for the year 1874 in Siskiyou. The claim was taken up and commenced about 20 years ago.

Commenced.—Little, Swan & Varney have commenced work on their claim on Oak Bar. The pay they received last year leads them to entertain hopes of doing pretty well this season.

Stopped.—From Mr. Gillis we learn that work has been stopped at the mine on Hayden hill, near Adin, and the loose property of the company is being sold off.

SONOMA COUNTY.

Ida Clayton and Yellow Jacket.—*Democrat*, July 6: Brick is being made on the Knight's Valley ranch for the construction of a Knox & Osborn furnace to accomodate both the above mines. One hundred thousand brick are now in process of burning. A flume, 18 inches at the bottom and 36 inches at the top, has been constructed to convey water from Mill creek, a distance of a mile. The furnace will be located one and a half miles from the Yellow Jacket, and one mile from the Clayton mines. Forty Chinamen are engaged in building a good road. A survey is being made for a road from the Great Western mine to Knights Valley ranch house, which, when completed, will connect with the Calistoga and Geyser road, and with a road from this place to Knight's valley will afford direct communication between Santa Rosa and Middletown, and other points in Lake county, through Loconoma valley. This route would avoid the grade over St. Helens mountain and place the trade of the lower portion of Lake at the door of our merchants. Santa Rosa would then be nearer to them by way of Knight's valley than either Calistoga or Napa. Immediate steps should be taken to avail ourselves of the advantages to be derived.

TULARE COUNTY.

Another Discovery.—Visalia *Delta*, July 2: We were shown, last week, a sample of rock from a new lode recently discovered on Little Kern river, in Mineral King district. The specimen weighed some 15 pounds, and seemed nearly as heavy as lead.

We were shown by David M. Adams, Esq., a certificate of assay, giving a result of a test of a sample of rock taken from the surface of the new discovery known as the bullion lead in the Mineral King mines. The assay shows $30.16 in silver, and $105.51 in gold per ton. The lead is said to be over 30 feet wide.

TRINITY COUNTY.

Developing.—*Journal*, July 4: Siegfried & Co. are at work on their quartz ledge, at the head of Indian creek, and have uncovered about 1,000 feet, being down to the depth of ten feet, in places, with no falling off in the prospects. The lode has been named "Bully-choop," it being situated on the mountain so named by the Indians.

TUOLUMNE COUNTY.

Table Mountain Alpha.—*Independent*, July 4: Superintendent Collins of the Alpha has shipped per Wells, Fargo & Co.'s Express, July 1st, at Jamestown, $350, the result of two days' washing. He is just opening out preparatory to work in earnest.

Table Mountain Blue Gravel Co.—This claim is showing the richest kind of ground—richer than any ever taken from the mine before; large pieces or lumps are picked up while getting out the gravel. This is in the south end of the mine, and near where similar results were obtained some 20 years ago, where the old and original tunnel was run in the mine. The shipment of July 2d, of one week's run, was 100 ounces of gold.

VENTURA COUNTY.

Coal.—*Signal*, July 4: Mr. Callis has discovered what, upon examination, proves to be a coal mine. A district has been located called the Hubbard coal mining district. Mr. A. F. Hubbard is the recorder.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Gold Hill *News*, July 2: The ore breasts on the 1,200, 1,300 and 1,400-ft. levels are still looking well and developing steadily. Most of the ore extracted is from the 1,200 and 1,300-ft. levels, but little more being done on the 1,400-ft. level than opening out and getting ready for future operations. Prospecting the ore vein is still vigorously prosecuted on that level, the west wall of the vein having never yet been reached.

Savage.—Sinking the main incline below the 2,000-ft. level goes steadily on. The south winze from the 1,900-ft. level has made the connection with the south drift on the 2,000-ft. level, giving a much needed circulation of air, and greatly facilitating the work in that portion of the mine. The south drift is now being enlarged.

Justice.—The water is all out of the incline, and sinking is going ahead. About 40 tons per day of good ore is being taken out through the old Weller Defeat shaft. A large force of men are employed excavating for the foundation of the new machinery. This machinery is now being manufactured in San Francisco, and when completed will in power and finish be second to none on the line of the Comstock.

Gould & Curry.—A station has been opened in the double winze at the 1,800-ft. level, and cross-cutting the ledge commenced at that point. The quartz on that level shows a great improvement in the quality, and there is strong hopes entertained of a good development of ore in that quarter soon.

Utah.—On Friday last a large flow of water was struck in the bottom of the shaft, which stopped the sinking, and has kept the tanks busy hoisting water ever since. The flow of water is again gradually subsiding.

Nevada.—The mine being now well opened and developed at the present working level, showing a large amount of pay ore, work is suspended at that point, and in order to open the mine 100 feet deeper, a new tunnel is being started from the ravine south of the hill.

Chollar-Potosi.—Daily yield, 100 tons of ore, assaying $30 per ton. There is little or no change in any of the ore-producing sections.

Sierra Nevada.—Daily yield, 60 tons of ore, keeping the mill steadily running. The ore breasts to the west end north show somewhat of an improvement in the quality of the ore extracted. The hydraulic works are doing good execution. The erecting of the hoisting and pumping engines and other machinery is fast approaching completion.

Dardanelles. — Sinking the new shaft is making good progress. The preparatory surface work for the erection of the new hoisting machinery is making steady progress.

Hale & Norcross.—Cross-cutting and prospecting is vigorously prosecuted at points near the north line and near the center of the claim on the 1,900-foot level. The main west drift of the 2,000-foot level has cut the ledge and developed some fine ores which bids fair to develop into a large and paying body.

Ophir.—All work has been suspended in the mine during the past five days, pending a settlement of a controversy among the trustees in regard to the superintendency, two parties claiming the control in this matter.

Kossuth.—The excavations for the foundations of the new machinery are completed, and the stone work has just commenced.

Globe Consolidated. —The face of the north drift at the head of the incline is still in fair grade ore. The winze from the track floor is down 130 feet. The ore stopes are all looking finely.

Caledonia.—The main shaft is down 25 feet below the 800-foot station, the bottom still in clay and quartz, and the sinking making splendid progress.

Bullion.—The main north drift on the 1,700-foot level from the Imperial is still being driven vigorously ahead, the face in quartz and low-grade ore.

Julia.—The excavations for the foundations of the new machinery are completed and the stone foundations are being laid. The ore development in the south drift on the 900-foot level still shows finely and gives great encouragement.

Imperial Empire.—The south drift from the main east drift on the 1,850-ft. level is still driven slowly ahead, the face in about $30-ore, with prospects of an increase if anything, in the value.

Alamo.—Sinking a new shaft was commenced a short time since, which is now down 75 feet, at which depth a rich body of ore has been struck, very much resembling the rich pockets of pay ore found near this surface in early days. This body of ore bears every appearance of being both rich and extensive.

Buckeye.—Driving the south drift at the first station level is making steady progress. It is expected that connection will be made between this drift and the south winze in about two weeks more, when the extraction of ore from that portion of the mine will be commenced.

Dayton.—The flow of water through the drain tunnel is still gradually diminishing. The mill is kept steadily running on the ores in reserve.

Sutro Tunnel.—Work is progressing actively in the main headings, and both east and west along the line of the tunnel, from the bottom of shaft number 2. The Burleigh drills are doing very effective work, and the construction of the tunnel is advancing at the rate of about 100 ft. per week.

Baltimore Consolidated. — The new machinery is all in complete running order, and works with the utmost perfection.

Leo.—The main tunnel is still being driven ahead into the hill, following the lead at a fair rate of progress. The ore streak in the face of the tunnel remains about the same.

Silver Hill.—The quartz in the north drift on the third station level has greatly improved in appearance in the past four days. The ore in the east cross-cut from the south drift, at the first station level, has widened out to about four feet, and is of a fine quality.

Overman.—Both the north and south drifts on the 1,200-ft. level are being driven vigorously ahead.

Mint.—Sinking the main shaft is making excellent progress.

Yellow Jacket.—Sinking the main incline goes steadily on. Cross-cutting on the 1,400 and 1,540-ft. levels is still vigorously prosecuted.

Belcher.—A new winze has been started on the 1,400-ft. level, which is down 35 ft. The new air shaft is down 165 ft., and is being driven vigorously ahead. Daily yield, 550 tons of ore. The ore breasts throughout the entire mine are looking splendidly.

Crown Point.—Daily yield, 550 tons of ore. The ore breasts throughout the entire mine are looking well and yielding splendidly. The middle winze, following the west wall of the ledge, is down 90 ft. vertically, the bottom still in fine ore. Sinking the main incline is making steady progress.

Tyler.—Nothing has been done in the mine during the past week, owing to a breakage of some of the pumping machinery.

Knickerbocker.—The water is nearly drained from the shaft. The body of quartz developed in the main west drift, at the 400-ft. level, is of a fine character, but only assays about $7 per ton.

Lady Bryan.—The new shaft is down 230 ft. Everything working splendidly.

California. — Driving the north drifts on both the 1,400 and 1,500-ft. levels from the Virginia Consolidated shaft is making excellent headway, as is also the south drift from Ophir, on the 1,400-ft. level.

Pictou.—Still driving ahead the tunnel for the main lead. Stringers of quartz keep coming in.

Woonville.—Still driving northward on the ore vein on the 400-ft. level, which is looking very encouraging.

Sutro.—Still driving the main west tunnel ahead. The flow of water continues to steadily increase, but does not interfere with work.

Occidental. — Sinking the incline winze below the tunnel level, is making good progress, the bottom still in fine ore.

New York.—The shaft is cleaned out, and an east drift started to cut and prospect the ledge at the 600-ft. level.

Fair of State Agricultural Society, 1874.

We have received a premium list of the California State Agricultural Society for the fair of 1874, at Sacramento. The fair commences on the 21st and ends on the 26th of September. Over $20,000 are appropriated to premiums. The departments are comprehensive, embracing nearly everything of an industrial character, and much of art, and are judiciously classed.

An opportunity is now offered for the ardent champions of special localities to prove their superior advantages. The outside world will now have a chance to judge each favorite spot by its fruits. In no way can a local paper serve the interests of its neighborhood so effectively as by stimulating its readers to make the best possible showing of the products of the locality. No country is so closely scrutinized in this respect as California. The wonderful versatility or variety of its climate and soil are well known, and the question, In what part of California shall the new-comers locate? is as thoroughly ventilated as that of coming to the State at all. We hope to see each and every part so profusely and judiciously advertised at the approaching fair that whatever a man may want he will know just where to find it.

It is expected that the display of farm stock at the coming fair will excel that of any previous exhibition, as the past year has been remarkable for the increased enterprise manifested by stock-breeders; especially in the cattle department. The exhibition is also looked forward to with the highest anticipations, as the growing crop gives promise of unusual excellence. The approaching fair will also undoubtedly do much toward solving the question of the disposal of our enormous amount of fruit, as the great improvements made in drying and canning will be properly represented there. A more complete list than usual of agricultural implements of California manufacture is also anticipated. The above, however, are mere items among the new points of interest connected with the coming fair; while the standard merits of our annual exhibition will, at least, be up to any former display.

There is a large and extremely interesting class of California industries, embracing those matters that as yet hold the position of experiments, which we hope will be exhibited each in their present degree of perfection. All of them will command attention, and some of them are of great importance, and are expected to become prominent among the great interests of the State. Let the ardent enthusiasts and patient experimenters in these matters show the world at what point they have arrived.

A Novel Cure for Dyspepsia.

Some years ago, a physician in New York city published a small book, in which he gave written certificates of marvellous cures of dyspepsia. His cures were mysterious and very effective. He charged $500 for a cure, and his patients were most solemnly pledged, with much ceremony, to profound secrecy as to the mode of treatment. After the death of the doctor some of the patients felt themselves absolved from the obligations of secrecy, and one of them disclosed these facts:

After correcting some of the most grossly dietetic habits, he required each patient to spend 10 or 15 minutes in the morning, at rising, in kneading and slapping his own abdomen with precision. This was to exteud over the stomach, bowels and liver. This was repeated just before dinner; again at 7 P. M., with precision on going to bed. The patient was requested to be temperate and regular in all his habits, exercise much in the open air, and attend most assiduously to the slapping, kneading and percussion of the whole abdomen; and as the result, we are informed that malignant cases of indigestion that had resisted all other remedies, yielded to this:

"In every case of indigestion," says Dr. Lewis, "no matter what may he its character, slapping the bowels with the flat of the hands on risiug in the morning, four honrs after breakfast, and in the evening on going to bed, is excellent treatment. I cannot oonceive of a case of chronic indigestion which such a manipulation would not relieve. If a person is so weak that he cannot perform these slappings and kneadings for himself, then the hands of a discreet person should be employed." It is marvellous how a stomach, sore and sensitive as it is at first, and hardly able to bear a touch, will strengthen under these operations, and bear, for a short time, with pleasure, pretty rough handling.—*New Age.*

Prospecting.—North of this city, from the Sierra Nevada to the race course, a distance of four miles, all along the range of the Comstock, evidences of the prospector's industry are visible. New shafts are being sunk on either side of the road, and good prospects are said to be obtained. The energy displayed by mine-owners in that part of the conntry will soon make it one the most valuable of our mining sections. The Utah miuing company have a shaft 510 feet in depth. The drifts south of the main west drift, on the 400-foot level are being continued. They have encountered some fine-looking quartz in the openings of that mine. The main drift in the north mine is steadily being advanced in the ore vein. The mine is within 100 yards of the race track. It would not surpriee us to hear of rich developments in that section.—*Virginia Chronicle.*

Idaho Mines.

From the Owyhee *Avalanche*, of the 27th ult., we glean the following: The prospects of our camp continne better and better all the time. Ontside of the Comstock, Owyhee will produce more bullion this season than any other mining district on the Pacific coast where the milling process is carried on. Commencing with August our bullion shipments will not fall short of $250,000 per month during the remainder of the year. At least thirty more stamps than we have in camp will be needed to crush the ore that can easily be taken from our mines. The Golden Chariot and South Chariot can furnish enongh ore to keep every mill in camp pounding away night and day; more mills will be needed for the ore produced by Empire, Mahogany, War Eagle, Illinois Central, Poorman, Silver Cord and several other mines that are being worked by private parties. The good times that we have all been waiting for are dawning upon us at last. All doubts are dispelled, and confidence is infused into every branch of industry carried on in our midst. Our merchants are receiving at least three times the quantity of goods than ever before, at this season of the year—and they will find sale for them, too. A great many more miners will be needed, and the army of wood-choppers, teamsters, coal-burners, etc., will also call for strong reinforcements. Hurrah! for old Owyhee at last.

Golden Chariot.

Superintendent Keown shipped to San Francisco, last Saturday, 4 bars of bullion, valued at $11,914.45, making about $42,000 since the 2d inst. The mill is running night and day.

South Chariot.

This mine continues to open up splendidly, and everything will be ready to take out large quantities of ore as soon as the new hoisting works get in opsration, which will be some time next week. About 80 miners will be employed in taking out ore, and the South Chariot and Cosmos mills will be constantly kept running thereon.

Mahogany.

In company with Superintendent Pheby, we visited this mine last Wednesday afternoon and witnessed the starting up of the new hoisting works, which operate like a charm. The engine is 44-horse power, 20-inch stroke, and can be run 100 revolutions in a minnte. It is estimated that the new machinery will work the mine to a depth of 1,500 feet. The ninth level crosscut has tanped the ledge, which is two feet wide. They will immediately commence sinking for the tenth level, in which will undoubtedly be struck the big shute of ore found in the eighth level of the South Chariot, as it is making south at the rate of about 100 feet in 100 feet.

Empire.

Superintendent Hoyt made his first shipment of Empire bullion this week—5 bars, valued at $8,945.89. The mine continnes looking first-rate and is in good shape for yisldiug large quantities of ore.

War Eagle.

The seventh level drift, both north and south of the shaft, shows a two-foot ledge of fine milling ore. The sixth level has been timbered in good shape, and they will soon commence sinking for the eighth level.

The Hazard Mine.

The Hazard mine, now being worked by a San Francisco company, has proven itself to be one of the best paying mines in the State. It is sitnated on the Volcano cañon, abont one and a half miles from Michigan Bluff. It was located in 1858 by Forrest, Allen and others, who sunk a shaft 150 feet deep, and found good prospects. On account of the insufficiency of their machinery, they were unable to work to any advantage, the water being in the way. They sold the claim in 1872 to Messrs. Kewen, Breeze, Carroll, Loyd, Davidson, Huntsman, Mnrphy, Lever and Brainard, who commenced operations by putting in an engine of twenty-five horse power, hoisting-works, and a six-inch Cornish pump of four feet stroke. They sunk the shaft a few feet deeper and ran a tunnel on the channel nine hnndred feet to the east. The mine was worked nnder the superintendence of Mr. Kewen up to April last, when he resigned, to take charge of the Golden Chariot mine, at Idaho. Since then, George Johnson has had charge of the work. The company is working from twelve to sixteen men. They own one hundred and fifty acres of mining ground, by purchase and location, and have the benefit of two miles of cañon, for nndercurrents, flumes, etc. The bed of pay gravel is from six inches to six feet in thickness, the balance of the ground being hard cement. It is the intention of the company to put up a mill next season, for the purpose of crushing the gravel. They have already expended about $40,000 in developing the mine. One very note-worthy feature of the company is that its men have been regularly paid off every month, since work began, without reference to whether the claim was paying or not. No shares have been sold, and none offered for sale.—*Placer Argus.*

The Consolidated Virginia mine, on the Comstock, is putting up a new 60-stamp mill. The men are now grading a site for it. The ore raised from the mine can be run to the mill in the same cars used in bringing it up the shaft. The machinery for the mill is being manufactured in San Francisco, and will soon be completed.

Olive Growing.

When will the list of California fruit productions be complete? Pomona, like the rest of her sex in California, is mighty hard to please. The more she has, the more she wants. There is no portion of the earth that can vie with this in variety of fruits, and probably there is no place where more experimenting is done in introdncing new varieties. The olive is among the anticipated acquisitions to the California fruit-list, and experiments in localizing it are observed by many with a good deal of curiosity. To such, the following from the San Diego *Union* will be of interest:

Last week we had the pleasure of visiting the beautiful place of H. M. Higgins, on the Sweetwater. Many of the things seen there are worthy of special notice; but at present we shall speak simply of the young olive-trees. Not many had been planted—only enough for an experiment; but the experiment is worthy the attention of all our landholders. The trees are of only two years' growth from cuttings, and yet they have already begun to bear. Another year will give quite a good crop; and each succeeding year the yield will increase until the trees have attained full maturity. The prevailing impression has been that the olive will not bear until 10 years old, this being the ordinary time of bearing in other portions of the world, with most of the varieties cultivated. But in California, with the varieties here planted, the case is different. Colonel Hollister's extensive orchard, four miles back from the coast, at Santa Barbara, was in bearing three years after planting. The Kimball Brothers, also, have two-year old trees full of fruit, on their lands at National City, upon the Bay of San Diego. Mr. Higgins' place is farther off the coast, being about eight miles inland, where the air is less saline, and the winds from off the ocean are very much moderated. At these three places the trees are not planted in valley land, but on the *mesa* or table land. By mulching, for a yard or more, all around the trees, or by covering the surface with sand from six to eight inches deep, the under-soil is kept loose and moist; so that only occasional and moderate irrigation is required during the first three or four years, until the roots have struck sufficiently deep to reach permanent moistnre. At the Mission of San Diego, the old trees, planted by the missionaries, a hundred years ago, are in valley land, and they probably never were irrigated. Their present flourishing condition, after many years of neglect, and the vigorous growth and healthy appearance of the trees at the Hollister, Higgins and Kimball places, show that from Santa Barbara down to the Mexican boundary, all along the coast, and for at least 10 miles back, the soil and the climate, on upland and in valley, are peculiarly adapted to the growth of the olive.

Protection to Game.

For the benefit of those who are in doubt as to where sporting is an infringement of the game law, we give from a contemporary the following, which will be a safe guide in hunting and fishing matters:

Quail, Ducks, Etc.

In the counties of Lassen, Plumas and Sierra, it is unlawful to "take, kill or destroy" quail, partridges or grouse between March 15th and September 15th, or any kind of broadbill ducks between March 15th and August 15th.

In Los Angeles and San Bernardino it is unlawful to kill quail, partridges, grouse, or any broadbill duck between August 1st and the first of April of the next year.

In all the other counties of the State none of the feathered creatures above enumerated must be molested between March 15th and September 15th.

Trout.

Trout cannot be lawfully caught in any part of the State between October 15th and April 1st, in the following year. And it is unlawful to catch trout, except with hook and line, at any time, in the counties of Santa Clara, Santa Cruz, San Mateo, Monterey, Alsmeda, Marin, Placer and Nevada. It is a misdemeanor to take, catch or kill trout in any part of the State, by the use of nets, weirs, baskets or traps.

Elk, Deer, Antelope.

The law protects elk, deer and antelope, from January 1st to August 1st, in all the State except El Dorado, Placer, Nevada, Sierra and Siskiyou counties, where it is not permissible to hunt such game from February 1st to August. As this is the kind of game our inquirer is longing for, he will have to wait till August. [Laws of 1871-72, page 433.]

Salmon.

The Penal Code makes it a misdemeanor to "take or catch" salmon between June 1st and September 1st; nevertheless the restaurants and fish stalls have no lack of salmon at present, and have not lacked it during the whole of last month. By what authority this fish is caught now it seems difficult to surmise. An examination of the laws of 1871-72 and those of 1873-74 shows no amendment to the Code provisions referred to.

Fighting is going on near Estella, Spain, where Gen. Concha was killed, thus far without result. It is thought that the Carlists will be forced to abandon that place.

Pioche Mines.

The Pioche *Record* of the 28th ult. says: The situation in mining matters exhibits so little change from our last week's report, that it is difficult to find a noteworthy subject of remark. The work in the Raymond & Ely is limited strictly to opening the lower level, 1,200 feet from the surface. The eastern drift presents the same appearance in the face as last noted, a sufficiently large vein, but carrying no ore. The drift on the western side is still in the cross-head, and has not yet reached the line of the further vein. From the Magnet Co's ground the usual amount of ore is being taken out, the grade of which is without any alteration.

At the Meadow Valley shaft No. 3, the eastern branch of the 1,200-foot level has reached a length of 55 feet. The ground through which it is progressing is still very broken. On the western side the drift is in 120 feet, and shows a strong and promising vein, but carries little or no ore. The eastern drift of the 1,100-foot level is now in 242 feet. The face shows well and exhibits considerable metal. The Summit, or No. 5 shaft, is still in the north wall of the vein. The formation is extremely hard, putting rapid progress out of the question. Its depth is 1,092 feet. If pumping machinery is erected by this company, it will necessarily be placed in this shaft, which will probably have to be sunk 300 feet further to reach the water level.

The cross-cut from the Pioche's new shaft is now in about 200 feet, and is progressing as rapidly as the nature of the ground will permit.

The main shaft of the American Flag is down 992 feet, and it is expected that by the end of the mouth it will be sufficiently deep to open a new station, which will be the tenth. In the westerly drift above, which is in 160 feet, the face shows a ledge three feet in width, carrying some excellent ore, assays of which vary from $85 to $165. The appearance of this drift is very encouraging. The company's mill is kept busy working tailings.

The Havana Co. are making a road to permit the access of teams to the dump, and will probably commence hauling ore to-morrow to the Floral mill.

Gold Mining.—On Cedar hill, north of this city, the Sierra Nevada company are working away at the side of the mountain. The hydraulic has been in operation about three weeks, and it is said that the claim is now paying $1,000 a day. They are supplied with water by the Virginia and Gold Hill Water Company, and are running 500 tons of gravel daily through an eighteen-inch flume. During the day all the water brought into the city by the water company is used by our citizens. At night, however, the water is shut off from the city, and is allowed to run from the flume of the company into a large tank to be used for hydraulic purposes. From this tank the water is conveyed in an iron pipe a distance of seven hundred feet. The hydraulic claim is being worked but ten hours each day, with one hundred inches of water forced through a two-and-a-half-inch nozzle, great execution being done. The Sierra Nevada company have ground enough to last them several years. This ground would have been worked years ago, were it not for the scarcity of water, as it was known to be rich in gold. Now, however, the whole hill will probably, by the use of the hydraulic, be made to pay a handsome profit to its owners.—*Virginia Chronicle.*

Accident at the Belcher.—Yesterday forenoon, between the hours of 9 and 10 o'clock, there was a grand smash-up in the Belcher incline; but, fortunately, no one was hurt. The giraffe and back-action, however, were knocked into kindling-wood. The giraffe and back-action had both been loaded at the foot of the incline, and had been hoisted up to within twenty-five feet of the top, when the cable suddenly parted. Giraffe and cars went down to the bottom of the incline at a tremendous rate of speed, and running into its rocky face at the bottom, were splintered into a thousand fragments. Luckily, after loading the cars, the men had ascended the incline in order to get some water, and for the purpose of cooling off for a few minutes. Thus they were all out of the way of harm. Had they remained at the bottom, several of them must have been killed or terribly injured. One man, Johnny Smith, was on the giraffe when the cable broke, but the sudden jar threw him off; and, by this fortunate accident, his life was undoubtedly saved. Why the cable should have parted as it did, is one of those things that are "past finding out," as up to the moment it broke it was considered perfectly safe.—*Gold Hill News.*

No Water in the Sun.—M. Janssen states that Croce-Spinelli, in his recent balloon ascension to an elevation of 25,000 feet, finds by spectroscopic observation that the lines in the spectrum, ascribed to the vapor of water, are due to the terrestrial and not to the solar atmosphere; since when the former, by reason of the elevation, is greatly eliminated, the bands are also in like proportion decreased. It may, therefore, be considered that in the sun there is no watery vapor, at least in appreciable quantity, and that consequently the temperature of that body is not yet sufficiently lowered to allow water to form.

A Washington dispatch states that Col. H. C. Whitely, Chief of the Secret Service, has not resigned, but has demanded a thorough investigation, which has been granted.

Useful Information.

Etching Iron.

Prof. Kick, in Prague, bas devoted much time and attention to studying tbe subject of etching iron with acids. Tbis method is not a new one for arriving at a knowledge of the quality of iron or steel, having been used with some success for a long time. Some kinds of iron exhibit what is known as tbe passive state, and are unacted upon by acids until this state has been destroyed by heating; another disadvantage was that the surfaces thus prepared were inclined to rust very soon. After a series of experiments with nitric, sulpburic and hydrochloric acids, and etching solutions of copper salts, Prof. Kick found that a mixture of equal parts of hydrochloric acid and water, to which was added a trace of chlorido of antimony, was the best etching solution. Tbe chloride of antimony seems to render the iron less inclined to rust, so tbat, after washing thoroughly in warm water, and applying a coat of Damar varnish, the etched surface may be preserved quite clean. The smooth surface that is to be etched is surrounded with a ridge of wax an inch high, as is done in etching copper plates, and tbo acid is poured into the dish thus formed. At a temperature of 55 to 65 degs. F. the action soon begins as shown by the gas evolved; in winter the etching is poor. The time required is usually one to two hours, but the etching should go on until the texture is visible. Every half hour the acid can be poured off without removing the wax, the carbon rinsed off and the surface examined. If too much chloride of antimony is added to the acid, a black precipitate will soon form, which can easily be distinguished from the carbon. One drop of chloride of antimony to the quart of acid is sufficient. When the etching is finished, the wax rim is removed, the iron washed first in water containing a little alkali, then in clean water, brushed, dried and varnished. If in a few hours it begins to rust, the varnish should be removed with turpentine, which will also take off the rust, and then varnish again. The appearance of different kinds of iron when etched is essentially as follows: Soft or sinewy wrought iron of excellent quality is attacked so equally by the acid, and so little carbon is separated, even after several hours' action, that the surface remains bright and smooth. Fine grained iron acts the same; the surface is still smoother, but a little darker. Coarse grained and cold short iron is attacked much more violently by acid than the above. In 10 minutes, especially with the latter, the surface is black. After thirty minutes a black slime can be washed off, and the surface will remain black in spite of repeated washings, and exhibits numerous little holes. Certain parts of the iron are usually eaten deeper, while others, although black and porous, offer more resistance. By allowing the acid to act for an hour or so, then washing, drying and polishing with a file, a distinct picture is obtained. Malleable cast iron, we know, rusts more easily than wrought iron, and it is interesting to know that the action of acids is also violent, the surface being attacked very violently. In puddled steel the color, after etching and washing, is gray, with quite a uniform shade, and the lines are scarcely visible. Cement steel has a very similar appearance, the lines being very weak. In Bessemer and cast steel the etched surfaces are of a perfectly uniform gray color, with few, if any, uneven places. The softer the steel the lighter the color. On etching, the finest hair-like fractures are rendered prominent. A piece of steel, which looked perfect before etching, afterward exhibited a hair-like fracture throughout its whole length. Gray pig iron acts like steel; the etched surfaces have quite a uniform gray color. When different kinds of iron are mixed the acid attacks that for which it has the greater affinity, while the other is less acted upon than if it were alone. Etching also enables us to determine with considerable accuracy the method of preparing the iron, as in case of rails, as well as the kinds employed.—*Iron Age.*

Preserving Iron.—Experiments on the preservation of iron surfaces show the advantages of coating such surfaces with heavy mineral oil. The action of the oil is said to be twofold. It is detergent when freely and vigorously brushed over an already rusted surface, seemingly loosening the bulk of the rust, while it also darkens that which remains; and it likewise acts as a varnish, if applied after the cleansing has been effected, or to new and bright work. Its superiority to vegetable or animal oils depends upon the fact that the bulk of the oil in the latter case evaporates, and leaves only a very fine film behind. If the oil is light, and fully refined, it evaporates so completely as to do but little good; but if tinged, or "once-run" oil of sufficiently high gravity be used, the resinous or carbonaceous matter which gives the tinge to the oil remains behind, and forms a thin, protecting film of varnish. Ordinary varnish leaves far too thick and obvious a film, while the film of the once-run oil does its work of protection without displaying itself. As regards the density of the oil required for this purpose, that which stands between burning oil and good lubricating-oil is found to be the best.—*Technologist.*

Preserving Wood with Tannin.—A consideration of the various materials best adapted for preserving wood, leads Hatzfeld to conclude that substances containing tannin are the best preservatives.

Spurious Coins.—It seems that science is impartial in conferring her favors. Counterfeiters and philanthropists make equal progress. Lately a new imitation has appeared in England, as we learn from the *Ironmonger*. That paper says: We regret to find it necessary to caution our readers against taking spurious gold coin, as it appears that the usual tests of musical ring, milled edge, or even weight, are no longer reliable tests. That "all is not gold that glitters" is now clearly demoustrated, for scientific roguery has now so far advanced that tokens of platinum alloy are being produced so exactly resembling the precious metal as to deceive the most careful and experienced business men. So close, indeed, is the imitation, that a specimen taken recently by a London tradesman was only suspected on clipping the edge, and specimens, being shown to the officials at the Bank of England, were put through the ordinary tests and admitted to be perfect in form and weight. The discovery is anything but pleasant, and the natural question arises—How are we to guard against such scientific smashing?

Ozone.—That ozone is not oxygen is proved by the contrast in some of their properties. Oxygen has no taste, ozone tastes, as one writer expresses it, like lobster, and might make the fortune of some enterprising caterer who should provide it cheaply as an adjunct of salad. Oxygen has no smell; ozone smells like —, well, we will leave that to the imagination of the reader—not like heliotrope or rose. Oxygen has no action on gases, ammonia, phosphoretted hydrogen or muriatic acid, in its free state in the atmosphere; ozone acts strongly upon all these. Ozone colors litmus paper, ruins India rubber, tarnishes silver, bleaches; which are not powers of simple oxygen as it is found in the atmosphere. Dr. Andrews, who has made a study of it, says it is more than three times as heavy as oxygen, a difficult fact to prove. It colors metals with great force and rapidity, changes black to white in a compound of lead, yellow to red in a compound of potassium. It polarizes gold and platinum. Indeed, new experiments are revealing more properties of this energetic influence, and the scientific societies have in each meeting more wonderful things to say of it.—*Pettenkoffer.*

Fixing Pencil Drawings.—It is sometimes very desirable to fix delicate pencil or crayon drawings, and various methods have been suggested for the purpose of effecting this. Resinous varnishes are favorites with some people; the editor of the *Lens* advises the use of collodion, but these, although scientific and elegant, are troublesome and not always readily procured. One writer recommends the use of saliva, but this is filthy and disagreeable. A quarter of a century ago we were taught by our old drawing-master to fix pencil drawings by means of skim-milk, and this simple and easily-procured article leaves nothing to be desired. The milk must be thoroughly skimmed and freed from cream, or oily spots will make their appearance on the paper. The best mode of applying it is by means of a camel-hair brush, but a soft sponge or rag may be used where such a brush is not at hand.—*Industrial Monthly.*

Linseed Oil.—Linseed oil is obtained from flaxseed, by grinding the same under heavy stones, set on edge and made to revolve on beds of stone. Attached to the edge stone are scrapers, which throw the seed into the circular track of the roller. The ground seed is placed in strong, woven woolen bags, which bags are covered with mats made of horse hair and sole leather, of a proper and sufficient width to protect the bags in the operation of pressing. These mats with their contents are subjected to an immense hydraulic pressure, and the expressed oil flows off into large iron tanks, where it is allowed to settle. What remains in the bags after the pressure, is known as oil cake. About 8,000,000 gallons of linseed oil are used annually in the United States.

Sharpening Razors.—The following item is from our valued exchange, the Newark *Manufacturer*, on whose authority we reproduce it: It is said that the simplest method of sharpening a razor is to put it for half an hour in water to which one-twentieth of its weight of muriatic or sulphuric acid has been added, then lightly wipe it off, and after a few hours set it on a hone. The acid here supplies the place of a whetstone by corroding the whole surface uniformly, so that nothing further than a smooth polish is necessary. The process never injures good blades, while badly hardened ones are frequently improved by it.

Spontaneous Combustion of Hay.—From the observations and experiments of Prof. Ranke, it appears that the charcoal resulting from partial combustion of hay is pyrophoric, but under what conditions the hay can so increase in temperature as to form this charcoal, has not been established. Fermentation doubtless produces the heat, which cannot be dissipated, owing to the bad conducting power of the material.

Water-Proof Cement.—Soak plaster of Paris in a concentrated solution of alum, then dry it and bake in an oven at such a heat as is used to change gypsum or alabaster into plaster of Paris; then grind to powder and use with water like plaster. It is white, but may of course be colored; sets very quick, becomes very hard, so as to take a high polish, and is nearly as cheap as plaster of Paris.—*Manufacturer and Builder.*

Good Health.

The Human Frame.

No. 5—The Lungs.

The lungs are two extremely vascular, porous organs, situated in each of the lateral cavities of the chest, and separated from each other by the heart. In shape, each lung is conical, with the apex towards the upper portion of the thoracic cavity, which is the cavity formed by the bony frame-work of the ribs and dorsal vertebræ. They weigh ordinarily about three and one-half pounds troy; but so extremely spongy is their structure that, with only this comparatively light weight, they fill almost the entire cavity of the thorax. Externally, they are enveloped in a serous sack, the pleura, which is the seat of that common inflammation, pleurisy. Internally, they are lined with a very thin, delicate mucous membrane, through which the oxygen of the air and the carbonic acid of the blood pass during respiration. They are connected with the external air by means of the larynx and trachea; the former of which, a box-like organ situated at the base of the tongue, will be the subject of a future paper; the latter is a cartilageno-membranous tube, about four and one-half inches long, separating into two smaller tubes called bronchi, which go to the two lungs. These tubes again divide and sub-divide; their caliber constantly decreasing as their number increases, until they reach a diameter of about one twenty-fifth of an inch, when they terminate in little, curious shaped cells, which are again divided by partitions into tiny compartments of about one seventy-fifth of an inch in diameter. Into these little tubes and cells the air is drawn with each inspiration, where the thinness of the living membrane allows the blood circulating through this net-work of cells to be literally bathed in the air which furnishes the life-sustaining oxygen; while at each expiration that deadly product of our decaying tissues, carbonic acid, is expelled from the system.

It must not be supposed, however, that the entire amount of air in the lungs is changed with each respiratory movement; on the contrary, only some ten or twelve per cent. of the whole is renewed, which is called "tidal air;" the rest, or "residual air," remaining constantly in the lungs; so that it requires some ten or twelve inspirations to completely renew the air in these organs. A curiosity in respiration consists in minute hair-like bodies called ciliæ, which grow perpendicularly to the walls of the air passages, and which keep up a constant, waving motion always in the direction of the tracheæ, and thus, by the tiny currents they cause, assist materially in completely changing the impure for pure air.

The diseases of the lungs are numerous and formidable, and by the masses little understood. The hacking cough of incipient consumption is but too often mistaken for an ordinary cold; while, on the other hand, a chronic bronchitis, which is perfectly harmless compared with consumption, is mistaken for that malady, and the sufferer's life rendered miserable by groundless fears and nauseous nostrums. In the space allowed us here, it is impossible to even touch on this portion of our subject, so we will close with a few general hints on the care of these organs, which are as follows:

Close the mouth tightly, and breathe entirely through the nostrils whenever passing from a warm, moist air into that which is colder; as from a crowded assemblage into the open air, etc. This will warm the air thus breathed, reducing it nearer to the temperature of the lungs.

Avoid rooms too highly heated; especially where it is the result of crowding and packing. The warm, rarified air relaxes the lung tissue, and renders it doubly susceptible to injury. Avoid draughts, cold limbs, prolonged wetting, etc.; as anything which reduces the temperature and amount of blood at the surface of the body necessarily increases the amount sent to internal organs; thus rendering them liable to inflammation. The lungs usually suffer in these cases in four out of five instances; and a large majority of colds have their origin in this manner. Treat a common cold by hot foot baths, warm body baths, warm flannels, avoidance of exposure for a few days, comfortable clothing, and no drugs, unless there is constipation, when a simple cathartic may be given. Beyond a simple cold, consult a reliable physician; never tampering with quacks or patent nostrums.

Rice Water.—Take of rice two ounces; let it be well washed, and add to it water, two quarts. Boil it for an hour and a half, and then add sugar and nutmeg as much as may be required. To be taken *ad libitum*. Rice, when boiled for a considerable time, assumes a gelatinous form, and, mixed with milk, is a very excellent diet for children. It possesses, in some measure, a constipating property which may be increased by boiling the milk.—*The Druggist.*

Air and Bathing.—Children naturally weak should be compelled to play in the open air, and business men should leave work for a certain period each day and devote the same to exercise or other relaxation. Bathing is recommended in moderation as a check to consumptive tendencies. Surf bathing, however, should be cautiously indulged in by all predisposed to pulmonary difficulties.

Milk as a Diet and its Effect on the System.

There is considerable difference of opinion on the subject of a milk diet. It is surrounded with a mass of whims, of prejudices, and of mistaken ideas, which are based more on individual fancies than upon certain facts. To one a glass of milk imbibed is believed to be a sure provocation of a bilious attack; to another, a disordered stomach; to a third, drowsiness, and so on, through such a category of simple though disagreeable ailments that we look aghast at the farmer who drains cup after cup of the fresh pure liquid, time and again during the day, and wonder at the resisting powers which his organization must possess. The truth is, however, that milk is not unwholesome. On the contrary, it contains good substantial bone, muscle, flesh and brain-producing substances, which, assimilating, quickly act rapidly in building up the body. Naturally, we assert, it is nourishing; that it does bring on certain troubles is nevertheless true, but the cause is in the individual stomach, not in the milk, provided, of course, the latter be fresh and sweet.—*Scientific American.*

Milk diluted with one-third lime water, it is said, will not cause any one biliousness or headache, and, if taken regularly, will so strengthen the stomach as to banish these disorders. It may be taken with acid of some kind when it does not easily digest. The idea that milk must not be eaten with pickles is not an intelligent one, as milk curdles in the stomach nearly as soon as it is swallowed. When milk is constipating, as it is frequently found to be by persons who drink freely of it in the country in summer time, a little salt sprinkled in each glassful will prevent the difficulty. When it has an opposite effect, a few drops of brandy in each goblet of milk will obviate its purgative effect. As milk is so essential to the health of our bodies, it is well to consider when to take it, and how. It is a mistake to drink milk between meals, or with food at the table. In the former case it will destroy the appetite, and in the latter it is never proper to drink anything. After finishing each meal a goblet of pure milk should be drank; and if any one wishes to grow fleshy, a pint taken before retiring at night will soon cover the scrawniest bones. In cases of fever and summer complaint, milk is now given with excellent results. The idea that milk is "feverish" has exploded, and it is now the physician's great reliance in bringing through typhoid patients, or those in too low a state to be nourished by solid food.—*N. Y. Commercial Advertiser.*

Statistics of Intemperance.

The testimony of competent judges is decided in the opinion that the use of ardent spirits is hurtful to health and long life, and the old-fashioned calculations of Neison, in his *Vital Statistics*, are confirmed by the researches of the General Life Office. According to these estimates, the probability of death among drinkers between 21 and 40 years is ten times as much as among the whole population; between 41 and 60 years, four times as much; and among habitual tipplers over 60 years of age, twice as much as among the people at large. In England, 1850–59, more than 8,000 cases were reported of men who literally drank themselves to death. Neison has given us his investigations of 6,111 tipplers, that out of 1,000, 58.4 die annually, while out of 1,000 inhabitants of the same age only three die. Thus the mortality among drinkers is three times as great as in the community at large. He has carried out his calculations in all ages, and shown how this chronic self-murder marvelously diminishes the expectation of life. The highest point as to numbers is found in the years 1851-60, which report 192 men and 44 women intemperate out of 10,000 in England and Wales, and which reckon the diminution in the rate of expectation of life accordingly. This last statement is startling, and shows a falling off in the probable term of life for each 10 years, from 20 to 60, and upward, of respectively 28, 22, 17, 10 and five years, with fractions, and amounting to the fearful percentage, respectively, of 35, 38, 40, 51 and 63 per cent. of probable life, as compared with the population. Surely strong drink is slow fire, and intemperance is voluntary madness and chronic suicide.—*Harper's Monthly.*

In considering the best chances of a person having a tendency to consumption arriving at a good old age after a life of health, Dr. Bowditch discusses a few general topics and lays down a number of plain rules for sanitary guidance, which are mainly generally applicable to every one. Under the subdivision of residence, the first point urged is that the cellar should be always dry. No possibility should exist of drinking water becoming contaminated by refuse; and hence for the latter, closely cemented stone, brick or vitrified tile drains should be used, while the supply for drinking should be brought to the house from some distant spring or pond. The dwelling is best located on an elevated knoll, open to the south and west winds, but somewhat shielded from the north and east. There should be means of allowing sunlight to enter every room. As regards temperature, about 70° as a medium is the best, and this heat should be derived from open fire places connected with well constructed chimneys in every room.

Silence in the sick room is a splendid nurse.

MINING AND SCIENTIFIC PRESS.

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San Francisco:

Saturday Morning, July 11, 1874.

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Removal.

July 13th, 1874, the business office of this Journal will be removed just one block east of our present location, to No. 224 Sansome Street, southeast corner of California, over the Bank of British Columbia, where we have secured large and elegant quarters. This removal is made in consequence of the sale of the building in which we are now located, to parties who will proceed immediately to demolish the present structure, and erect a new and magnificent block in its place.

BAR FORMED.—The waters of the Yuba have deposited an immense sand bar at the junction of the Yuba and Feather rivers. The bar extends straight across the Feather river, and is a formidable barrier to the passage of the waters.

WATER POWER.—The present manufacturing company, at Los Gatos, will not replace the woolen mill recently burned. The splendid water power should attract outside capital sufficient to restore the woolen enterprise.

SLUICE ROBBING.—According to the Idaho *World*, some Chinamen in the employ of the Buena Vista Bar company, cleaned the flume up lately in the absence of the watchman, and it is thought got away with about $2,000.

THERE is still a good deal of ore being taken out of the surface of the mines at Gold Hill, almost at the top of the ground. In this way the surface has been lowered 20 or 30 feet in many places.

CHARLES DURNING, an old and experienced mill man, has received the appointment of Superintendent of the mill of the El Dorado South Company, at Belmont.

THE Coos Bay and Oregon coal mine is to be properly opened immediately, under the supervision of Dr. Henry, the manager.

B. PHILBRICK has purchased ground in San Luis Obispo on which to erect an iron foundry and machine shop.

SIX hundred and forty men are at work for the railroad company at Sacramento.

"Who is this that Cometh from the North?"

The Comet! He is on his way,
And singing as he flies;
The whizzing planets shrink before
The specter of the skies;
Ah! well may regal orbs burn blue,
And satellites turn pale,
Ten million cubic miles of head,
Ten billion leagues of tail!

Thus sang Holmes of a big fellow of a comet which visited our solar system many years ago; and now "Who is this that cometh from the North?" may well be asked by every one who, as deepening twilight brings out the "starry hosts," turns his eye to the north, and there, amid the old familiar stars, beholds a stranger flaunting his fiery banner in the face of the venerable polar star, while "threatening a flank attack on the very nose of the celestial grizzly!" No wonder that such apparations have in past ages caused more or less consternation among people in the common walks of life, and perplexed and even frightened to desperate straits men of science, and powerful monarchs, even, with fears of physical or political change, or calamity. But in the presentage of enlightenment and astronomical research, these sublime wanderers in the infinity of space are having their motions defined, their paths mapped out, and their masses scientifically interrogated in such a manner that the scientists not only able to determine their approximate weights, but so to analyze their substance, as to determine the very elements of which they are composed, and their actual conditions of existence.

Instead of the present appearance, all imposing and majestic as it is or promises to become, being a cause of dread or fear, it is now welcomed as presenting a most unexpected and fortunate occasion to add a new and important leaf to the pages of science. How great is the joy, to-day, of the many patient night watchers on their lookout towers, at the appearance of this celestial visitor! The busy world at large, which has no taste or opportunity for holding snob intimate communion with the starry hosts, cannot indeed conceive of the extent of this joy; but all who have any general knowledge of the opportunity which is now for the first time presented to the astronomer of applying the recently devised instruments and newly discovered principles of research to this class of heavenly bodies, must feel a marked gratification at the probability of soon finding a new lesson in the science of astronomy, prepared and spread out by the patient star gazers for their leisurely and ready comprehension.

The present aerial perambulator promises to become the comet *par excellence* of perhaps the age. Although we know not whence he comes or whither he goes, his rapid increase of brilliancy and extent of caudal appendage, which his course evidently proves must yet be vastly increased, cannot fail to soon render it one of the most remarkable heavenly wanderers which have visited our system for many centuries—if, indeed, ever before. Its approach to the earth will be amply near for the most careful application, in all its details, of that most wonderful instrument, the spectroscope, which, in its present high state of improvement, has never before been applied to a comet, under anything like the present favorable circumstances.

Comets' Tails—What are They?

There is nothing about a comet, or in all nature, more mysterious than the appearance and motion of the tail or train of a comet. Theories by scores, and wild enough to make one's hair stand on end, have been suggested to account for these phenomena, but almost invariably the propounders soon find themselves utterly disregarding all the workings of known physical laws, and are compelled, one after another, to abandon the theories they have conceived.

When a comet is first seen by the telescope in the far off regions of space, it is generally without any tail. That appendage is developed and grows more and more conspicuous as the body approaches the central luminary, and is always observed upon the side opposite to the sun, or pointing away from it.

Of what does that appendage consist? Is it matter? If so how can we account for the inconceivable rapidity of its motion, especially when "swinging round the circle" at its perihelion passage. If these appendages do consist of matter, emitted from the comet's body, it must be under the control of forces incomparably more energetic than gravitation, and of a nature entirely different. Professor Pierce and Prof. Bessel have each, independently of the other, offered the suggestion that they may consist of electricity. Some have supposed they might be simply the result of light—that the sun's rays, in their passage through the unknown substance of the nucleus of the comet, may acquire some new power, analagous perhaps, to polarization, by which they become visible; while those rays which simply penetrate space, are, as we know, invisible. This latter theory has received a powerful impetus in connection with some marvelous results which Prof. Tyndall has obtained in his researches upon the actinic power of light. By passing a beam of light through a certain chemical substance—the vapor of liquid, hydrochloric acid—the Professor found that in even the most attenuated form to which he could reduce the amount of that vapor, a luminous white actinic cloud was formed, resembling in all known respects and phenomena the substance of the tail of a comet—and particularly in its absolute transparency and luminosity. The cloud, which was formed within a glass tube, did not present the smallest conceivable obscuration to any object placed behind it. And still the cloud itself gave off a large amount of light. Nothing could give a better idea of the substance of the tail of a comet than such an actinic cloud.

The Phenomena Explained.

The application of Professor Tyndall's discovery to the explanation of the cometary principle under discussion is as follows: A comet is held to be a mass of vapor, decomposable by solar light—the tail being an actinic cloud, resulting from such decomposition, and projected into space. The tail is therefore not matter projected from the comet, but simply a beam of *actinic light* (the other rays being mostly absorbed by the comet) projected from the sun into space, and upon which interplanetary matter, or cosmic dust, is precipitated, and thus made visible, precisely as the atoms of dust are made visible by a beam of light passing through a dark room.

This explanation, of course, supposes that the sunlight has a different power, on being passed through a vapory comet, from that which it possesses when it has not traversed such a medium; otherwise all space would be lit up like a comet's tail. It seems to be the *actinic* rays alone which possess this power, the other rays being absorbed by the vapory mass upon which they have fallen, rendering that mass even more bright than the cosmic dust illuminated in the track of the penetrating actinic rays. Thus the caudal appendage of a comet is in a perpetual state of renovation, as is a beam of light thrown into a dark room by means of a movable lens. The beam of light only is in motion, not necessarily the particles of dust, either in the room or in space.

Nearly all the phenomena observed in these mysterious bodies are readily accounted for by Professor Tyndall's theory, which will undoubtedly be carefully studied, and, if possible, verified during the continuance of the present illustrious stranger within our reach of vision.

Society of Engineers of California.

The regular monthly meeting of the Society of Engineers of California was held on Tuesday evening last, President Allardt, C. E., in the chair. The attendance was quite large and considerable interest was manifested in the proceedings. The principal feature of the meeting was the paper "On the Mechanical Condensation of Vapors" by James R. Smedberg, consulting engineer of the San Francisco Gas Light Company. Mr. Smedberg's paper first considered the physical structure of vapors themselves, at some length. He next considered the mechanical condenser of Messrs. Pelouze & Audoin, which is based upon Halley's vesicular theory, and whose second and subsequent plates, or "plates of percussion" as they may be appropriately termed, open up the possibility of many uses by the mechanical engineer. Mr. Smedberg exhibited models of a plate condenser, remarking upon the direction of flow and compact arrangement of the machine. This condenser is derived from that of Pelouze and Audoin; but has no feature in common with it except the vital one of the percussion plates, and that of the moving drum.

The attention of the audience was then called to the practical effect of the latter machine in liquefying the viscous and obstinate coal-gas vapors; and the paper closed with one or two speculations as to the value of the instrument in purging other vapors of their entangled vapors. In this connection, Mr. Smedberg suggested that the vapors of mercury might be condensed on the same principle as this condenser operates, viz: by impact. He also made some suggestions regarding the utility of the principle if applied to the drying of steam of ordinary tension. His remarks on the latter subject occasioned some little discussion among the members of the Society. He gave an instance in support of the grounds he took as follows: Mr. E. F. Molera, Assistant United States Light House Engineer, justly attributing the lack of sonorousness of certain fog horns on this coast, to the presence of water in the steam used to sound them, caused a plate perforated with small apertures to be thrown horizontally across the base of the dome of the supplying boiler. The suspended molecules of liquid water, were, of course, brought more or less completely into contact as the steam passed through these restricting apertures, and a far drier and more elastic vapor was thus passed into the horn. The useful effect was greatly increased at a stroke, as its valuable warning was found to cover a circle of more than double its previous range.

Mr. Smedberg's paper described in detail an improvement of his on the principle brought forward by Messrs. Pelouze and Audoin, of the condensation of vapors by percussion of its molecules. Mechanical difficulties have heretofore prevented its operation, but Mr. Smedberg has overcome these obstacles and perfected a machine which will be of great use in gas works. We regret that want of space forbids our giving even a synopsis of the valuable and interesting paper.

A DISPATCH, dated July 2d, states that the Abbott Co. have struck a new deposit of cinnabar, which promises to be something grand.

Patent Rivet Pocket Fastening.

Alfred Rix, a well-known San Francisco lawyer, and M. A. Wheaton, a noted patent lawyer, are now in Austin taking testimony in regard to who first invented the patent riveted overalls. A large amount of money is dependent on the issue, one heavy San Francisco firm having sued another for damages for infringement of patent, for which the plaintiff paid the sum of $20,000 and refused an offer of $150,000. The evidence taken before United States Commissioner Shannon at Austin tends to show that the article is no novelty at all—a humble tinsmith, Billy Rowe by name, in the employ of Smith & Starratt of that place, having been engaged in riveting overalls with the same rivets and in the same manner for years past, which fact will probably invalidate the patent—on the ground that the riveting is no novelty—and anybody can wear riveted overalls without the "$2 per ton royalty."—*Exchange.*

Our exchange probably is not aware that the recent decisions of our United States Courts do not justify its statement that the above "fact will probably invalidate the patent." On the other hand we very much doubt the possibility of defeating the patent referred to by the "facts" stated above. It is always easy to find some one who is willing to swear to prior use after an inventor has made a success of his invention. If the party referred to, "Billy Rowe by name," has used the invention for the past five years the said "Billy Rowe by name" is a very foolish "Billy Rowe" that he didn't secure a patent on it and reap the advantage which the patentee is now doing. If "Billy Rowe" did casually fasten pockets with rivets it is very evident that he did not make an invention. If he did he didn't know it or he undoubtedly would have secured a patent on it. Davis, the patentee, was an independent inventor and, being also a sensible man, he did what any sensible inventor would do—secured his invention by patenting it. Further, after securing his patent he has succeeded so far in making a success that his riveted overalls have driven all of the common overalls out of the market; and the consequence is, he has the combined capital and influence of our wholesale clothing merchants pitted against him. No wonder under such circumstances that they were able to find some one willing to testify that he has made the article for several years. We believe Davis has a good and substantial patent.

Recent Patents.

Among the patents recently obtained through Dewey & Co's., MINING AND SCIENTIFIC PRESS, American and Foreign Patent Agency, the following are worthy of mention:

UNLOADING HEADER WAGONS.—Henry Klehn, Crow's Landing, Cal. An improvement in that class of false bottoms for header wagons, in which the load is lifted bodily, as in a sack, from the wagon. Consists in making the false bottom or netting in two parts, which are united on the under side of the load by a detaching apparatus. To deposit the load, a pull upon a cord releases the apparatus, so that the bottom opens and allows the load to fall out.

CAN OPENER.—A. H. and C. J. Hall, Suisun city, Cal. This patent covers a simple and cheap device for cutting open the tops of tin cans, and consists of a cutting roller mounted upon a shank at the end of which is a prong. The prong is stabbed through the center of the can top, and serves a fulcrum about which the shank is operated while the cutter cuts out the top of the can in a circle.

BRAKE SHOE.—Henry C. Deering, Hope Valley, Cal. Covers an arrangement for applying and securing a rubbing face on the contact side of a brake shoe. The device consists of two straps which are hinged at the opposite corners of one end of the block, so as to shut down against the opposite edges of the block, and clamp the face or rubbing piece to the block, leaving a sufficient space between the straps for the rim of the wheel to bear.

ANIMAL TRAP.—Aug. M. Gass, Campo, Cal. This patent relates to a very simple and cheap, yet effective trap for catching gophers, squirrels and other animals.

TAP AND FAUCET FOR BEER CASKS.—Jno. G Schiffer, S. F., Cal. Relates to an arrangement for tapping beer barrels without danger of losing the contents. Consists of a faucet provided with a driving spindle. A metal bung with central opening is permanently secured in the barrel head, the faucet can be screwed into this bung. A wooden plug is secured in the opening before the beer is placed in the barrel; when the barrel is to be tapped, the faucet is screwed into the bung, and the wooden plug driven into the barrel by striking the projecting end of the spindle.

TICKET CLASP.—Hiram N. Rucker, Plainsburg, Cal. This patent covers a very neat and useful clasp for holding tickets, and is intended for the use of conductors, passengers and other persons who carry cards or tickets about their persons. It consists of a box for holding the ticket or card, which is made in two parts. These parts are so united that they can slide upon each other, in order to increase or diminish the size of the holder to accommodate any sized card or ticket.

Aaron's Amalgamation Process.—No. 2.

[Written for the Press by the Inventor.]

Chemical Treatment.

The similarity between this process and the fondo consists in the action of the copper chlorides on silver compounds and the reduction of resulting silver salt by metallic copper. There the resemblance begins and ends. The modification of the chemical treatment, the complete change in mechanical means, above all, the vastly greater economy in mercury, give it a title to be considered a distinct process.

The essential "chemical" is copper dichloride. The protochloride acts equally well on the ore, but it also acts injuriously on mercury. Moreover, it is inevitably reduced to dichloride in the course of working.

When the ore contains no copper oxide or carbonate, or not sufficient, it is best to prepare the dichloride by boiling, by means of a jet of steam, in a wooden vat containing scrap copper, a solution of copper sulphate, and sodium chloride (salt), till the color of the solution is no longer green, but brown; and a little of it, cooled in a test tube, deposits a copious white precipitate. Or, a solution of copper sulphate and salt may be boiled with just enough iron borings to precipitate one-half of the copper in the solution. When the precipitated copper is re-dissolved, the dichloride is formed. The solution must contain an excess of salt above the quantity requisite to convert the copper sulphate to chloride; and, if not used immediately, should be kept secluded from the air, to prevent its conversion to insoluble oxichloride. A little of the latter may, however, be beneficial in some cases.

It will answer, though not so well, to put the copper sulphate and salt directly into the amalgamating barrel, with the pulp; either leaving the copper balls, which are always used in the barrel, to do the work of forming the dichloride, or adding the proper quantity of iron borings. It must be observed that when iron boringe are used for this purpose, double as much copper sulphate is required as when copper is used. A "sodic chloride of copper" may be made in the dry way, but this does not seem to be convenient.

With ores containing copper in the form of oxide, or carbonate, a solution of sulphurous acid in water, with the addition of salt, produces copper dichloride at very little cost. This method is patented. The next best way, which is now used in Mono county, is to add to the pulp in the barrel a quantity of iron protosulphate (copperas) and salt, producing iron protochloride, which, reacting on copper carbonate in the ore, forms a mixture of copper protochloride and dichloride; thus, $3CuOCO^2+2FeCl=CuCl+Cu^2Cl+Fe^2O^3+3CO^2$.

Acids may be used with this class of ores in conjunction with salt, but as they are disagreeable to handle, and produce only copper protochloride, they are not preferable, unless when the ore contains copper dinoxide, in which case I presume sulphuric acid might be used with advantage. Salt, in excess of the quantity decomposed by the chemicals, is always necessary. The copper and iron sulphates require rather more than half their weight of salt to convert them into chlorides, and at least 50 pounds more should be used to a ton of ore. From 5 to 50 pounds of copper sulphate, or its equivalent of the other substances, will generally be found sufficient.

In whatever way the copper dichloride is finally obtained, there must be enough of it dissolved in the hot pulp to show a distinct coat of copper on a clean piece of iron.

With the class of ores just mentioned, containing copper, it is usual to put in, together with the chemicals, a quantity of iron borings. It acts by precipitating rapidly an equivalent of cement copper, at the same time producing iron chloride, which dissolves an equal quantity of copper from the ore.

The precipitated copper acts in two ways. First by reducing to dichloride any copper protochloride which may be present; second, by reducing to metallic state the silver salt formed by the action of copper chlorides on the ore. This silver salt, if not a simple chloride, is so far similar as to be reducible by copper; for which reason, as the quantity of iron could not be accurately adjusted, and moreover, an excess of copper is necessary in practice, a quantity of metallic copper, usually in the form of balls, or small bars, is used in the amalgamating barrel.

The quantity of iron borings which may be used with advantage may be as much as 50 pounds per ton of ore, varying with the quality of the ore and the kind and quantity of chemicals. Its effect is to hasten the operation, to protect the mercury which unavoidably may remain in the barrel when discharged, and to economize the consumption of the copper balls. Its use must be regulated by the quality of amalgam obtained, as too much causes the production of coppery bullion.

Mercury should not be put in till several hours after charging, except when the copper dichloride is made beforehand, or when, with copperous ore, the solution of sulphurous acid is used; in these cases there is no danger of its being granulated.

Authorities differ as to the manner in which copper chlorides act upon silver ore. Some even doubt if silver chloride is formed, but it seems singular that they all speak of silver sulphide only. My own experiments show; 1st, that silver sulphide (natural) is reduced to metallic silver by copper oxychloride; 2d, that silver sulphide (artificial) is converted to chloride, by copper chloride and dichloride; 3rd, that quartzite digested with copper chloride, dichloride, or oxychloride and salt, produces a solution of silver, and yields nearly all it contains to leaching with sodium hyposulphite. I also find that calomel acts on silver ores. As to the reduction of calomel by copper subsulphids, which Gratzner says takes place thus, $HgCl_2+Cu_2S=CuCl+CuS+2Hg$, I have not been able to verify it, as on digesting calomel with copper glance (natural), I obtained copper dichloride and no metallic mercury.

English Companies and Titles to Mines.

The letter of Mr. Lewis Chalmers, on the subject of "Foreign Corporations and American Mines," published in another column of this issue, brings before us some questions of great importance to the mining community.

TRAPICHE, OR CHILIAN MILL.

The discussion of these questions at the present time is especially important, inasmuch as Congress meets again in December, and the various new mining bills will again come up for consideration. While amendments to the mining law are in order, some of our Pacific Coast Congressmen should introduce a paragraph in the mining law of the United States, which would allow foreigners to protect the mines they have bought in their own names.

Surely, as Mr. Chalmers says, these foreign corporations are in a peculiar position—they can not get a patent legitimately, if they want to. If either of the proposed bills, compelling miners to patent their claims, passes Congress, then the position of these foreign companies will be still more embarrassing, since the bill says they must apply for a patent, and the mining law contains no provision by which they may do so. However, the instructions from the Commissioner, accompanying the mining law, say that proof of citizenship is required, but where the applicant is a corporation, a copy of their charter or certificate of incorporation may be filed in lieu of evidence of citizenship. Whether these foreign companies could apply for a patent by this clause, is a question for a competent lawyer to decide; but they probably cannot, since those who have patented their claims, under the Act of May 10th, 1872, have been compelled to transfer their property temporarily to an American citizen. No company likes to do this, for it is a risky business to transfer property worth thousands of dollars, even for a short time. We have heard of one instance at least where the company was made to suffer severely, from lack of honesty in the party to whom the transfer was made.

Of course, those foreign companies buying mining property now are safe, since they can insist on a patent before purchase, but those companies owning ground bought before the passage of the Act of May 10th, 1872, are unable to procure a legal title to their mines legitimately. The Government of the United States ought to put beyond all question the title to the property bought by the English and other foreign companies, where they are doing a great deal to develop the mining resources of the country. They have sent their capital freely and, we are sorry to say, have not as yet made much out of their investments here. Be that as it may, those that are here ought to be protected in their rights fully, and the Government should take such steps as are necessary to do so.

While pursuing the inquiry into this subject, there is also another one to look into of importance to us all. We ought to know definately the *status* of these "Limited" companies, of which there are so many on this coast. We see the term on their letter heads, business signs, and always tacked on whenever the company is mentioned. It is "limited liability," of course, but how it stands in the eyes of the law of this country is a question. If the trustees are only liable for the amount they invest, in the paid up capital, when that is exhausted, who is responsible? There are so many companies of this class in our midst at present that the subject is of interest, and we shall deal with it more in detail at a future time. Perhaps some of our readers will favor us with their views on the matters spoken of above.

RUDE ARASTRA FOR CRUSHING ORE.

AUTOMATIC RAILWAY SWITCH.—A patent has been granted to Pierre Bourgeon, of this city, for an improved device for operating railway switches, by which the car, as it approaches the switch, will automatically throw the switch rail so as to make the desired connections with the proper track. Mr. Bourgeon is desirous of communicating with any company or party who would be willing to become interested in its introduction. Any communication addressed to Charles Moise, agent, at No. 335 Montgomery street, this city, will meet with attention.

THE MECHANICS' INSTITUTE FAIR matters are going on favorably. The managers are very busy arranging details of no special interest to the public. The programme of the opening day has been so far fixed upon as to select Col. W. H. L. Barnes as the orator of the day.

THE Bull creek diggings, Butte county, are paying from $2 50 to $50 to the hand per day. The miners complain of a scarcity of water.

CHARIOT. — $12,000 was received at San Diego Thursday from the Chariot mine, the result of eighteen days' run of ten stamps.

Primitive Method of Quartz Crushing.

In our issue of June 27th, we gave an illustration of the method of crushing ore by the old Mexican process, which was probably the first step above breaking it with hammers. This week we produce two engravings, one of the Chilian mill and the other of an arrastra, both primitive methods of quartz crushing.

The Chilian mill, or *trapiche*, shown in the upper cut, is not so common in this country as the arrastra. It consists of a vertical runner, frequently of granite, revolving on a horizontal arm projecting from a perpendicular shaft, to which motion is given by either water or steam, but usually by horse power. The basin in which the runner revolves is usually slightly conical and is made of stone, though sometimes of cast-iron. In this arrangement the grinding area is regulated by the difference of the circumference of the circles described on the bed stones, by the inner and outer edges of the runner. In the majority of cases the Chilian mill has two runners instead of one, so that there is one runner on each side of the vertical shaft; and in such mills that are fastened to the shaft at different distances from the center. The method of working by this mill is similar to that of the arrastra; but the latter is a much more efficient machine. Mr. Darlington describes in "Ure's Dictionary" the size, etc., of a Chilian mill in Constanti, Spain, as follows: Diameter of edge runner, 6 feet; width of edge runner, center, 20 inches, edge 16 inches; weight of edge runner, 3 tons, 15 cwt.; speed of runner, 200 feet per minute; diameter of inner circle, 4 feet; size of stuff previous to being ground, 10 holes to lineal inch; size after leaving mill, 60 holes to lineal inch; quantity of stuff reduced in 10 hours, 350 lbs.; horse power employed, 7.

The lower cut shows an old-fashioned Mexican arrastra. Those in use in this country vary somewhat in detail, and in some cases two and even four horses are employed. The whole of the space within the circle, except where the upright pole in the center is placed, is available for crushing space, and two, four, six or eight drags are used, according to the size of arrastra and number of horses employed. The arrastra works slowly, and consumes a large amount of power in proportion to the work it accomplishes, but is a first-rate amalgamator, better even than it is given credit for. It is used on this coast now, even more than formerly, for testing new discoveries, when they are at a distance from custom mills, and is of great value for that purpose. We venture the assertion, that if this simple arrangement had been used oftener, it would have saved millions of dollars which have been wasted; since in many cases expensive mills have been erected to work a class of ore which a simple arrastra would have proved worthless.

In building an arrastra a circular pavement of stone, 12 or 14 feet in diameter, is laid, on which the quartz is ground by means of two or more large stones or mullers, dragged continually over its surface, either by horses or mules, but more frequently by the latter. The periphery of the circle is surrounded by a curbing of wood or flat stones, forming a kind of tub about two feet deep. In its center is a short, wooden post, firmly imbedded in the gravel. Working on an iron pivot in the central part is a strong, upright, wooden shaft, secured at its upper extremity to a horizontal beam by another journal, which is often merely a prolongation of the shaft itself. This upright shaft is crossed at right angles by two strong pieces of wood forming four arms, of which one is made sufficiently long to admit of attaching two mules for working the machine. The grinding is performed by large blocks of hard stone, attached to the arms by chains or thongs of rawhide, in such a way that their edges, in the direction of their motion, are raised about an inch from the stone pavement, while the other side trails upon it. These stones weigh from two to four hundred pounds.

Some arrastras, for testing quartz veins, are readily put together, like the one shown in the cut, the bottom being of unhewn flat stone laid down in clay; but in a well constructed arrastra, intended to be permanently employed, the stones are carefully dressed and closely jointed and grouted in with hydraulic cement. The ore is broken up into small pieces and placed in the arrastra. Where fuel is plenty the rock is burned and slacked, as this facilitates the operation of crushing. The machine is set in motion, water is admitted, and in the course of time a thick, pasty mass is formed. As the ore becomes finer quicksilver is added, and after that the grinding is continued until it is thoroughly mixed with the pulp. When amalgamation is considered complete, water is added to thin down the pulp, the tailings are drawn off and the amalgam and heavy particles settle down to the bottom. Another charge is then added, and the process is repeated until it is necessary to clean up.

THE Rocky Mountain Co. have decided to discontinue the shipment of coal to Virginia City, owing to an increase in the railroad freighting rates.

THE acid factory of Rice & Duffy, of Carson City, was burned on Saturday last. Loss, $25,000. It will be rebuilt immediately.

THE Phœnix quicksilver mine in Napa county has declared a dividend of $3 per share. It is proposed to do the same monthly for the future.

Selling Out.

The *Mountain Democrat* contains the following truthful article, which we commend to the attention of onr mining readers: In our last issue, commenting on n letter from our Spanish Flat correspondent, we tried to present some of the reasons why our section has failed to make progress propertionate to its evident capabilities and advantages, and why many of our old residents lack confidence nnd energy for works of development. There are some other difficulties, which may be best illnstrated by examples which have fallen within the range of a 20 years' residence in the foothills and mountain regions of California.

One obstacle to the development of this section and contentment or patient effort on the part of old residents, is what we choose to call the "sell-out sentiment." This sentiment is a relic of the "finsh-times" mining era. In the breast of your pioneer miner, so long as he sticks to the old stamping grounnd, it is chronic and incurable. Transplant him, and in many instances the cure is instantaneous. The old miner, in his familiar haunts, never values his possessions according to their yield. nor according to the comforts or blessings by which they do or might surro und him, but only according to the price for wbich he can "sell out." A gravel claim may yield an ounce a day; a quartz ledge may prospect $50 a ton; a tract of land may yield or be capable of yielding huudreds of dollnrs per acre per annnm; his home may be as salubrious, as fertile, as delightful in every respect as the fabled Eden or Elysium, but none of these have the slightest value in his estimation, unless he can "sell out." If nobody wants to buy his property, it is valuelese, and he is wretched and hopeless. If anybody dops happen to want to buy it, he generally doubles or quadruples the price they are willing to pay, and thirteen times out of a dozen won't sell unless he is absolutely certain, or thinks he is, tbat the price offered is more than the property can possibly be worth. He won't develop property, for fear he can't sell out afterwards; he must be convinced that he is gouging a stranger, or he won't sell out to him. But if you once can get him sold out and removed from his old haunts, all of these peculiarities vanish, and he generally develops into an enterprising, driviug, successful citizen. We will ventnre an example or two.

George B. was a pioneer locator in a rich mining camp. He was full of energy and soon had control of the butchering bnsiness and the principal stopping place for teamsters and travelers. Money poured in like water. His liberality and public spirit were equal to his energy and prosperity, and he was ever foremost in contributions for any scheme to improve the locality; nssisted libersslly iu running tunnels, "staking" prospectors, etc. In the course of time the placer diggings were worked out, the population became reduced, business ran down, and George, while struggling still with an opeu and free hand, against the adverse current, found himself thrown high and dry with nothing left but the old traveler's rest nnd teamster's home, the travelers and teamsters all "gone where the woodbine twineth." But the old estahlishment was a roomy, commodious and substantial strncture, splendidly bnilt, hard-finished throughout, two stories high, with a spacions cellar uuderneath, hewn out of the solid rock. In his "hours of ease" George had, chiefly by way of diversion, occasionally turned impecunious stragglers and hangers-on to aocount in plantingtrees, vines, shrubs, etc., aronnd his house. Thus the revulsion found the premises studded with some thousands of unconsidered vines, fruit and ornamental trees, berry patches, etc., to say nothing of a glorious well of clear and ice-cold water. Tbough the teamster and traveler business was gone, their old rendezvous was still a lovely place. But in the first years of depression George couldu't, no matter how hard he tried, "sell out" the entire place for much more than the doors and windows in the house were worth. He measured and deplored his downfall, not by what the place was worth, but by what he couldn't get for it. He couldu't "sell out," therefore it was worthless. While he was in this mood, an old Germau, who had slowly laid up a little money by labórious teaming, took a fsnoy to the place and commenced negotiations for its purchase. Before he came along, George would nave jumped at a $1,000 for tbe place, but as soon as a purchaser appeared he commenced a different kind of jumping, a jumping to this and that higher price, until he thought that he had "socked it to the old Dutchman good and heavy" when he sold him the place for $3,500. The next year the "old Dntcbman" realized half the cost of the place, besides furnishing his family a comfortable home and maintenance; the secoud year he deposited $2,500 in bank from the profits on its products; the third year he sold $5,400 from the produce of that place, whioh is reliable for a permanent income of $5,000 per annum. George, who would never have made an effort to do anything with tbat place, went off to a remote portion of the State, of which he has become one of the most enterprising and flourishing residents. The change was beneficial to all concerned and to the commonwealth.

Oue more case: Henry —— had prospered at blacksmithing and mining. He had a two-story brick house, splendid surroundings, was comfortable and doing well. But the town in which he lived had run down. He became fearful that he couldn't "sell out" if he stayed much longer. Therefore he sold for a few hundred dollars and went to Oakland, where he can make but little, if any, more at his trade, and where he cannot for less than tens of thonsands of dollars supply himself and family with the same comforts that he sold in the monntains for a few hnndreds.

Plute District.

The Inyo *Independent* says: We have several times referred to this as yet unknown but promising district. It is located, as we have before stated, on the western slope of the White mountains, à little east of uorth and about 12 miles distant from Sneden's on Bishop creek. Good mineral bearing lodes are to be seen in every portion of the district, and from the aocounts we hnve of some of them we readily believe it offers a first-rate field for mining men. John Westerville, Page and others made locations and did some work there 11 years ago, and at that time found notices dating back three years, or to 1860. These parties incorporated a company inclnding two mines known as the Maranthan and Ancho. One E. C. McComb was Secretary, and managed things so well that the company were soon all frozen out, since which time until recently nothing has been done in the district. At that time these parties considered themselves in possession of fortunes, as the ledges were of fair size and prospected splendidly, hut for reasons hinted at above everything was allowed to lapse into idleness. Later locators have demonstrated the trnth of these legends. They find an abundance of gold ores, which by actual working in the arrastra at Fish springs yielded $63 to the ton. This is from an 18-inch ledge known as the Golden Era, all of that kind of ore. Another, a silver galena ledge called the Babe, yields a splendid looking ore of the smelting class; it carries 54 per cent. of lead and $709 in silver, average assay value. This ledge plainly connects with a monster ledge 300 feet distant. The latter, some 12 feet wide, extends for several hundred yards. It shows some galena, but is principally a kind of an iron quartz, of little or no value so far ns surface tests will determine. The shaft on the Babe is only 12 feet deep, nnd that is the deepest in the district; it helongs to W. Keplinger, A. Doss, T. M. Brady and James Morris, who are workiug away on it, satisfied that it is a hig thing, as the ore from it, exhibited to us hy Mr. Morris, certainly indicates. These parties, with others, are at work constrncting an arrastra, which will he ready to run in ahout three weeks. Should this prove measurably successful, as we donbt not it will, Piute district will begin to attract the attention its very flattering surface indicatious so strougly invite.

Nevada County Mines.

The Nevadn *Transcript* pertinently says: The mines of this county are all at work, and have been employing all the men that could be worked to advantage throughout the season. Many new mines have been oponed, and the result is that the gold yield is much greater this year than for many years. We understand that up to the end of this month, the shipments exceed those of last year for the same length of time over $400,000. The present month exceeds those of the same month of last year over $70,000. This speaks well for the district and proves whst we have repeatedly said, that mining was never more prosperous about here than at the present time. The new mines being developed and the number of ledges being prospected give proof that the yield will continue to increase, and the next yenr may safely be expected to exceed the shipments of this yesr as much as this year exceeds last. There nre new ditches and tunnels being run into new fields where gold is known to exist in large quantities, and new ground is going to be opened in several places in the county, which, taken altogether, give the brightest prospects for the future. If the whole yield of tue county could be accurately obtained, and we hope to obtain it before long, it would surprise those unacquainted with the county. When these figures are given, they will prove Nevada the banner mining county of the State.

A Second Comstock Ledge.—Over a year ago, when a gold and silver quartz vein was discovered in St. Helena mountain, five or six miles from this place, the mining men of the State said that the Coast Range contained no auriferous quartz in paying quantities, and that the mine would prove to be only a surface spur. The energy and money of the Calistoga Silver Mining Company have entirely disproved this exploded theory. A tunnel has been run into the mountain at a point where the ledge crops out boldly, and all the distance in pay ore. A level of nearly three hundred feet has been attained in six feet of ledge matter that assays from $300 to $400 per ton. The mine is open to all visitors, who help themselves to specimens of the ore, and in all oases the retorts far exceed their nticipations. We were skeptical ourselves until occular proof carried conviction as to tho great value of this wonderful discovery. The open manner in which the mine is being worked, aud the freedom ehown to all persons inclined to examine the ledge, disprove the idea advocated by a few that this is nothing more than another grand "stock operation." The owners are all well known, and repntable gentlemen. They inform us that none of the stock will he offered for sale until the mill is in full operation, and the results of the milling known.—*Calistoga Press.*

The Dutch have met with a severe reverse at Sumatra—in fact their expedition has been well nigh destroyed.

Alameda Coal Beds.

A great deal of attention has been paid of late to the discovery of coal in this county. For nine years past pieces of coal have heen fonnd in the ravines and oreeks by different parties, who have reported the facts from time to time; this has led to often repeated prospectings by amatenr miners, which have invariably resulted unsuocessfully, for the reason that prospecting has been confined too near the eurface, and when small seams have been brought to light and samples presented to experts and geologists, they have emphatically pronounced it folly to follow up these seams, one and all declaring that the strata and formations are snch as to preclnde discovery of the much needed mineral. Examples are held up of Mt. Diablo and other bituminous regions, their stratifications, etc., and at one time we were told that coal did not exist in California. To refute these assertions, not being ourselvee mining experts or practical geologists, we think proper to present the views of an experienced coal miner, who has at various times made the suggestions upon which this article is based.

The region of Mt. Diablo is different from that of the foothills of the Coast Range, the former being clssed as mesozoic and oretsceous formation, whilst in the latter daily proofs are being given to show that it belongs to the mesozoio and palæozoio, with csrhoniferons formation. The strata of the former run differently from those of the latter. The coal strata of the H. A. mine runs southeast and northwest; that of the Black Hawk, near Niles' station, now being prospected, follows the same direction, and in the Hayhn mine, nine miles north from here, the strata maintain the same course, with the seams of coal in each case running perpendicular without any dip so far as explored—110 feet deep—and the coal veins have increased from one inch to twenty-four inches in thie depth. The increase of coal in the H. A. mine has more than trebled since it was opened, and each week's work is more favorable for oosl in psying quantities. Such English miners as are now at work express themselves positive of striking a coal bed within 15 to 30 feet further in depth. The opinion is expressed actually from experience in the coal mines of their native lnnd, and they speak of the present millstone and lime formation as being similar to the coal covering of otber mines.

Before the opening of this shaft, it was said that no real coal existed in this State; that it was only bitumen that had heen found. The coal of this mine has been tested, and npon examination it proves to be almost an exact counterpart of the Cumberland coal, being somewhat lighter in color and weight—a first-rate article for blacksmith's use. Regarding the stratam passed through in the shaft of this mine, the first was soil; next came a hard sandstone followed by hard clay, slate and clay with gypsum. This has been followed by millstone grit and lime formation, all badly shattered, probably by the upheaval of some great earthqnake, and throngh the formations run the coal veins and seams, followed down as near perpendicnlar as a plnmb line the whole width and depth of the shaft.

The most skeptical, upon visiting the different mining localities of our county, must acknowledge that we have coal of a superior quality, and it needs only a little energy on the part of our people to supply the capital with which to develop our mines and rednce our present heavy expenses in fnel.

The theory advanced that the altitude is greater than that of Santa Cruz and Santa Barbara, that our foot-hills cover large beds of coal formed from marine plants, and that our seams run in the direction of the before-mentioned places, and that the asphaltnm formations derive their being from here, that the coal oil which escapes off the harbor of Santa Barbara runs from our beds of coal, which extend to the next county, may appear ridiculous to eome; but it is firmly believed in by many of onr intelligent miners, who have little faith in the geologists of this State, as their experience has shown them that in this conntry nearly all such theories fail, and practice alone perfects. Coal oil has been found in small quantities in different places, as for example, at "Currel Place," and in the pasture on the Redwood road a few miles from Haywood; this is also suggestive of coal in the vicinity.

Let tho circumstances be as they may as to coal existiug in this stratnm or not, that is of very little importance at this time, for coal has been discovered in this county in many places; the best, however, so far, is that of the H. A. mine, and none differ in opinion as to its being the best coal yet found on the Pacific Coast. Each day's development brings forth more positive proof of the desired quantity, and of the shareholders being remunerated for tbe ontlay; and we consider the enccess of this undertaking as one of the most important to the interests of this county, as a fully developed, paying coal mine will instigate the opening of others in different placee along our coast foot-hills. As the present stratnm of coal has been traced from Fruit Vale to Washington Corners, we eee no reason to doubt that another class of indnstry will be added to our many othere, and will bring to our side of the bay much of the manufacturing interests of the State, and add largely to the resources of the commonwealth. —*Alameda Advocate.*

The Rhode Island Legislature has adjourned to meet January next, without electing a United States Senator.

A Word for Miners.

The yield of gold and silver on the Pacifio slope during the past 25 years amounts to $1,583,644,934. Of thie snm California produced $1,094,919,098; Nevada, $221,402,412; Utah, $18,527,537; Montana, $119,308,147; Idaho, $57,249,197; Colorado, $30,000,000; and Oregon and Washiugton Territory together, $25,504,250. Besides this Arizona and New Mexico have commenced a yield which will greatly increase with settlement and safe and cheap communication with that country. British Columbia has furnished $9,000,000. This is the resnlt of but a quarter of a century, and the amount steadily increases every year. The effects of snch an accumulation to the wealth of the world cmnot be comprehended. It has reduced the value of gold one-half. That is, it has so increased the valne of everything else that it takes two dollars now to buy what one dollar purchased 25 years ago. It is a complaisant thought in the minds of a great many Esetern people that they have, on tbe whole, done better than those who came West 20 years ngo. They will tell you how tbeir lands and stocks have doubled and quadrupled in value; bnt not many of them realize thnt because in the far West, in deep ravines, in tunnels, drifts and shafts, strong men were wearing out their lives, they unconsciously have been gaining wealth, that every dollar they have accumulsted is indeed a certificate, surely affirming that those who left them, and sought this Coast, in the years gone by, did not come in vain.

No army ever bronght home such conquests of treasnres; no host ever before so ohanged the face of things. It is almost as though nature hsd passed through another of those periods which geologists mark. and brought its corresponding change upon the face of the earth. Because of the miners' work the great city hy the Golden Gate has burst npou the world. Half the magnificence of the cities of the Eastern States; half the luxuries enjoyed by the people of the East are due to the same cause. Our miners' toil has bnilt new palaces in Europe, and made more gorgeons the mosques and harems of Egypt and of Asia. It wss becanse of their labor that when the great rebellion came, the Government's security for the ultimate redemption of her debts was manifest. It was becsnse of them that, when M. Thiers called on the people of France for five milliards, from Field Marshal to stable-boy, from Princess to chambermaid, all were able to unearth their purses of hoarded silver and of gold, and to ponr them into their country's ceffers, while the world, astonished, looked on. While this has been done for the world at large, a wilderness has been subdued, flonrishing states created, and an empire in extent opened to settlement.

This is no fancy picture. Indeed it is bnt a mesger outline of what these brave men have done. Books might he filled with records of what they have snffered and endured. Strange tales could be written of the etrnggles of great hearts, toiling throngh the years, while youth fled, and hopes which it was bnt just and natural to nurture, one hy one sickened and died; and of the thousands who, their natnres nnappreciated, their depth and worth concealed by a rough exterior and brusque address; of those for whom no record is kept, as year by year they grow weary, and folding their rough robes around them pass, uncomplainingly, away. Snrely these men shonld not be forgotten; surely the people of the whole country shonld think of tbem kindly; and the government ought to listen with patient ear to their petitions, especially when we consider it is not often their wont to ask for anything, except a fair field within which to work, snd six feet of barren soil in which to sleep when the long day's work is done.—*Enterprise.*

Clearing Steam Pipes of Condensed Water. —The *Bulletin* of the society of the former pnpils of the Arts and Metiers, Paris, gives an accouut of an apparatus planned to clear tubes of condensed water, nutomatically, without any sensible loss of steam. It consists of a cast-iron hood, three parts filled with water, with a free discharge pipe and a stop-cock which is in communication with the tube to be cleared. The body of the cock, which oscillates around its spigot, is furnished with a syphon tube which ends in a hollow float. This float is in communication with the water by means of a small hole at the lower part, and is furnished slso with a tnbe plsced in the line of its vertical diameter, open at both ends, and which is prolonged almost to the sides. The tnbe-syphon communicates with the aperture of the spigot of the cock by an orifice which is only covered when the float is drowned, which occnrs when it is two-thirds full of water. As soon as the steam arrives in the rear of the condensed water it fills the float, drives ont the water, and lightens it; the float then rises and closes the communication; it then descends, because the water in the basin fills it anew hy the small orifice below. Thus the float is continually oscillating, opening the cock to receive the condensed water, and closing it when the steam appeare.

Saline Water ann Lean Poisoning.—Champouillon shows that all the barracks and all the military hospitals in Paris receive their water throngh leaden pipes, and that from 1845 to 1869, out of 108,000 sick soldiere treated in the hospitals, there was not one single case of lead disease (intoxication satnrnine). The watere furnished to the garrison contain from 15 to 60 milligrammee of saline matter per litre, and on this account are safe.

A New Enterprise.

For some time past there has been a desire, on the part of the Tuolumne County Water company, to extend their works and infuse new life in the company and its management. As a result of this purpose, the present Board of Trustees has deemed it advisable to endeavor to bring water into the section of country around Montezuma higher than the present line of the ditch, which extends to that place, commands. They have purchased the pipe formerly used by the Chinese Camp Pipe Co., which was incorporated to bring water from the Phœnix ditch, across the depression at Wood's creek, into Chinese camp. This pipe—9,000 feet—is 11 inches in diameter and of iron ranging from 12 to 16 in quality. Dr. Pownall, Superintendent of the company, is having a survey made, (under the immediate direction of Trustee McLeod) from the tunnel that goes through Table mountain—at the Blue Gravel Co.'s works—to the high ground at Red Hill and vicinity, some 150 feet higher than the present line of ditch at Montezuma. The distance will be about six miles, and at a point between Chicken ranch and Looney's ranch, where the new ditch will end, about 4,700 feet of pipe will be used to convey the water across the depression at Turner's flat to the top of Red hill, the objective point at present contemplated. This new canal, by means of branch ditches and connecting pipes, can also be made to command other high mining sections in that vicinity.

This new enterprise, by getting the water high enough, will open a large district of gravel diggings known to be good, and which could not be heretofore worked for lack of hydraulic power. It will infuse new life into that whole section of country, and largely increase Tuolumne's harvest of the yellow gold.

As other opportunities offer for opening new sections to mining enterprise, the company will not be found backward in taking advantage of them, for the benefit of all interested in developing the mineral resources of the county.—*Tuolumne Independent.*

THE AMADOR CONSOLIDATED MINE. — The Reese River *Reveille* says: Work on this mine is being vigorously prosecuted under the superintendence of Captain Kidd. On the upper level six men are engaged in extracting chloride ore from the ledge—which at this point is six feet in width—which runs all the way from $50 to $500 in value per ton. The ore streaks in the ledge vary from two inches to one foot in thickness, some of the ore being of a remarkably high grade. We have seen specimens of sulphurets extracted from this level which will work up as high as $2,500 per ton. There are 250 feet of water in the incline, which will be pumped out as soon as the machinery, which it is contemplated to erect, is in working order. The ledge at the bottom is six feet in width, carrying ore of an average grade, and when drained will be systematically worked. The company intend, should the development warrant, to either erect or purchase a mill for the reduction of their ores. The Amador is but one of many localities in this district which have for a long time laid idle, and which only require energy and a little capital to make them productive; and it is to be hoped that the efforts of this company will be successful, that they may act as a stimulus to the reopening of other mines which are placed in similar circumstances.

SCIENTIFIC EDUCATION. — Prof. Williamson, in a paper read before the British Association, proposed the following plan for more general scientific training: Let the most intelligent and studious children from every private school be sent, free of charge, to the most accessible secondary school, for one year; let the best of these be selected and allowed to continue for a second year, and so on. Let the best pupils from these secondary schools be sent to college, and let those who graduate, after a similar system of weeding out, be supplied with an allowance sufficient for their maintainance for one year, on condition of their devoting their undivided energies to research, under the inspection of competent authorities, while allowed such facilities as the college can supply, with the addition of money grants for specific purposes. Let all who do well the first year be allowed similar advantages for a second, and even a third year.

ALTERATION OF WINES IN VATS OF MASONRY.—The lime and other bases in the mortar are found, by A. Poitwin, to saturate the acids of the wine, and injure its quality. Small amounts of lactic ferment were discovered by the microscope in the wine which had been in a vat of masonry. The difficulty was gotten over by thoroughly drying the masonry, giving it a few coats of potassic silicate, washing out the excess of potassa with water, drying, and finally washing with dilute tartaric acid.

BUTTER MADE BY STEAM.—Mr. C. S. Abbott, the owner of the Abbott House, has a dairy ranch on the Salinas river, three miles from the city. He has 1,500 cows, and makes butter altogether. He gets an average of 100 pounds per cow, and produces 150,000 pounds of butter annually. This, we believe, is the largest butter ranch in the State. The churning, and the regulation of temperature in the milk house, is wholly done by steam; and he makes, as we know, a number one article of butter.

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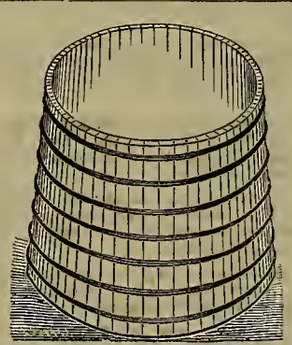
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General News.

Joeeph Newman, the well-known raiser of silk-worms, ie now feeding a large uumber of worms at hie house on Shotwell street, near Mission. He hae recently petitioned the Board of Supervisors to plant large uumhere of mulberry trees in Golden Gate Park, for the use, nnder certain restrictions, of such as may desire to raise silk-worms iu thie city. He says the trimmings of the leavee of euch trees are wortb to the feeder $20 per ton, and in the tenth year a tree well taken care of will yield during the eeason $5 worth of leaves, hesidee snetaining its growth. Tbus the Park, if planted over the portione of its eurface not reeerved for drives and walke, might be made to yield in teu years, from $100,000 to $150,000.

The Mill Riven Disaster.—The verdict in the Mill River disaster censures the Legislature for inadequate and defective legislation on the subject; the reeervoir and mill owners for pareimonious disregard of life and property; tbe engineere for ambiguous and inefficient specifications; the contractors for manifest delinquencies and want of thoroughness in their work, and the Couuty Commissioners for accepting a dam eo shabhily built, wheu they had the power to order its entire reconstruction.

Alfalfa as a Disinfectant.—We have heen assured tbat the introduction of alfalfa on our low lands is destined to prove the great dieinfectant of the malaria eo much dreaded in our valley. Alfalfa will grow anywhere on Kern Island, and it smothers out all wild vegetation. Our sloughe are to be dried up and the waters thrown into channels which will carry it all off and leave no more green frog-ponds. Old elough-beds are to be seeded in alfalfa. This ie the proeramme, adopted for the future.—*Southern Californian.*

The Cincinnati Industrial Exposition.—We have received a copy of the report of the Board of Commissionere of the fourtb Cinciunati Industrial Exposition of 1873, also the premium list for the exposition of 1874, both of wbich are fiue specimene of workmanship. Tbe Commissioners will pleaee accept our thanks with our best wishes for the success of their approacbing exposition, wbich will be open to the public on Wednesday, September 2d, aud continne until Saturday, October 3d.

Several expeditions have been sent out to explore the Black Hills country, but they have all had more or less trouble with the Sioux Indians, and been compelled to returu witbout having accomplished that ohject. The force that hae juet started out, under General Custar, from Minnesota, will cross the alkali plains of Dakota, and on reaching the Black Hille will make a thorough topographical eurvey of that wonderful region, which is said to abound in precious metals.

Poor Cuba.—Misery and want are extensive. There is the greatest excitement in consequence. Crime has increased to a fearfnl extent. The papers are daily filled with aseaults and robberies. The jail is literally packed with criminals. The Governor has ordered a part of the Ielo of Pinee to be converted into a correctional or penal colony for traitors, vagrants and incorrigibles, and a military colony will be established there.

Serious Railroad Accident.—A train approaching New Haven, on the Lake Shore railroad, ou Monday laet, ran off the track near Stony creek, and fell a distance of some ten feet upon the marsh below, killing one man, and wounding 78 others. None of the wounded were dangeroucly hurt. The accident was caused by the switcb being changed hefore the last car had passed. Starting with this, the whole train was dragged off the track.

A late telegram from Prestcott says tbe Hualapai Indians, who were compelled by nn Indian agent to leave their ancient home in the mountains and move to a reservatiou in the Colorado bottom, are not thriving. They are unable to cultivate the land, their horses are dying, and they are siokly and miserable. They protested earnestly against the transfer, and the military officers, who were familiar with their mode of life, predicted that the change would he disastrous.

The Iowa Railroad Laws.—The roads geuerally are conforming to the new railroad law, hut under protest. They eay it is useless to enter into continued litigation until the question of railroad righte reachee a decision in the Snpreme Court of the United Statee; then there remain but two courses in case the decision is adveree to the railroad interest, namely, to ohey the etatute or qnit the business.

The Montana etage was rohhed, July 3d, at Big Dry creek, 25 milee south of Pleasant valley, hy fonr masked men, armed with ehot-guns. The eouth coach was stopped first and run into tbe hrush and held until the north coach came, when both were overhauled. The rohbers got ahout $60 in money and Wells, Fargo & Co.'s expreee hox.

The Illinois legielature has paesed a law providing that whoever adulterates milk with water, chalk or other eubstance, or sells such milk, sball be confined in the county jail uot exceeding one year, or fined not exceeding $500.

Lieutenant Charles P. Egan, of Califoruia, who waa wounded in the Modoc war, haa heen appointed Captain of tbe Subaistenoe Department.

The tornado seaeon has commeuced in the East, and the destruction of life and property thue far reported is moet appalling. Honsee hy the hundreds have been unroofed, crops deetroyed, trees torn up by the roots, and people killed and maimed by ecores. Truly these visitations are a hundred-fold woree than earthquakes.

Appeal to Patrons.—The Governor of Minneeota, recognizing that the Patrons are ever ready to relieve the sufferfng and oppreseed, has issued an appeal to the Patrons of Minnesota to forward relief to the farmers of the southwesteru countiee of that State, who have loet their crops by the grasshopper plague.

The Carlists in Spain etill refuse to be put down. They eeem to have takeu new courage at the death of Concha, their ancient enemy, and appear now to he increasing in numbers and etrength. The Repuhlicans are trying to hem them in hy surrounding tbeir front and flanks with permanent fortificatione.

The overland railroads are reducing freight rates to San Frnncisco, just before the departure of each steamer from New York, and increasing them again afterward. The steamers are consequently carrying freight at twenty-five dollare per ton.

Thomas Kelp, of New Brunswick, New Jereey, took his three children to the canal, Monday, and pitched them in, jumping in himself afterward. The oldest child, a girl, was drowned, hut the father and the other children were rescued.

The great bridge over the Mississippi river at St. Louis is finished, and wae dedicated on tbe Fourth inst., that being the ohief feature of the day'e celebration. The construction of this bridge ie one of the leading engineering features of the day.

The Harhor Commiesioners have purchased Taylor's Dredger for $34,000. The Commiesioners eay tbey oan have dredging now done for 10 cents a yard, for which they formerly paid 24 cents.

The wheat crop in Illinois ie suffering seriously in the central counties from the ravnges of the chinch bug, aud all the growing crops are said to be unfavorably nffected hy the drouth.

The report of the loss of the cahle steamer "Faraday," by coming into collision with an iceberg, off Nova Scotia, is denied. She has since been eeen quietly at her work, picking up the cable.

Most of the sheep raieers in Oregon have eheared their last sheep. The wool clip is hetter than ever hefore, both as to quality and amount.

The secoud crop of etrawherries in Santa Clara county ie coming on slowly, and it is believed that the yield will be as light as the other was heavy.

A nugget taken, laet week, from the claim of Weher, Hooker & Windere, at Whisky Flat, Butte county, weighed fourteen ouuces, and was valued at $250.

The property in Clifton dietrict, or Deep creek, in Utah, known as the Filberson property, has just heen eold to a St. Louis Co. for the sum of $90,000 cash.

The model for the proposed equestrian statue of General Thomas has been accepted. It will he erected in Washington.

The frame of the new hall for the Danville Grange of the Patrons of Husbandry, 30 hy 60 feet upon the ground, is already up.

Lownen & Atkins, in the Grass Valley mine, Trinity conuty, last week, picked up six hundred dollars in their ground sluices.

The Walla Walla farmers have got up a corner in hay, and will not sell at less than $14.50 per ton.

A new miue has been discovered within eix miles of Calistoga. The quartz is said to he very rich.

Cinnabar has been discovered on 11 of the 50 mining claims in the Guerneville district, Sonoma county.

The proprietors ot the Sotoyoms mine, Napa county, will shortly ereet a mill and rednction works.

A new mill is heing erected for the Lincoln aud Mahoney minee, at Sutter Creek, Amador county.

A ten-stamp mill is being put up at Enterprise, Amador county.

The Rediugton mine shipped 120 flasks of quicksilver to San Francisco on Monday.

The new furnace at the New Almaden mines will soon he running.

Over 21,000 emigrants landed in New York during June.

There have been 600 dismissals of exployés in the various departments in Washingtou.

The Napa Plow Co. have commenced huildiug operatious.

A chiln ot D. McNulty, living near Yreka, died last week from the bite of a scorpion.

Prospectors are atill filing out of Olympia for the mountains.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., July 7th, 1874.

For Week Ending June 23d, 1874.

Hydraulic Hoist.—Martin L. Bassett, S. F., Cal.

Device for Releasing Horses—Operaten by Alarms.—Robert Bragg, S. F., Cal.

Fiber Separating Machine.—Wm. M. Hugbes, S. F., Cal.

Drill Tooth.—Henry H. Linnell and Leonidae Parker, Oaklaud, Cal.

Table for Vessels.—Edward P. S. Audrews, Havilah, Cal.

Transplanter.—Timothy Carroll, Anaheim, Cal.

Atmospheric Power Hammer.—Wm. Maneon, S. F., Cal.

Atmospheric Hammer.—Wm. Manson, S. F., Cal.

Re-issue.

Process of Separating Silver from Other Metals.—Conrad Wiegand, Virginia City, Nevada.

———*The patents are not ready for delivery by the Patent Office nntil some 14 days after the dete of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent husinese for Pacific coast inventors transacted with perfect aecurity and in the shortest time possible.

Amendment of the New Code Incorporation Assessment Law of California.

[Furnished Free from the Mining and Scientific Press Office.]

Directors May Levy Aesessments.

The Directors of any corporation formed under the laws of this State, for the purpose of payiug expenses, conducting business, or paying debts, may levy and collect assessments upon the capital stock thereof, in the manner and form and to the extent provided herein.

Limitation.

No one assessment must exceed ten per cent. of the amount of the capital stock named in the articles of incorporation, except in the cases in this sectiou otherwise provided for, as follows:

How Levied.

1. If the whole capital of a corporation has not been paid up, and the corporation is unable to meet its liabilities or to satisfy the claims of its creditors, the assessment may be for the full amount unpaid upon the capital stock; or if a less amount is sufficient, then it may be for such a percentage as will raise that amouut;

2. The Directors of railroad corporations may assess the capital stock in installments of not more than ten per cent. per month, unless in the articles of Incorporation it is otherwise provided;

3. The Directors of fire or marine insurance corporations may assess such a percentage of the capital stock as they deem proper.

Levy of Aesessment.

No assessment must be levied while any portion of a previous one remains unpaid, unless:

Old Asseement Remaining Unpaid.

1. The power of the corporaiion has been exercised in accordance with the provisions of this Article for the purpose of collecting such previous assessment;

2. The collection of the previous assessment has been enjoined; or

3. The assessment falls within the provisions of either the first, second or third subdivision of Section 332.

What Order Shall Contain.

Every order levying an assessment must specify the amount thereof, when, to whom, and where payable; fix a day, subsequent to the full term of publication of the assessment notice, on which the unpaid assessment shall be delinquent, not less than thirty nor more than sixty days from the time of making the order levying the assessment; and a day for the sale of delinquent stock, not less than fifteen nor more than sixty days from the day the stock is declared delinquent.

Notice of Aesessment.

Upon the making of the order, the Secretary shall cause to be published a notice thereof, in the following form:

Form.

(Name of corporation in full. Location of principal place of business). Notice is hereby given, that at a meeting of the Directors, held on the (date), an assessment of (amount) per share was levied upon the capital stock of the corporation, payable (when, to whom, and where). Any stock upon which this assessment shall remain unpaid on the (day fixed) will be delinquent and advertised for sale at public auction, and, unless payment is made before, will be sold on the (day appointed), to pay the delinquent assessment, together with costs of advertising and expenses of sale.

(Signature of Secretary, with location of office.)

Personal Notice and Publication.

The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the corporation is situated; and be published once a week for four successive weeks in some newspaper of general circulation and devoted to the publication of general news, published at the place designated in the articles of incorporation as the principal place of business, and also in some newspaper published in the county in which the works of the corporation are situated, if a paper be published therein. If the works of the corporation are not within a State or Territory of the United States, publication in a paper of the place where they are situated is not necessary. If there be no newspaper published at the place designated as the principal place of business of the corporation, then the publication must be made in some other nowspaper of the county, if there be one, and if there be none, then in a newspeper published in an adjoining county. [*This paragraph contains the amendment of July* 1st, 1874.]

Delinquent Notice.

If any portion of the assessment mentioned in the notice remains unpaid on the day specified therein for declaring the stock delinquent, the Secretary must, unless otherwise ordered by the Board of Directors, cause to be published in the same papers in which the notice hereinbefore provided for shall have been published, a notice substantially in the following form:

Form.

(Name in full. Location of principal place of business). Notice.—There are delinquent upon the following described stock, on account of assessment levied on the (date), (an assessment levied previous thereto, if any), the several amounts set opposite the names of the respective shareholders, as follows: (Names, number of certificate, number of shares, amount). And in accordance with law, (and an order of the Board of Directors, made on the [date), if any such order shall have been made), so many shares of each parcel of such stock as may be necessary will be sold, at the (particular place), on the (date), at (the hour) of such day, to pay delinquent assessments thereon, together with costs of edvertising and expenses of the sale.

(Name of Secretary, with locetion of office.)

Contente of Notice.

The notice must specify every certificate of stock, the number of shares it represents, and the amount due thereon, except where certificates may not have been issued to parties entitled thereto, in which case the number of shares and amount due thereon, together with the fact that the certificates for such shares have not been issued, must be stated.

How Published.

The notice, when published in a daily paper, must be published for ten days, excluding Sundays and holidays, previous to the day of sale. When published in a weekly paper, it must be published in each issue for two weeks previous to the day of sale. The first publication of all delinquent sales must be at least fifteen days prior to the day of sale.

Jurisdiction Acquired, How.

By the publication of the notice, the corporation acquires jurisdiction to sell and convey a perfect title to all of the stock described in the notice of sale, upon which any portion of the assesement or costs of advertising remains unpaid at the hour appointed for the sale, but must sell no more of such stock than is necessary to pay the assessments due and costs of sale.

Sale to be by Public Auction.

On the day, at the place, and at the time appointed in the notice of sale, the Secretary must, unless otherwise ordered by the Directors, sell or cause to be sold at public auction, to the highest bidder for cash, so many shares of each parcel of the described stock as may be necessary to pay the assessment and charges thereon, according to the terms of sale; if payment is made before the time fixed for sale, the party paying is only required to pay the actual cost of advertising, in addition to the assessment.

Highest Bidder to be the Purchaser.

The person offering at such sale to pay the assessment and costs for the smallest number of shares or fraction of a share is the highest bidder, and the stock purchased must be transferred to him on the stock books of the corporation, on payment of the assessments and costs.

In Default of Bidders, Corporation may Purchase.

If, at the sale of stock, no bidder offers the amount of the assessments and costs and charges due, the same may be bid in and purchased by the corporation, through the Secretary, President, or any Director thereof, at the amount of the assessments, costs and charges due; and the amount of the assessments, costs and charges must be credited as paid in full on the books of the corporation, and entry of the transfer of the stock to the corporation must be made on the books thereof. While the stock remains the property of the corporation it is not assessable, nor must any dividends be declared thereon; but all assesaments and dividends must be apportioned upon the stock held by the stockholders of the corporation.

Dispoeition of Stock Purchaeed by Corporation.

All purchases of its own stock made by any corporation vest the legal title to the same in the corporation; and the stock so purchased is held subject to the control of the stockholders, who may make such disposition of the same as they deem fit, in accordance with the by-laws of the corporation or vote of a majority of all the remaining shares. Whenever any portion of the capital stock of a corporation is held by the corporation by purchase, a majority of the remaining shares is a majority of the stock for all purposes of election or voting on any question at a stockholders' meeting.

Extension of Time of Delinquent Sale.

The dates fixed in any notice of assessment or notice of delinquent sale, published according to the provisions hereof, may be extended from time to time for not more than thirty days, by order of the directors, entered on the records of the corporation; but no order extending the time for the performance of any act specified in any notice is effectual unless notice of such extension or postponement is appended to and published with the notice to which the order relates.

Aeseesments Shall not be Invalidated.

No assessment is invalidated by a failure to make publication of the notices hereinbefore provided for, nor by the non-performance of any act required in order to enforce the payment of the same; but in case of any substantial error or omission in the course of proceedings for collection, all previous proceedings, except the levying of the assessment, are void, and publication must be begun anew.

Action for Recovery of Stock, and Limitation Thereof.

No action must be sustained to recover stock sold for delinquent assessments, upon the ground of irregularity in the assessment, irregularity or defect of the notice of sale, or defect or irregularity in the sale, unless the party seeking to maintain such action first pays or tenders to the corporation or the party holding the stock sold, the sum for which the same was sold, together with all subsequent assessments which may have been paid thereon and interest on such sums from the time they were paid; and no such action must be sustained unless the same is commenced by the filing of a complaint and the issuing of a summons thereon within six months after snch sale was mede.

Affidavits of Publication—Affidavits of Sale To be Filed.

The publication of notices required by this Article may be proved by the affidavit of the printer, foreman or principal clerk of the paper in which the same was published; and the affidavit of the Secretary or auctioneer is primary evidence of the time and place of sale, of the quantity and particular description of the stock sold, and to whom and for what price, and of the fact of the purchase money being paid. The affidavits must be filed in the office of the corporation, and copies of the same, certified by the Secretary thereof, are primary evidence of the facts therein stated. Certificates, signed by the Secretary and under the seal of the corporation, are primary evidence of the contents thereof.

Waiver of Sale—Action to Recover Assessment.

On the day specified for declaring the stock delinquent, or at any time subsequent thereto and before the sale of the delinquent stock, the Board of Directors may elect to waive further proceedings under this Chapter for the collection of delinquent assessments, or any part or portion thereof, and may elect to proceed by action to recover the amount of the assessment and the costs and expenses already incurred, or any part or portion thereof.

This law, as amended, took effect July 1st, 1874.

GENERAL MERCHANDISE.

WEDNESDAY M., July 8, 1874.

Bags and Bagging are firm at noted rates. A lot of 75,000 second-hand English Wheat Bags changed hands, it is said, at 9@12½c; sale on private terms. An improvement has been made in Eastern Cod, while Salmon and Mackerel are nowhere. Spices are dull, and prices lower. The Sugar war seems to have ended, for a time at least; and during the cessation of hostilities rates are ½c higher throughout the line. Syrups and Molasses are also firmer.

BAGS.		Olive	4 00 @ 9 50
Eag. Stand Wht.	—14½@14½	Downer Kerose'e	— @ 42½
Detrick's Machine		Gas Light Oil	— @ 34
Sewed, 22x36 E..	—@13½	**PAINTS.**	
do 22x36, do E W	—@14	Atlan. W. Lead.	7½@ 12½
do 20x40, do A	—@14½	Whiting	—@ 2
Flour Sacks ½s..	10½—@12½	Putty	4½@ 5
" " ¼s.	6½—@ 7¾	Chalk	—@ 2½
Stand. Gunnies..		Paris White	2¾@ —
double seam	—15 —@16	Oobre	—@ 3½
single seam	—13 —@13	Venetian Red	3½@ 5
" Wool Sacks	63 —@—	Red Lead	—@ 11
Barley Bags 24x36	—@15¾	Litharge	10 @ 11
do 22x40	—@15½	Eng. Vermillion	1 00@1 25
do 24x40	—@16¾	**RICE.**	
do 28x36	—@17	China No. 1, ₱ lb	5½@ 6¾
Oat Bags, 24x48	16 @16½	do 2, do	5½@ 5¾
do 28x36	— @17	Japan	5¾@ 6
Hessian 10-in.gds	9½—@10	Siam Cleaned	7 @ —
do 45	10½—@11	Patna	—@ 6¾
do 60	—@15	Hawaiian	—@ 7¼
CANNED GOODS.		Carolina	10 @ 10½
Asst'd Pie Fruits		**SALT.**	
in 2½ lb cans	2 75 @ 3 00	Cal. Bay, per ton	10 00@14 00
do Table do	—@ 2 75	do Common	6 00@ 7 00
Jams & Jellies	3 75 @ 4 25	Carmen Island	11 00@13 00
Pickles ½ gl.	—@ 3 50	Liverpool fine	23 00@25 00
Sardines, qr box	75 @—	do coarse	15 00@20 00
do hf boxes	3 00 @—	**SOAP.**	
COAL—Jobbing.		Castile ₱ lb	10 @ 11
Australian, ₱ ton	—@—	Local brands	5 @ 8
Coos Bay	—@10 00	**SPICES.**	
Bellingham Bay	—@ 8 50	Allspice, per lb	15 @ 16
Seattle	—@11—	Cloves	55 @ 60
Cumberl'd, cks	22 00 @23 00	Cassia	22½@ 25
do bulk	18 00 @20 00	Citron	—@ 50
Mt. Diablo	6 25 @8 25	Nutmegs	—@1 07½
Lehigh	20 00 @22 50	Whole Pepper	17½@ 18
Liverpool	11 00 @12—	Pimento	—@ 15½
West Hartley	12 00 @14—	Gr'nd Allsp'ce & dr	@1 00
Scotch	₱ 50 @11 00	do Cassia do	@1 50
Scranton	15 00 @17 50	do Cloves do	@1 50
Vancouver's Isl	11 00 @11 50	do Mustard do	@1 25
Charcoal, ₱ sk	75 @—	do Ginger do	@1 00
Coke, ₱ bbl	—@ 60	do Pepper do	@1 00
COFFEE.		do Mace do	—@1 60
Sandwich Island	—@ 22	**SUGAR, ETC.**	
Central Am'ric'n	22 @ 23	Cal. Cube per lb	10½@ —
Costa Rica per lb	23½@ 24	Parız' Pro. Cube	
Guatemala	23½@ 24	bbl or 100 lbs	—@ 11
Java	23½@ 30	do in 50 lb bxs	—@ 11½
Manilla	22 @—	do in 25 lb bxs	—@ 11½
Oronnd in oe	—@ 30	Circle A crushed	—@ 10½
Chicory	10 @—	Powdered	—@ 10¾
FISH.		Granulated	— @ 10
Pac. Dry Cod, new	5 @ 6	Dry granulated	10 @ 10½
cases	6 @ 7	Hawaiian	8 @ 9
do boneless	11 @ 12	California Beet	— @ 10¾
Eastern Cod	—@ 6	Golden C	—@ 9½
Salmon in bbls	8 00 @—	do Rey'g grade	—@ 6½
do ½ bbls	4 50 @—	Cal. Syrup in als	—@ 27½
do 2½ lb cans	—@3 00	do in ½ bls	—@ 30
do 2lb cans	2 65 @2 75	do in kegs	—@ 32
do 1lb cans	1 75 @—	Hawaiian Molasses	20 @ 25
Do Col. R. ½lb	—@—	**TEA.**	
Pick. Cod, bbls	22 00 @—	Oolong, Canton, lb	19 @ 25
do ½ bbls	11 00 @—	do Amoy	28 @ 50
Bow. Sm'k'd Her'g	40 @ 50	do Formosa	40 @ 80
Mack'l, No 1, ₱ bbl	28 @ 30	Imperial, Canton	25 @ 40
" Extra	—@ 9 00	do Pingsuey	45 @ 80
" in kits	2 00 @2 50	do Moyuna	80 @1 00
" Ex mess	3 00 @3 50	Gnnpo'der, Cant	30 @ 42½
" Ex mess, ½bs	—@12 00	do Pingsuey	50 @ 90
Sm'k Herr'g, lb	5c @ 55	do Moyune	65 @1 25
NAILS.		Y'ng Hy., Canton	28 @ 40
Assorted size, lb	4½ @ 7	do Pingsuey	40 @ 70
OILS.		do Moyune	65 @ 85
Pacific Glue Co.		Japan, ½ chests,	
Neat F't No. 1	—@1 00	bulk	30 @ 75
Pure	1 25 @—	Japan, lacquered	
Castor Oil, No 1	—@1 75	bxs, 4½ and 5 lbs	45 @ 67
do do No 2	—@1 60	Japan, do, lb bxs	45 @ 90
Cocoanut	45 @—	do pl'n bx, 4½ lb	35 @ 65
Olive Plagniol	5 00 @—	do ½ & 1 lb paper	30 @ 55
do Possel	4 75 @—	**TOBACCO—Jobbing.**	
Palm	9 @—	Bright Navys	50 @ 80
do Bagicalupi	—@—	Dark do	45 @ 55
Linseed, raw	—@1 02	Dwarf Twist	57 @ 62½
do boiled	—@1 07	12 inch do	57 @ 62½
China nut in cs	—@ 82½	Light Pressed	65 @ 75
do bulk	70 @ 72	Hard do	60 @ 70
Sperm, crude	—@2 00	Conn. Wrap'r	40 @ 50
do bleached	—@2 20	Penn. Wrapper	20 @ 30
Coast Whales	35 @ 40	Ohio do	7 @ 15
Polar, refined	50 @ 55	Virgi'a Smok'g	60 @ 95
Sperm	140 @1 50	Fine cut ch'g, tr	85 @ 90
Lard	95 @1 05	Fine cut obewling, buc'te, ₱ lb	75 @ 90
Coal, refined Pet	37½@ 40	Banner fine cut	—@ 90
Cleophine	— @ 34	Eureka Chew	75 @ 90
Devoe's Bril't	27 @ 29	**TURPENTINE.**	
Long Island	27 @ 29	Eastern	70 @ 75
Eureka	37½@ 40		
Devoe's Petro'm	26 @ 29		
Barrel kerosene	— @ 26		

A COMPLIMENT.

PLAINSBURG, MERCED CO., CAL., June 22, 1874.

DEWEY & CO.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which you have displayed in procuring my patent.

Although you were entire strangers to me when I first communicated with you, I soon felt satisfied you were gentlemen of integrity, and shall always be happy to represent you as such. Very truly yours,

H. W. RUCKER, M. D.

CAMPO, SAN DIEGO CO., CAL., July 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen:* Tn day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. GASS.

PLAINFIELD, July 4th, 1874.

MESSRS. DEWEY & CO.—*Dear Sirs:* I acknowledge receipt of yours of 2d inst., inclosing my Letters Patent. I thank you for the interest you have taken in obtaining the same. Yours truly, M. W. COON.

METALS.

WEDNESDAY M., July 8, 1874.

Quicksilver is still firm at $1.35 ₱ lb. There is nothing new to report of Iron and Steel.

American Pig Iron, ₱ ton	— —	@	40 00
Scotch Pig Iron, ₱ ton	— —	@	40 00
White Pig, ₱ ton	— —	@	50 00
Refined Bar, bad assortment, ₱ lb	— —	@	— 3½
Refined Bar, good assortment, ₱ lb	— —	@	— 4
Boiler, No. 1 to 4	— —	@	— 5½
Plate, No. 5 to 8	— —	@	— 5½
Sheet, No. 10 to 13	— —	@	— 5½
Sheet, No. 14 to 20	— —	@	— 5½
Sheet, No. 24 to 27	— 08	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	— 9½	@	—
Norway Iron	— 8	@	—
Rolled Iron	— 6	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	— 4½
COPPER.—			
Brazier's	— 31	@	— 32
Copper Tin'd	— 45	@	—
O. Nail's Pat	— 50	@	—
Sheathing, ₱ lb	—	@	— 24
Sheathing, Yellow	—	@	— 25
Sheathing, Old Yellow	—	@	— 12½
Composition Nails	— 24	@	—
Composition Bolts	— 24	@	—
TIN PLATE.—			
Plates, Charcoal, IX ₱ box	—	@	16 00
Plates, 1 C Obarcoal	14 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ lb	— 33	@	—37
SteEL.—English Cast, ₱ lb	— 20	@	— 25
Anderson & Woods' American Cast	— 10	@	— 17
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC.—	— —	@	— 11
Zinc, Sheet	— —	@	— 11½
NAILS—Assorted sizes	— 8½	@	— 8
LEAD.—			
Pig, ₱ lb	— 5½	@	— 6
Bar	— 6½	@	— 7
Sheet	— —	@	— 9
Pipe	— —	@	— 8½
QUICKSILVER, per lb	— —	@	1 35

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the M. & S. Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements

Stockholder's Meeting—Bandereta M. & M. Co., Mariposa County, Cal.

Notice is hereby given, that the annual meeting of the stockholders of the above named company, for the purpose of electing Trustees for the ensuing year, and transacting such other business as may be brought before the meeting, will be held at their office, No. 408 California street, San Francisco, California, on Saturday, the 18th day of July, 1874, at 12 o'clock, M. By order,

jy11-2t J. W. TRIPP, Secretary.

Diamond Silver Mining Company.—Location of works, East Tintic Mining District, Juab County, Utah Territory. Principal place of business, San Francisco.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 1, levied on the 18th day of April, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm Sherman, Trustee	7	550	$55 00
Thos W Moore	15	550	55 00
H T Felton, Trustee	22	100	10 00
J P Chamberlin	23	110	11 00
S L Marston	34	110	11 00
S L Marston	207	110	11 00
H C Gregory	35	110	11 00
I Salz	36	55	5 50
S Salz	37	55	5 50
L E Osgood	38	110	11 00
Wm Walton	39	110	11 00
I S Maston	40	110	11 00
Solomon Jewett	43	550	55 00
Mrs. Angie Eager	49	22	2 20
John J Duffy	50	11	1 10
Hartwig Bornemann	51	220	22 00
Hartwig Bornemann	53	330	33 00
Mrs. Hartwig Bornemann	54	11	1 10
Carl Leutgel	55	11	1 10
E S Hamilton	62	60	6 00
W M Brewer	69	1130	113 00
F Palmer	72	227	22 70
Medallon Mining Company	73	910	90 00
Geo Helm, Trustee	33	275	27 50
Geo Helm, Trustee	132	50	5 00
Geo Helm, Trustee	134	25	2 50
Geo Helm, Trustee	135	50	5 00
Geo Helm, Trustee	136	50	5 00
Geo Helm, Trustee	137	50	5 00
Geo Helm, Trustee	138	50	5 00
Geo Helm, Trustee	139	50	5 00
Geo Helm, Trustee	140	50	5 00
Geo Helm, Trustes	129	125	12 50
Geo Helm, Trustee	122	100	10 00
Geo Helm, Trustee	130	75	7 50
Geo Helm, Trustee	145	53	5 00
Mary Van Reynegom	147	25	2 50
A M Vines	148	25	2 50
J L Van Reynegom	149	50	5 00
J L Van Reynegom	150	50	5 00
J A Fairchild	184	100	10 00
N J Street	185	110	11 00
A J Stevens	186	100	10 00
R M Anthony	197	400	40 00
V P Terry	198	50	5 00
James E Blenthen	199	50	5 00
Benjamin Corey	200	50	5 00
Benjamin Corey	201	50	5 00
Benjamin Corey	202	50	5 00
Benjamin Corey	203	50	5 00
Joseph Fowler	210	50	5 00
Joseph Fowler	211	50	5 00
D A Washburn, Trustee	221	150	15 00
C A Washburn, Trustee	222	100	10 00
C A Washburn, Trustee	223	25	2 50
C A Washburn, Trustee	224	25	2 50
C A Washburn, Trustee	243	150	15 00
R M Antbony, Trustee	225	50	5 00
E C Morton, Trustee	227	100	10 00
E C Morton, Trustee	228	100	10 00
E C Morton, Trustee	229	100	10 00
E C Morton, Trustee	230	100	10 00
E C Morton, Trustee	231	100	10 00
E C Morton, Trustee	232	100	10 00
E C Morton, Trustee	233	100	10 00
E C Morton, Trustee	234	100	10 00
E C Morton, Trustee	235	100	10 00
E C Morton, Trustee	236	100	10 00
E C Morton, Trustee	237	50	5 00
E C Morton, Trustee	238	50	5 00
E C Morton, Trustee	239	43	4 30
E A Colson	244	50	5 00
M Fahndrick	251	25	2 50
M Fabndrick	253	25	2 50
M Fahndrick	254	25	2 50
M Faindrick	255	25	2 50
M Fahndrick	256	25	2 50
M Fahndrick	257	25	2 50
M Fahndrick	258	15	1 50
M Fahndrick	259	15	1 50
M Fabndrick	261	12	1 20
Frank Eunenegger	289	25	2 50
Chas Munch	290	10	1 00
O C Miller, Trustee	75	50	5 00
O C Miller, Trustee	76	50	5 00
O C Miller, Trustee	79	50	5 00
O C Miller, Trustee	81	50	5 00
O C Miller, Trustee	82	50	5 00
O C Miller, Trustee	83	50	5 00
O C Miller, Trustee	88	50	5 00
O C Miller, Trustee	89	50	5 00
O C Miller, Trustee	90	50	5 00
O C Miller, Trustee	91	50	5 00
O C Miller, Trustee	95	50	5 00
O C Miller, Trustee	153	100	10 00
O C Miller, Trustee	154	100	10 00
O C Miller, Trustee	155	25	2 50
O C Miller, Trustee	161	100	10 00
O C Miller, Trustee	162	100	10 00
O C Miller, Trustee	165	100	10 00
O C Miller, Trustee	167	100	10 00
O C Miller, Trustee	171	100	10 00
O C Miller, Trustee	174	100	10 00
O C Miller, Trustee	178	50	5 00
O C Miller, Trustee	179	50	5 00
O C Miller, Trustee	180	45	4 50
C C Miller, Trustee	212	100	10 00
O C Miller, Trustee	213	100	10 00
C H La Orange, Trustee	215	100	10 00
O H La Grange, Trustee	216	100	10 00
O H La Orange, Trustee	217	100	10 00
C H La Grauge, Trustee	218	100	10 00
C H La Grange, Trustee	219	100	10 00
O H La Orange, Trustee	220	50	5 00
O H La Grenge, Trustee	269	100	10 00
C H La Grange, Trustee	270	100	10 00
O H La Grange, Trustee	275	100	10 00
O H La Orenge, Trustee	276	100	10 00
O H La Orange, Trustee	277	100	10 00
O H La Grange, Trustee	278	100	10 00
O H La Grange, Trustee	279	100	10 00
Isaac M. Brower	123	1000	100 00
O D Munson	105	100	10 00
N Hamilton, Trustee	118	100	10 00
N Hamilton, Trustee	119	100	10 00
N Hamilton, Trustee	120	100	10 00
N Hamilton, Trustee	26	275	27 50
N Hamilton, Trustee	27	55	5 50
N Hamilton, Trustee	42	110	11 00
N Hamilton, Trustee	63	50	5 00
N Hamilton, Trustee	116	43	4 30
N Hamilton, Trustee	143	100	10 00
N Hamilton, Trustee	144	50	5 00
N Hamilton, Trustee	145	50	5 00
N Hamilton, Trustee	193	400	40 00
N Hamilton, Trustee	206	100	10 00
N Hamilton, Trustee	112	100	10 00
N Hamilton, Trustee	114	100	10 00
N Hamilton, Trustee	115	57	5 70
N Hamilton	183	100	10 00
N Hamilton	172	200	20 00
H H Hubbard	94	100	20 00
Jno J Crawford	97	100	20 00
B Dore, Trustee	289	50	10 00
B Dore, Trustee	296	100	20 00
B Dore, Trustee	290	50	10 00
B Dore, Trustee	308	100	20 00
B Dore, Trustee	309	100	20 00
B Dore, Trustee	310	100	20 00
B Dore, Trustee	311	100	20 00
B Dore, Trustee	314	200	40 00
J W Searles	207	100	20 00
J H Wood, Trustee	211	100	20 00
J H Wood, Trustee	213	100	20 00
J H Wood, Trustee	225	100	20 00
J H Wood, Trustee	322	200	40 00
J H Wood, Trustee	335	100	20 00
J H Wood, Trustee	334	100	20 00
J H Wood, Trustee	348	100	20 00
W B Boyden	299	50	10 00
W B Boyden	300	100	20 00
W B Boyden	301	100	20 00
W B Boyden	302	100	20 00
W B Boyden	303	100	20 00
W B Boyden	304	100	20 00
Wm Azel	305	50	10 00
D W Spear	376	100	20 00
D W Spear	377	50	10 00
F Franks	344	50	10 00
W A Knapp, Trustee	241	100	20 00
W A Knapp, Trustee	242	100	20 00
W A Knapp, Trustee	243	100	20 00
W A Knapp, Trustee	244	100	20 00
W A Knapp, Trustee	245	100	20 00
W A Knapp, Trustee	247	800	160 00
W A Knapp, Trustee	253	100	20 00
W A Knapp, Trustee	279	100	20 00
H C Hinds	256	1000	200 00
Robt Clifford	389	100	20 00
Robt Clifford	390	100	20 00
W J Hamilton	338	100	20 00
W A Knapp, Trustee	262	50	10 00
W A Knapp, Trustee	264	50	10 00
W A Knapp, Trustee	266	50	10 00
W A Knapp, Trustee	267	50	10 00
W A Knapp, Trustee	268	50	10 00
W A Knapp, Trustee	269	50	10 00
W A Knapp, Trustee	271	50	10 00
W A Knapp, Trustee	282	50	10 00
W A Knapp, Trustee	283	50	10 00
W A Knapp, Trustee	277	100	20 00
W A Knapp, Trustee	278	100	20 00
W A Knapp, Trustee	316	100	20 00
W A Knapp, Trustee	317	100	20 00
W A Knapp, Trustee	318	100	20 00
W A Knapp, Trustee	320	100	20 00
W A Knapp, Trustee	323	50	10 00
W A Knapp, Trustee	325	50	10 00
W A Knapp, Trustee	280	100	20 00
W A Knapp, Trustee	281	100	20 00
W A Knapp, Trustee	326	100	20 00
W A Knapp, Trustee	327	100	20 00
W A Knapp, Trustee	328	100	20 00
W A Knapp, Trustee	329	100	20 00
W A Knapp, Trustee	331	100	20 00
W A Knapp, Trustee	332	100	20 00
W A Knapp, Trustee	333	100	20 00
W A Knapp, Trustee	341	100	20 00
W A Knapp, Trustee	342	200	40 00
W A Knapp, Trustee	345	300	60 00
H P Wood, Trustee	383	100	20 00
W A Knapp, Trustee	384	400	80 00
W A Knapp, Trustee	385	500	100 00
W A Knapp, Trustee	386	100	20 00
W A Knapp, Trustee	387	100	20 00
W A Knapp, Trustee	388	200	40 00
W A Knapp, Trustee	400	50	10 00
W A Knapp, Trustee	401	100	20 00
W A Knapp, Trustee	402	100	20 00
W A Knapp, Trustee	403	100	20 00
W A Knapp, Trustee	404	100	20 00
W A Knapp, Trustee	414	100	20 00
W A Knapp, Trustee	415	100	20 00
W A Knapp, Trustee	416	100	20 00
W A Knapp, Trustee	417	100	20 00
W A Knapp, Trustee	418	100	20 00
W A Knapp, Trustee	419	900	180 00
W A Knapp, Trustee	380	100	20 00
I Pollard	405	50	10 00

And in accordance with law, and an order of the Board of Directors, made on the 18th day of April, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 123 Post street, San Francisco, California, on the 25th day of June, 1874, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale. O. C. MILLER, Secretary.

Office—No. 123 Post street, San Francisco, Cal.

POSTPONEMENT.—The above sale is hereby postponed until Thursday, the twenty-third day of July, 1874, at the same hour and place. By order of the Board of Trustees. O. C. MILLER, Secretary.

San Francisco, June 22d, 1874. jn27

Electric Mining Company — Principal place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, State of California.

Notice is hereby given, that at a regular meeting of the Board of Directors, held on the 10th day of June, 1874, an assessment of Ten Cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, in San Francisco.

Any stock upon which this assessment shall remain unpaid on the 15th day of July, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the fifth day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—318 California street, San Francisco, California. Room No. 13.

Enterprise Gold and Silver Mining Company.—Principal place of business, San Francisco, California. Location of works, Meadow Lake District, Nevada County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 22d day of June, 1874, an assessment of ten cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 411½ California street, room 3, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the 22d day of July, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Saturday, the 15th day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

E. E. RICE, Secretary.

Office, Room 3, 411½ California street, San Francisco, Cal. jn27

Land Purchasers' Association—Office, No. 425 Kearny street, San Francisco, Cal.

Notice is hereby given, that at a meeting of the Directors, or Trustees, of this corporation, held on the 9th day of June, 1874, an assessment of ten dollars per share (being the 41st monthly installment on the subscription to the stock) was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at No. 425 Kearny street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 11th day of July, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on the 4th day of August, 1874, to pay the delinquent assesment, together with costs of advertising and expenses of sale.

C. S. WRIGHT, Secretary.

Office, No. 425 Kearny street, San Francisco, California. Room No. 2.

Hereafter stockholders allowing their stock to be sold as delinquent, cannot redeem it, except at the option of the Board of Trustees. jn13

Manhattan Marble Company of California—Principal place of business, San Francisco. Location of works, Oakland, Cal.

Notice is hereby given, that at a meeting of the Board of Directore, held on the 16th day of June, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpnid on the 20th day of July, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 11th day of August, 1874, at noon, to pay the delinquent assesment, together with costs of advertising and expenses of sale. SAMUEL B. POPE, Secretary.

Office—212 Sansome street, San Francisco, Cal.

Ohio Consolidated Gold Mining Company.

Location, West Point, Calaveras County, Cal. Principal place of business, San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the Thirtieth day of May, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
E L Peckham	9	400	$80 00
E L Peckham	206	300	50 00
E A Richardson, Trustee	68	100	20 00
W A Knapp, Trustee	91	150	30 00
W A Knapp, Trustee	238	100	20 00

Names.	No. Certificate.	No. Shares.	Amount.
H H Hubbard	94	100	20 00
Jno J Crawford	97	100	20 00
B Dore, Trustee	289	50	10 00
B Dore, Trustee	296	100	20 00
B Dore, Trustee	290	50	10 00
B Dore, Trustee	308	100	20 00
B Dore, Trustee	309	100	20 00
B Dore, Trustee	310	100	20 00
B Dore, Trustee	311	100	20 00
B Dore, Trustee	314	200	40 00
J W Searles	207	100	20 00
J H Wood, Trustee	211	100	20 00
J H Wood, Trustee	213	100	20 00
J H Wood, Trustee	225	100	20 00
J H Wood, Trustee	322	200	40 00
J H Wood, Trustee	335	100	20 00
J H Wood, Trustee	334	100	20 00
J H Wood, Trustee	348	100	20 00
W B Boyden	299	50	10 00
W B Boyden	300	100	20 00
W B Boyden	301	100	20 00
W B Boyden	302	100	20 00
W B Boyden	303	100	20 00
W B Boyden	304	100	20 00
Wm Azel	305	50	10 00
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W A Knapp, Trustee	253	100	20 00
W A Knapp, Trustee	279	100	20 00
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Robt Clifford	390	100	20 00
W J Hamilton	338	100	20 00
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W A Knapp, Trustee	269	50	10 00
W A Knapp, Trustee	271	50	10 00
W A Knapp, Trustee	282	50	10 00
W A Knapp, Trustee	283	50	10 00
W A Knapp, Trustee	277	100	20 00
W A Knapp, Trustee	278	100	20 00
W A Knapp, Trustee	316	100	20 00
W A Knapp, Trustee	317	100	20 00
W A Knapp, Trustee	318	100	20 00
W A Knapp, Trustee	320	100	20 00
W A Knapp, Trustee	323	50	10 00
W A Knapp, Trustee	325	50	10 00
W A Knapp, Trustee	280	100	20 00
W A Knapp, Trustee	281	100	20 00
W A Knapp, Trustee	326	100	20 00
W A Knapp, Trustee	327	100	20 00
W A Knapp, Trustee	328	100	20 00
W A Knapp, Trustee	329	100	20 00
W A Knapp, Trustee	331	100	20 00
W A Knapp, Trustee	332	100	20 00
W A Knapp, Trustee	333	100	20 00
W A Knapp, Trustee	341	100	20 00
W A Knapp, Trustee	342	200	40 00
W A Knap

Machine Builders.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

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IRA P. RANKIN, A. P. BRAYTON,
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Steam Engines and Boilers,

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CAPITAL.....$1,000,000.

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JOSEPH MOORE..Vice-President and Superintendent
LEWIS R. MEAD.....Secretary

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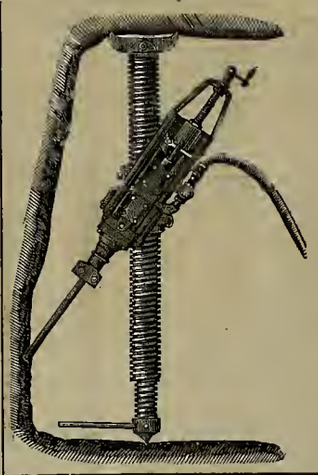

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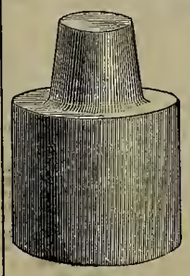

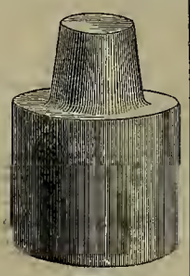

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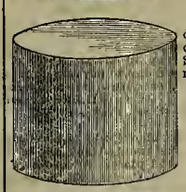

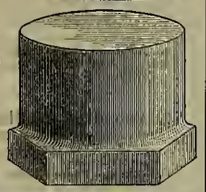

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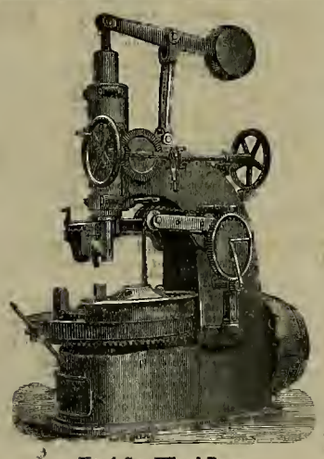

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Percentage of part gate, ¼ 50.08; ½ 69.64; ¾ 78.73; ⅞ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

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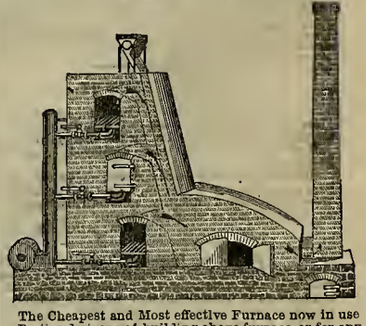

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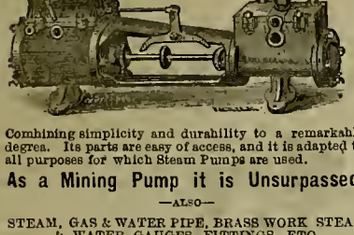
THE SELDEN DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



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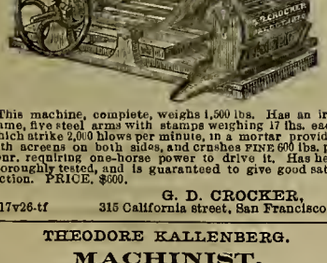

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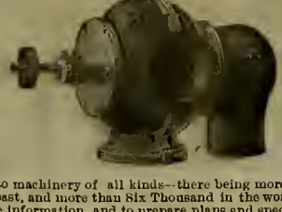

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76	31	100	42	142	52	210	62	300	71	800	81		
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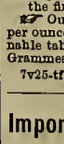

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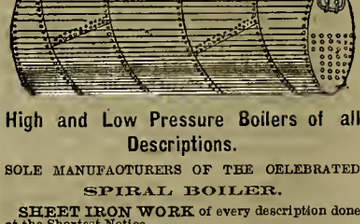

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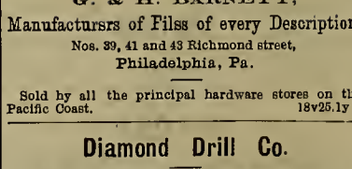

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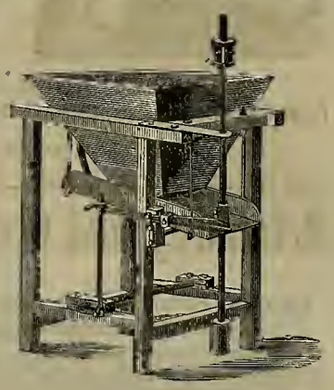
Separates in one and the same operation—1. galena and sulphide of silver; 2. pyrites or blende; 3. tailings, containing no valnable parts; or, 1. gold; 2. pyrites; 3. tailings (quartz, etc.) containing no valuable parts; or, 1. copper; 2. tailings, containing no valuable parts. The One-Plunger Jig can be combined with existing stamp-mills with highly important advantages, as after amalgamation it will recover completely all fine meta and all hase ores and all mercury out of tsillngs. It concentrates all fine metal ores to such cleanness that low grade ores can he shipped, after concentration, as first-class ores. Its feed and discharge are automatic. Its construction offers better guarantee against loss and repairs than any other apparatus in use. For particulars, apply to the inventor, F. CAZIN,
Mining and Civil Engineer, Denver City, Col.
L. Box 2225. 13v28-1y

Tulloch's Automatic Ore Feeder.



At the request of Mr. Jas. Tulloch, we have carefully examined his patent Ore Feeder for Quartz Mills, now on exhibition in this city at the Pacific Foundry, and in view of its simplicity of construction, directness of action, durability and compactness, as well as its small weight and the low price at which they are held by the patentee, so as to place them within reach of all mill owners, are free to state our unqualified opinion that we regard it superior to any Ore Feeder of which we have any knowledge in actual work. We are confirmed in this opinion by the severe tests to which it has been put, doing its work thoroughly well on ores of all kinds. We find the delivery to the mortara of the ore-stuff, whether dry, damp or wet, to be entirely uniform and regular, and that even alimes and slush can be worked in them under perfect control.

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MINING AND SCIENTIFIC PRESS.

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SAN FRANCISCO, SATURDAY, JULY 18, 1874.

VOLUME XXIX Number 3.

Aaron's Amalgamation Process.—No. 3.

[Written for the MINING AND SCIENTIFIC PRESS by the Inventor.]

Amalgamation, etc.

Barrels appear to be, as yet, the most convenient for this process, though I have another machine in view, which has not yet been tried. Pans are not admissible, because the iron decomposes the copper dichloride, preventing it from doing its work on the ore, and contaminating the bullion with copper. It is true that iron is used frequently, as already shown, but it is in such a way that its effect is under control, as it cannot be in a pan.

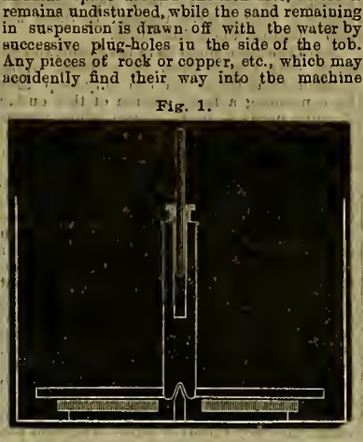
The common Freiburg barrel, with a hole bored in each journal, one to admit steam, the other as an outlet, to prevent danger of bursting, will answer well. It should be lined with wooden blocks, placed so that the grain of the wood is vertical to the axis of the barrel. To make the blocks, a three-inch plank is cut into pieces two inches long, which is best done at the saw-mill. The blocks thus made are then beveled with the jack-plane to suit the circle of the barrel. There is no need of great nicety in this work, and they should be put in as loosely as they can be made to stay, to allow for swelling. A manhole in the head of the barrel is necessary to allow the entrance of the workmen, and when the lining is worn through it is removed, and renewed. The lining may be dispensed with if the copper, in the form of long bars, is fixed lengthwise in the barrel at the distance of about half an inch from the staves. This arrangement answers very well, and saves room and weight, as well as avoiding the wear of copper, which, in working poor ores, is apt to reduce the fineness of the bullion, thus entailing a double loss; but it necessitates the use of enough mercury to wash the amalgam from the copper bars, on which it is inclined to stick, or the barrel must be cooled occasionally so that a man can enter, and the accumulated amalgam beaten off the bars; or again, so little quicksilver must be used as only to moisten, so to speak, the reduced silver, in which case it will not adhere to the copper. Working in this way quicksilver must be used in the settler to gather the floating amalgam. When loose copper is used, small flat bars, or pieces about three inches long out from a round bar, are preferable to balls, as they cause a more even wear of the lining. A lining two inches thick will last, with a little repairing, several months. The best arrangement of the barrels is that seen in all works treating of the Freiburg process, where a V trough extends lengthwise under one or a dozen barrels conducting the discharged pulp, etc., to the separator. The main portion of quicksilver and amalgam must be arrested in the trough or sluice, by a riffle or recess, and not allowed to go into the separator, unless two separators are used one after the other. The reason of this will appear shortly.

The Separator.

The usual style of separator is objectionable for reasons already given. The kind I prefer for this purpose is shown in Fig. 1, and consists simply of a wooden tub six feet in diameter and four feet deep, in the bottom of which is an iron annular disc, raised an inch and a half from the bottom of the tub by a smaller disc of wood under it, which leaves the iron disc projecting about two inches. The muller is made of scantling in the manner shown in Fig. 2, and the arms are short, not reaching to within six inches of the side of the tub.

The mortises are arranged with keys, so that the muller can be clamped tightly to the square wooden shaft, the lower end of which runs on a low wooden cone having a core of mountain mahogany, and rising from the bottom of the tub up through the iron disc to a hight of several inches. The upper end of the wooden shaft is connected with a short iron shaft, working in boxes attached to the framing, and carrying the pulley or gearing. The wooden shaft should be arranged to slide upon the iron portion, so that the muller may drop as it wears away, or may be raised with a lever in case of accident. The shorter the arms are the higher speed is used; and it should be such that the sand and particles of quicksilver are kept in continual suspension, till the latter, gathering together in a mass, settles into the annular space around the iron disc, where it remains undisturbed, while the sand remaining in suspension is drawn off with the water by successive plug-holes in the side of the tub. Any pieces of rock or copper, etc., which may accidently find their way into the machine

Fig. 1.

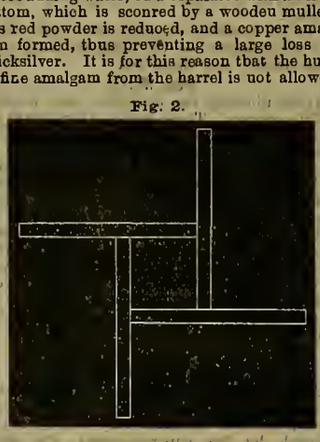


lodge under the projecting edge of the iron disc.

Now as to the loss of quicksilver. In the foudo, as already stated, it is enormous, being, according to Phillips, from one to four pounds for each pound of silver obtained. When I was using a separator made entirely of wood, I lost as much as nine pounds to the ton of ore. This loss was not simply mechanical, for the most careful panning failed to show more than the usual quantity. I was quite puzzled for a time, as there was no indication of the formation of much calomel, nor, indeed, did it seem probable in view of the precautions used. I however observed a reddish powder in the tailings, very heavy and easily separated from sand by washing in a saucer; but no amount of rubbing, nor acids, nor alkalies, would develop visible quicksilver. Nevertheless, on drying a little of the powder on the warm stove, it was resolved mainly into quicksilver, with a residue consisting of a black powder, which, under the blowpipe, gave indications of copper, lead and chlorine. On further examination I found that this red powder (it is sometimes purple) would not yield quicksilver on being stirred in water with a piece of clean copper, but, on adding bluestone and salt (copper proto-chloride), the piece of copper became amalgamated, and quicksilver soon appeared in globules, which readily united. I next found that a piece of iron, in presence of copper dichloride, gave the same result, and the remedy was found.

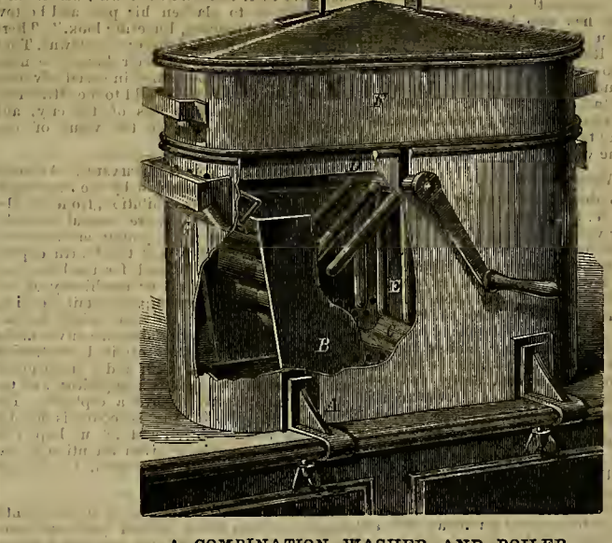
The pulp, as discharged still warm from the barrel, always contains copper dichloride in solution. By working it for an hour or two before adding water, in a separator with an iron bottom, which is scored by a wooden muller, this red powder is reduced, and a copper amalgam formed, thus preventing a large loss of quicksilver. It is for this reason that the bulk of fine amalgam from the barrel is not allowed

Fig. 2.



to enter the separator, where it would become mingled with the base amalgam there produced.

The low amalgam obtained from the separator contains a good deal of silver, chiefly due to a portion of fine amalgam which unavoidably passes with the pulp from the barrel. It may be used in the barrel in place of a portion of iron borings, or retorted, and either sold as low bullion, or melted into balls for the barrel.



A COMBINATION WASHER AND BOILER.

In retorting this kind of amalgam there occurs, to a certain extent, a separation of copper from silver, which is more complete, as the retorting is urged more speedily; so that the spongy mass of metal may be separated into three classes: one nearly fine silver, one nearly pure copper, and a medium.

Conclusion.

This process is not, like roasting, a panacea for all the ills that silver ores are heir to. Its suitability for any particular ore is best determined by digesting a weighed portion of the pulverized sample, dosed with chemicals in accordance with the explanations already given, in a glass or porcelain dish, with a piece of copper and some quicksilver, till it no longer gives a precipitate of silver on a piece of clean copper. The resulting silver, referred to the quantity of ore worked, and compared with the assay value of the ore, will give the percentage extracted.

In testing the pulp with iron, to ascertain if the proper quantity of chemicals has been used, it will sometimes give a black coat instead of the copper color. In this case it will often be found that by letting the barrel run a couple of hours, the proper appearance will be got, but if not, more chemicals are needed.

The bullion obtained will, with good management, be from 900 to 990 fine, no matter what the ore may contain. The quicksilver is always clean and bright, and the loss need not exceed two pounds per ton of ore. The expense of chemicals is light—in most cases, far less than that of roasting, while the percentage of silver extracted is not surpassed, if equalled, by any other process; being, in Benton, from 80 to 97 per cent. of the assay value. It is clearly the best process for certain classes of ores. Whether all the ores of the Comstock vein can be worked by it or not, I am not prepared to say, having only made two tests, which were quite successful; but it is certain that the experiments made some time since by a scientific commission, to determine the action of copper salts on those ores, were not conclusive, as the presence or absence of metallic copper makes a great difference.

Combination Washer and Boiler.

The accompanying illustration represents a washer and boiler combined, which is the invention of Mrs. Mary A. Barnes, of Olympia, Washington Territory.

The boiler proper is akin in shape to that usually employed, and is supplied with clamps, *A*, so that it may be firmly secured to the edge of the top of the stove or range by means of set screws. Inside of the main receptacle is a vessel, *B*, the sides of which are vertical and support a circular corrugated bottom, as shown at *C*. In the lower part are a number of perforations, to allow of the free passage of the water. *D* is a shaft, one end of which is secured in a socket on the main receptacle, and the other passes through a vertical slot made in the edge of the latter, carrying at its extremity a crank. The shaft is provided with radial arms, *E*, which project from its lower part, so as nearly to touch the corrugated bottom of the vessel, *B*. The water and soap being placed in the boiler, the clothes are laid in the inner receptacle, and the crank being rocked, are caused by the arms, *E*, to sweep the corrugations, and are quickly cleansed.

It is necessary to remark that the extension, *F*, does not constitute a part of the washer proper, but is used in rinsing, to prevent the spattering of water; and the spout, *G*, is attached to a cleat to receive a wringer, the water pressed from the clothes being conducted by the spout back into the boiler. It is claimed that this is a labor and time-saving machine, while its operation will not injure the slightest fabric. It is operated by merely vibrating a crank, and the garments may be washed, rinsed and wrung ready for the line almost without wetting the fingers.

It is constructed entirely of metal, so as to be durable, and as there is no shrinkage or warpage which would cause a necessity for repairs. The Combination Washer and Boiler presents several features peculiar to itself, among which is the gripper motion, over a corrugated surface, the nearest approach to the old process by hand. It supplies, in one article, the place of three hitherto indispensable articles in every household—the boiler, the tub and the wash-board. For further information, in regard to price, rights, etc., address Mrs. Mary A. Barnes, Olympia, W. T.

THE Manhattan Mill and Mining Company suffered a severe loss this week. Incendiaries set fire to the wood ricks on the company's principal wood yards, situated 16 and 25 miles from Auburn, respectively. Over 1,800 cords of wood were destroyed, worth from $12 to $15 per cord in Austin. The two piles of wood were fired in several places, and before assistance could be rendered the wood was all consumed.

LIEUTENANT WHEELER'S surveying expedition has left for Pueblo, Colorado, where the party will rendezvous on the 19th inst., and whence they will start for their field of operations.

A COAL vein, seven feet wide, has been struck on the old Bond farm, in Oregon.

CORRESPONDENCE.

The Coal Beds of the Weber River, Summit Co., Utah.

[Special Correspondence to the MINING AND SCIENTIFIC PRESS.]

I msde a very interesting tonr in Snmmit county a short time sincs—visited the celebrated coal beds in ths valley of the Weber river, and examined a number of the minss in the vicinity of Coalville for the express purpose of becoming psrsonally acqusinted with the extsnt, formation, and gsneral characteristics of thsss important mineral deposits. Summit connty has long bsen justly celebrated for its coal bsds, many of them hsing of very remarkable bresdth and thickness, the veins generally averaging 12 feet thick and all solid coel. Abont 20 minss havs besn opened, a numbsr of which ars worked at pressnt with very grsat success, yielding an average of nearly 200 tons of coal per day. As only a comparativsly small portion of thia county is well adapted to agriculture, the principal source of wealth must be derived from its mineral dsposits. At pressnt the most important branch of indnstry is coal mining; bnt the development of other minsral will follow in dne courss of time. Iron is said to have besn discovered in largs quantities in ths eastern part of the conty in close proximity to the coal heds, together with large snpplies of limestone, sandstons, gypsnm and fire clay. There exist also quarriss of huilding and flagging rock, which will he extensivsly sxported; and in ths southsstern part of the county are fins forests of fir, pine and tamarack, which can bs nssd for all mining purposes, and where a considerable lumher trade alreedy exists with towns on the Union Pacific railroad.

Professor McFarland, in his able and exhanetive report upon the coal mines of the Rocky mountains, gives it as bis opinion tbat the coal beds of Colorado, Wyoming and Northern Utah are all of the same formation, and helong to the tertiary period. The coale of this period can scarcely ever be made into a firm coke, and consequently are not in great favor or demand among railroad men. Many emall seams of slate are also found in some of the beds, which not being easily separated from the coal impairs its value to a certain degree; bnt this would be generally overlooked in analysing epecimene of the coal, which could always be seleoted free from the slate. Iron pyrites are also ahundant in some of the beds, and spontaneons combustion of a waste heap has occasionally occurred, which is no doubt attributahle to the decomposition of the pyrites. Mineral resin has also been discovered in the coals, and other foreign substances; hut very rarely in snfficient quantities to he injurious. All the coale of the tertiary period poesess one common quality—they tend to crumble eoon after being exposed to the weather, but will remain for a long time unchanged if properly protected. This tendency to crumble might occasion great waste if proper precautions were not taken, especially as the coals are not capable of being made into a firm coke, which ie quite the reverse of the coals discovered in the sonthern part of the Territory. Railroad engineers complain that the tertiary coal does not burn np clean, that it clinkers and sticke to the bars; etill, it is used very satisfactorily by blacksmiths, who manage to get np a welding heat with it, and for domestic use it ie unrivaled. For thie purpose it is best adapted, and as it can he obtained in any desired quantity, and at a minimum of cost at the mines, it is evident that the businesa is destined to become very extensive, eapecially when there is a reduction in the rates of railroad transportation to Salt Lake city.

Following is an analysis of some specimens of coal from the valley of the Weber:

	Car.	Hy.	Nit.	Oxy.	Total Sulphur.	Water	Mineral Matter.
No 1..	64.824.	4.363.	1.288.	15 518,	1.502.	9.415.	2.999.
No. 2..	69.840.	3.897.	1.932.	10.990.	.763.	9.170.	3 403.
No. 3..	64.992.	3.792.	1.736.	15.199	1.066.	11.565.	1.680.

Color of ash No. 1 white, No, 2 gray, No 3 yellow-brown.

The principal mines examined were in the vicinity of Coalville, the connty eeat of Summit county, a flourishing town situated a little above the right bank of the Weber river, abont five miles south from the U. P. R. R. at Echo Station. It is located in the center of a region producing in ahundance different other minerals heeides coal, eome of whioh are the most important beds found in the county. The population is estimated at ahout one thousand, the majority of whom are engaged in the coal mines. As this industry is rapidly increasing, tbe town ie also constantly improving and cannot fail of eventually becoming a place of greal importance.

The first mine I visited was the

Crismon Coal Mine,

Where I was cordially received by Charles Crismon, general manager, who afforded me every facility for examining the property. This mine is situated in a narrow valley or gulch called Spring Hollow, about two and a half miles distant from Coalville. The mine is opened in the hottom of a ravine, entered by an adit level, and again fnrther un by a slope. The dip is to the northwest, and so gentle that a mulo csn haul a ton weight up the iron covered track. The vein being mined at prssent is from 11¼ to 13 feet in thickness, all solid coal, and by careful calcnlation, the amount of coal in sight is computed to be over 200,000 tons. From all appsarances this bed must extend under large areas which have not yet besn explorsd, snd its present dip if continued would carry it under the sandstone cliffs of Echo cañon. The roof is of sandstone, and the coal is very sound in the mine, and also prssents a fine appearance aftsr bsing extrscted; but as befors remarked, if expossd long to the weether, it will not remsin so firm. It is principally adapted for domestic pnrposes, and for tbis use it is in stsady demand in the Salt Lake market.

The mine is developed by a numbsr of inclinss, tunnels, levsls, shafts and coal ohambers, exceeding 2,000 feet face. It was first opensd in 1864, but not worked to any extent until 1867, since whsn it has bssn in constant operation and supplying the adjacent conntry and Salt Lake city. The mine is perfsctly dry, and is kspt in thet condition by a fine steam engine of fiftesn-horse power, wbich is rnn every day for a few hours only. The steam pump is from the manufactory of R. T. Crans & Brothsr, Chicago, and is the first and only pump of this description employed in the coal minss of Utab. It can be recommended as performing most excellsnt work, and shonld bs employed in every mine requiring such a pnmp.

Some valuable improvements have lately been oommenced in the Crismon mine, called the Crismon and Groesbeck

New Works,

Which illustrats the enterpriss and liberality of the owners. Thsse works, which are in process of erection, will comprise stsam hoisting mschinsry with pnmp power, by which the coal wiH bs all extractsd by steam agsncy. This machinery will grsatly fecilitate the lehor of mining, and entirely discontinne ths use of mnle powsr, which has hssn heretofore smployed. These works are being bnilt snbstantially of stone, and whsn completed, which will be in a short time, will increase the yield from its present oepacity of fifty tons of coal to one hundred tons per day. The mine ie a valnable property, and has been worked very successfnlly by its owners.

I next vieited the

John Robinson Mine,

Which is sitnated in the eame gulch and below Crismon's mine, on the left of the cañon going west, where I was also very courteonely received by the euperintendent, Mr. James Sslmon. This mine was opened ahout two years ago, and is developed by levels and rooms to the extent of about 1,000 feet. The company have three mines, two of which are in active operation. The quality of the cosl is the same as in the other minea in the seme locality, and is nged in the surrounding country and shipped to Salt Lske city. The average width of the vein is 10 feet, and the qnantity of coal in sight ie estimatsd at 50,000 tons. There ie a capacity for raising 50 tons daily, and 15 men are at preeent constantly employed. A fine vein of fire clay has also been discovered in this mine. John Rohinson'e lower mine, in charge of L. C. Richardson, the able superintendent, is also actively worked, and is developed by an incline slope of 300 fest following the vein, and a tnnnel of 75 feet. There are two roome of 60 feet, and the present capacity of the mine is 10 tons of coal per day.

The next mine visited was the

Wahsatch No. 2,

Where I was condncted throngh by the snperintendent, Mr. W. E. Chappell. Thie property is developed hy various levels and roome, and hae a face of 180 feet. The width of vein averagse ahont the same as contiguons mines, and the capacity of the mine is 50 tons of coal per day. About 500 feet down the cañon another level hae been rnn, which ie alsq snccessfnlly worked. This ie a very valuable property. Further down, bnt in another hollow to the right, is the old Allen mine, which is now in active operation, shipping coal daily, and one or two other mines whioh time prevented me from examining personally.

The Summit County Railroad

Rune directly to these mines, and connecte with the U. P. R. R. at Echo, where the coal ie re-shipped without change of cars over the Utah Central to Salt Lake citv. It is a very great loss to the general publio as well as to the mine owners that the ratee of freight on the coal from the mines to Salt Lake city are so exorbitant. With the facilities, preeent and projected, for extracting the coal, if rates of freight were at all reasonable, it could he retailed in Salt Lake city at not more than $5.00 per single ton, and in large quantities at a considerably lower price. In view of thie fact, a number of prominent citizens of Salt Lake city have lately organized a company for the purpose of extending the Summit conuty R. R. from Echo city to Salt Lake via Parley'e park and Parley's cañon, which route is very practicable for a narrow-gange road. Thie enterprise is one of the most important ever inaugurated in Utah, and cannot fail to prove profitable to the company and exceedingly advantageons to the people of the Territory. By the constrnotion of this road the distance to Salt Lake city would be lessened nearly 40 milee, and a plenty of good coal at moderate prices would be ensured to the inhabitants, besides tending to develop a region of conntry rich in many other minerals. An extension of this road running south of the Great Salt lake would also communicate with some of the principal mining districts, which in the conrse of a comparatively very short space of time would he joinsd by numerous narrow-gange lines from different points. It is to be hoped thet this enterprise will soon be completed, as msrchants, mine owners and the gensral pnblic are each and all equally interested, and will bs eqnally bsnefitsd thereby.

B. A. M. F.

Sslt Lske city, Utah, Jnly 5, 1874.

The Lawns of San Francisco.

People generally are ready to acknowledge that the soil of California osn prodnce as fine a orop of grass here as csn be grown on any portion of American soil; bnt the greatest admirers of this country will hardly claim that the meadows here are so lasting, or that we can show as good a sod as in some of the middle States. This being admitted by Californians, and San Frenciscans, espscially, bsing aware that this locality is particularly unfavorable to grass, they have set thsmsslves at work to ovsrcome these natnral disadventages, ths result being snch as may often hs found under similar circnmstances. For it often happens that the labor and persevsrance which the presence of difficnltiss calls forth securss a dsgres of snccess never reachsd by those who know nothing about difficnlties.

San Francisco would have her lawns, bnt ahe could only ohtain them by a liberal outlay of monsy and lahor, and can only kśep them by continuing a large portion of this ontlay. It only needs a hasty glance while passing along our streets to see that the lawns of San Francisco are snoh as can not be exoslled; bnt it needs a more extended observation to form a jnst estimate of the means by which they ars brought up and kept un to their present condition. In the first place, they have a liheral sesding on soil that is in the best possibls condition to receive it; and aa soon as there is sufficient growth to distingnish the weeds from the grass, the former are carefully plucked ont. The grass is allowed to attain a pretty etrong growth before the first cntting, bnt is afterward cut more freqnently; this frequent cutting stimulating a root growth, which finally produces a compact sod. When this is secured the lawn mowèr is rnn over them every week—in many cases, oftener; and they are thus worked down to a clean, soft, velvety surface. Meanwhile, the daily supply of ample irrigation promotes a vigorous growth of grass, and gives to it that rich, deep green, which is so refreshing to the heholder.

The reader will perhaps say, "Why, anybody could prodnce a fine lawn in that way." Very true; and it is jnst what anybody who owns a plot of gronnd near their residences ought to do. The ownere of fine residencss in San Francisco have snrrounded them with lawns which cannot be eurpaseed; and there are also many of the smaller dwellinge and cottages that have their tasteful little lawns, which csnse the passer-by to slacken his pace and hestow upon them a "longing, lingering look." There should he mauy more of these pretty lawns. They wonld attach people to their homes—a most important point to be gained in social advancement—they would greatly add to the attractione and eveu the healthfulness of the city, and would materially enhance the value of real eetste.

PREMIUMS FOR YOUNG MECHANICS.—Amongst the preminme to be awarded by the State Agricultnral Sooiety, at its exhibition, from the 21st to the 26th of September, are several specially offered to encourage the young mechanics of this State. In olase nine of the fonrth department a gold medal is offered for the best original design of an engine, or machinery of any kind, accompsnied by complete detail, working, drawings, from which the same might be constrncted. For the second design a silver medal is offered. For the best original mechanical drawing of any kind, $10; and a eilver medal will reward the sucoessfnl competitor, and the second in rank will receive a diploma. The money thus spent hy the Directors is devoted to a most worthy object, and let us hope that young men who have given attention to mechanics, will not fail to respond to the call made npon them.

DENTISTRY.—The triumphe of modern dental snrgery we may point to with pride and satisfaction. In no country has so great a degree of perfection heen reached in the dental art ae in this. American dentists in Europe are patronieed by nearly all the orowned heads, and fortnnes have been made by onr dentists practicing in the Enropean capitals. Thirty or forty yeare ago, quite one-half the people we met in our business and eocial connections were writhing in the agony of "toothache." Children were expected to pase throngh a period of a dozen or twenty ysare tormented almost continuonaly with dental pains, from which there was no relief save by cruelly uprooting the teeth from their bony eockets. Now, instances of toothache are rare among thoee who take proper care of their teeth, and who promptly call to their aid the dentist when the first aighs of decay are noticed.—*Jour. of Ap. Science.*

N. DOWELL discovered a honlder at Virginia city, lately, containing gold valned at $500 or $600. The gronnd in the neighborhood is completely covered with quartz and qnartz bonldere, which, no donbt, would pay liberally, if properly worked.

Fresno County Mines.

Soms years ago a vsin of qnartz, known as the Champion lead, was discovered nsar the ranch of R. M. Keyes, on the head of Big Dry cresk, and was located by bim and his brother. The ledge showed woll in free gold, and also contsined silver, lead and oopper. After working it for a time, they sold it to other partiss, who worked it for a time and then abandonsd it. Some two years ago, Messrs. Cartwright, Barnss and othsrs located an sxtension to ths original claim. They have worked on their claim from time to time with very sstisfactory results. They have sunk a sbaft some 40 fest deep on the lode, and at the bottom of the shsft ths ledge is ovsr four feet in depth, snd the rock seems much richer than at the surfsce, and has changed in appearance from hard quartz to that of a decomposed natnre. Unlike most veins that have bsen discovsred in this county, ths gold seems gsnerally diffnsed throughout the quartz, and not in pockets, a sign which miners claim is an indication of a good mine. Mr. Cartwright has worked soms of the ore during the past winter and spring, which yielded on an average $14 per ton. Ors of this olass with a good mill, if it could be obtained in qnantities snfficient, would pay largsly for working. It is the intention of the owners to sink the shaft to a depth of at lsast 100 fest this summer and fall, and if the prospects continue good they will endeavor to erect a mill. The original location on ths vein has bssn relocated by Mr. Jenssn and R. M. Keyes, but we have not learned whsthsr they intend doing any work of importance this season or not. It ssems to us that it wonld pay to thoroughly prospect some of the msny quartz veins that sxtend throngh ths foot-hills and monntains of the oounty. In all of them gold and silver abonnds, yet in noue of them has it bsen found in sufficisnt quantitiss to pay at the surface, or at the lowest depth whioh they have been prospected—about 100 fset. Some of the bsst paying ledges in the State did not carry gold in paying qnantities at the depths we havs mentioned. It may be that a world of wealth exists in gold-bearing qnartz veins of Fresno county.—*Expositor.*

El Dorado's Prospects Brightening.

It does not require the vision of a prophet to discern the faot that the tide of prosperity hae set in in good earneet in old El Dorado, and that the time is not very remote in the future, when the lethargy of the past will give place to activity, enterprise and thrift. It is impossible to keep a section of country, combining the natural elemente of wealth whioh we possess, in the hackgrounnd for any great length of time, thongh circumstanoes have seemed to combine to prevent a fresh etart for a long time. It ia only necessary to reflect upon the auperiority of our land and climate for produoing frnit; the great advantages for etock raising; our immense forests of pine, better than which cannot be fonnd in the State; our exhauetless mineral resonrces; the immense amonnt of land suitable for diversified farming; facilities for water power for mannfaotnring pnrposes, etc., to eee that the day is not far distant when all will be profitably utilized. The new ditch now being constrncted will greatly haeten the prosperity of thia portion of the conuty by furniehing a greatly increaeed amonnt of water at much lese than present rates, thns etimulating mining, horticulture, agricnlture and other indnetriee. This ditch is being constructed of sufficient size to float lumber, and it will be but a short time before this will become one of onr leading industries. This will lead to other and diversified manufactnres. The railroad will be compelled to extend its line here to accommodate the bnsiness. Placsrville will grow, not rapidly, but permanently in wealth and importance until she will become the gem of the mountains. Let old fogiee mark these predictions, and see how far wrong we are ten years hence. —*Republican.*

HEAT OF COMBUSTION OF EXPLOEIVES.—It hae been found by MM. Roux and Sarran, in testing the heat dieengaged hy the combnetion of variona kinds of gunpowder, that fine eporting powder prodnced 807.3 heat unite to a given measnred weight; cannon powder, 752.9; musket powder, 730.8; common blasting, 572.2. Thns it will be seen that the better the powder the higher tbe heat caused hy its combustion; while, on the other hand, the weight of the reeulting gaee forms a series of relative figuree running in tbe oppoeite direction, heing .337 to .499 for the fine and blaating powder, respectively.

THE LONGEST ROPE IN THE WORLD.—We have jnst had an opportunity of seeing, at Shadwell (England), a grapnel rope of 10,000 fathome length, without a eplice—that is, a little over 11 milee and a qnarter—made for Siemene' Telegraph Company. The coil formed by thia monstrone object ie five feet high, and its diameter is 24 feet. The rope is three-strand, six and a half inches in circnmference, or two inchee thick.—*Iron.*

THE Virginia coal company, in El Dorada cañon have their machinery np and in running order, and have all the water out of the shaft, which ie 80 feet deep. They are now engaged in opening the old drifts, and have a qnantity of coal of a medinm qnality in sight.

THE pottery of the Bergmann Brothers, at Sacramento, manufactures etone ware and Rockingham ware snfficient to supply the State, and of quality superior to any imported.

SCIENTIFIC PROGRESS.

Aerolites.

In modern times it has been conjectured that aerolites came from the sun, and also from the moon. Many have supposed them to be of terrestrial origin, the material being taken up in the form of dust by whirlwinds, and condensed into a solid by some unknown chemical or physical process. This view is disproved by all reliable investigations which have ever been made. About a hundred years ago, the eminent mathematicians of the time took up the subject, and by a course of elaborate calculations proved, that meteoric stones could not come from the moon, as by careful measurements of their velocity they were found to move, when near the earth, at the rate of 114,000 feet, or about 21¾ miles, per second; whereas, if they came from the moon, they would start with an initial velocity of 8,292 feet per second, and reach the earth with a velocity of only 35,000 feet per second. It was clear, therefore, that they came from a more distant region in space than that occupied by the moon. Biot, Laplace and Poisson, three of the most eminent mathematicians that have ever lived, engaged independently in these investigations, and after 12 years of labor reached results very nearly alike. These investigations alone are quite sufficient to prove the celestial origin of meteoric stones.

The metal iron enters largely into the composition of aerolites. In some specimens it has been proved to be present to the extent of 92 per cent. Seven other metals—copper, chromium, nickel, cobalt, molybdenum, mangsnese and tin—have been found, and the earthy substances, augite and hornblende; also carbon, sulphur and alumina. Altogether, out of the 63 elements recognized by chemists, 20 have been found in meteoric masses. It is to be observed that no *new* elements have been detected, a fact which is significant and interesting. Regarding aerolites as of celestial origin, the only difference we have to note between them and terrestrial substances is in the respective methods in which the component parts are admixed. The minerals are the same as those which are distributed throughout the rocks of this earth, but we have none in which they are held in similar proportions. Aerolites differ widely in chemical constitution, but in one characteristic there is remarkable uniformity. They are all of them covered with a black fused crust, or rind, which extends into the substance no more than a few tenths of an inch. This peculiar physical condition is due to the circumstance that when they strike the oxygen of our atmosphere, in their descent, they instantly ignite, but they do not remain long enough in contact with the air to become fused deep into the mass. If they traversed 300 or 500 miles of atmosphere, the small portions of the largest masses that might reach the earth would be but scoria or cinders. It is probable that millions of small stones, those weighing but a fraction of an ounce, are burned in the atmosphere every year, and nothing but an impalpable dust remains, which is scattered by the winds.

It is certain that meteoric stones are not of terrestrial origin, and that they do not come from the sun, moon, or visible planets. Modern science has quite satisfactorily proved that these bodies are little planets, so to speak, traveling around the sun in orbits of greater or less eccentricity; and that our earth in plunging through space encounters them, and they become entangled in our atmosphere and are rapidly drawn to the earth's surface. The larger masses, though probably very numerous, are yet relatively few in number, compared with the minute meteorites which flash out upon the darkness of night, as fire-balls or shooting-stars. If but six or seven falling stars are seen in an hour, it must be that the earth is passing through clusters of meteors, containing more than one hundred thousand in a region of space equal to her own volume. It cannot be otherwise than that the interplanetary spaces are thronged with these fragments, and it is probable that the stellar regions are likewise filled with them. They constitute the material of which worlds are made, and it is possible that the sun's heat is due to the incessant rain of these projectiles upon his incandescent mass.—*Boston Journal of Chemistry.*

RAPIDITY OF ELECTRIC TRANSIT. — In regard to the rapidity of transmission of electricity through conductors, the experience of telegraphing at great distances has disclosed singular facts. So through land lines on high poles the velocity is at the rate of 14,000 miles per second, but is less when the poles are lower, by reason of the reaction of the induced currents through the earth, while subterraneous or submarine cables transmit the electric wave with only half that velocity. If an electric wave is sent over a conductor consisting first of a land line and then a sea cable, it will travel quicker than if it is sent in the other direction, passing first through the sea cable and then through the land line. It is also found to be a fact that everywhere that the wires run east and west there is a diminution of speed when the sun crosses the meridian.

THE use of Epsom salts is found to give brighter tints to certain aniline colors, especially primula and methyl violet. Sulphurous acid is also beneficial for these colors, the tints being brighter and less readily rubbed off.

ANOTHER CALCULATING MACHINE.—A useful contrivance is the "computing telegraph" introduced by J. E. Fuller, of Boston, who first produced it some 30 years ago, and who since that time has been continually improving it, so that at the present moment it is a most complete instrument. It consists of a square board made of old tarred rope, a material which is not given to expansion or warping; upon this is posted an engraved card, which has a graduated circle of the diameter of 8½ in. Within this circle there is an inner circle, which revolves, and is graduated in the same manner as the outer circle. The divisions are from 0 to 10, completing the circle, and are the same for both; the divisions are similar to those of the ordinary slide rule, and decrease in a perfectly regular logarithmic order. In fact, the instrument is a circular slide rule. It possesses a great advantage over the ordinary straight slide rule, in consequence of its length (the actual length of the rule being 26.7 in.); this advantage is further increased from the circular arrangement being endless, only one scale of 0 to 10 is required, whilst in the ordinary rule, one wants 0 to 10 and 10 to 100. The instrument forms a slide rule of a very perfect character, and enables one to work out the simplest and most complicated arithmetical questions. In calculations where the same factor has to be used many times, the saving of time is enormous. For engineers of whatever kind, such a calculating machine must prove useful.

THERMO-ELECTRICITY IN IRON SHIPS.—There is a curious point, says *Broad Arrow*, in connection with the deviation of the compass on board iron ships, which is now beginning to attract the attention of scientific men, and may therefore perhaps be new to some of our readers. It is now believed that some of the sudden and hitherto unaccountable changes in the deviation of the compasses of iron ships—which are often unsuspected until alleged as the only conceivable cause of the vessel running ashore—are the effects of an unequal and varying distribution of heat over the iron hull; for it is well known that electricity is generated in a metallic substance by heat applied in a certain way, and, in fact, there is a branch of electrical science called thermo-electricity, devoted to the investigation of phenomena of this kind. Sudden slight changes of compass deviation, not exceeding five degrees, have been noticed on board iron ships on the North American coast, and these are now attributed to changes in the temperature of the hull, occasioned by the vessel passing from warm to cold water, and *vice versa*. The warm temperature of the Gulf stream, taken in connection with the cold counter-current, is considered to be quite sufficient to account for many of the suspected compass errors on board iron ships.

A SCIENTIFIC SELL.—The following item is going round the western papers in regard to a supposed aerolite discovered on an extensive farm in Tippecanoe county, Ind. It says: "The aerolites heretofore found are of a solid and metallic nature, having evidently struck the earth as compact bodies. This one is different. The fragments are honey-combed, like a cinder, and vary greatly in their weight. The outside presents the appearance of a soft body that has struck upon solid particles, as the indentation of grass blades, straw and sticks are plainly discernible. One of the fragments had fallen on a large stick of wood, and conforms to it exactly. The very texture of the wood can be seen. They can be accounted for upon no other hypothesis than that the rapid revolution of the liquid mass in its descent threw off these particles by centrifugal force. A box of these fragments will be shipped to the Smithsonian Institute, and the remainder are intended for the Purdue Agricultural College." We are satisfied that when the specimens arrive at the Smithsonian Institute, they will be recognized for what they are—cinders from a burned up haystack.—*Manufacturer and Builder.*

ELECTRIC LIGHT.—A light produced by frictional electricity was recently exhibited in England which was stated to have been equal in intensity to that from 7,000 candles, and we are informed that a light equivalent to 10,000 or 14,000 candles has been produced. But the great value of the light is that it is constant. The current is absolutely unintermittent. What the light is at the end of the first five minutes it is at the end of the hour, or so long as the carbon points remain unconsumed, and the process of the production of the current is so simple that it is marvelous that it has not been before discovered. Two or two and a half horse-power are ample to produce the rotation of three bobbins or broad-edged discs covered with copper wire, and acting upon six pairs of soft iron parallel bars, similarly covered. Magnets are entirely dispensed with in the production of the power, which is derived altogether from friction, there being no battery brought into the circuit in any shape or form.

PAINTS.—An improved vehicle for paints, to be used in house, ship and general work, has been patented, which is composed of 100 parts by weight of hot water, four parts of potash and six parts of carbonate of soda. This mixture when dissolved is boiled, and, two parts colophony and 10 parts oleic acid are then added separately, after which the whole is boiled until completely dissolved.

NATIVE SILVER AMALGAMS.—Some researches, by M. Pisani, on the amalgams of silver occurring at Konigsberg, in Norway, show that two distinct amalgams are found.

MECHANICAL PROGRESS.

Making Match Sticks.

[Concluded.]

The quantity seems enormous, and almost staggerers belief, but such is the velocity with which the machines are driven, and the multiplication of the sticks so rapid, that there is no difficulty in producing the number stated. When the wheels are in motion, the sticks fall from the cutters in a regular shower, and are caught in a trough below, through which passes a belt or elevator, which carries them to a series of machines, called shakers, with small latticed bottoms, in which they are subjected to a violent shaking as they pass through. This operation is for the purpose of removing all imperfect sticks and pieces of shavings. As they pass through, they are deposited in large cases ready to be carried to the drying rooms. These rooms are three in number, each fourteen by fourteen feet, the floors of which are covered with a series of steam-pipes. The boxes containing the sticks have latticed bottoms, and are placed upon these pipes in tiers, one above the other, four or five deep, when the heat is forced through the entire mass. Here they are allowed to remain for a day and a night, subjected to a temperature of 120 degrees, which effectually dries the wood, rendering it almost as light as a feather. As great care must be used to guard against fire in these rooms, perforated pipes, with an independent connection, are liberally provided, through which a sufficiency of steam can be forced in a moment to extinguish fire in case of combustion. After going through the drying process, the sticks are carried to another series of shakers. Here, by an ingenious arrangement, the sticks, as they are shaken up by a lively motion, are straightened, when they are deposited in metal boxes at the lower end of each machine, with circular bottoms. These boxes are made to hold as many sticks as can be grasped by the hand, from whence they are taken, and packed in cases ready for shipment to the finishers, who apply the compound to the tips. After tipping, the matches are placed in boxes for sale. The plain match-stick may be looked upon as an insignificant item at first sight, but a moment's reflection will convince the reader that an enormous quantity is required to supply the daily consumption. The making of these match-sticks is a distinct manufacture, the match-makers in large cities purchasing the sticks for tipping. The American Match-Stick Company, at Williamsport, Pa., employ the process described above, and when fairly under way, expect to make and ship a full carload of match-sticks per day to their various customers. It is estimated that in Europe and the United States, the amount of wood annually consumed in the manufacture of match-sticks is, at the lowest calculation, four hundred thousand cubic yards. One of De Bowens' machines, requiring three horse-power to drive it, will, it is claimed, cut in ten hours fifty-two millions of match-sticks. This machine is also claimed to consume less lumber by one half than that consumed for the same number of sticks by any other machine yet invented.—*Journal of Applied Science.*

Inventions Anticipated.

A most singular sketch of certain inventions has come to light in an article published in an English magazine of more than a century ago. The writer heads his claims with "The Art of War, discovered by me, John Cross, for the benefit of that king who will give me employment." The particulars promised by Mr. me, John Cross, are as follows: 1. To fix gunpowder in the water, if a ship or vessel should touch the same, it will instantly be blown up. 2. To convey a cannon along the bottom of the sea, and fire the same at the distance of one mile and half from the land, under a ship's bottom. 3. To convey a floating battery, the same distance from the land, alongside of a ship, and fire balls into her under the surface of the water. 4. To convey fixtures the same distance, along the bottom of the sea, which will catch ships' moorings and drag them on shore. These inventions are to be made use of, when an enemy's shipping comes to cannonade or bombard a town. 5. To fix gunpowder and bombshells under the earth, so that when an enemy treads upon the same it will instantly blow up. 6. To fix the same materials under the earth, so that when an enemy comes thereon, I will stand two miles from them, and blow them up without using either match or train. 7. To fix the same materials under a gate, and by opening the same, a whole army may be destroyed. 8. To fix the same materials under the earth, and when enemies lift up any thing that I may lay thereon, will be blown up. These inventions may be made use of when an enemy is on the march. 9. I have also brought to perfection a moving battery, which is to be drawn by horses, and it may reasonably be expected 50 men can withstand 1,000 men, firing cannons, small arms, hand grenades, etc. This invention is extremely useful against an enemy when landing or in the field of battle. 10. I will fix a cannon upon a level with the earth, against the walls of a town or shipping that the greatest force of an enemy cannot dismount it or hurt any of the people belonging to it, and is as handy to be worked as a swivel. For this cannon I will take upon me to account for it to be the most masterly and warlike invention yet discovered.

Finishing Bronzes.

When the casting is completed, the bronze must be cleansed, which is generally accomplished by washing it with a very dilute solution of oil of vitriol. The casting is then repaired, the core marks taken off, and the bronze rifled over. Some founders sand-paper their bronzes to produce a smooth appearance, but it is claimed that in artistic work this should never be done.

That peculiar kind of bronze work called galvano-plastique is produced by depositing a heavy coating of bronze by the galvanic process upon a plaster of Paris model, and afterward removing the model.

The greenish or olive hue which bronzes acquire by age and exposure, known as verd antique, is very much prized by *connoisseurs*, and there are various washes used to develop the color at once. The different shades of verd antique depend upon the nature of the wash used. The following recipe can be used with very good results: Two drachms of sol-ammoniac, and one-half a drachm of binoxalate of potash are dissolved in 14 ounces of colorless vinegar. The solution is applied with a hair pencil in a very thin layer, the object having been previously warmed gently, and the operation is repeated until the desired color is produced.

There are various other treatments applied to bronze, in order to obtain the many shades of color necessary to suit the varied tastes of the community. Coloring is also applied to give a uniformity of appearance to the bronze, which, when it first comes from the mold, often presents an irregular appearance as regards shade and color. Another object to be attained by this treatment is to vary the light and shade in the different parts of the surface. Thus, where a fold in drapery is represented, it is necessary to give quite a dark appearance to those parts which would be naturally shaded. —*Iron Age.*

MACHINERY WITHOUT LUBRICATION.—Our attention has been called to a recent invention, the object of which is to entirely dispense with the use of lubricants in all classes of machines, and which is now on its trial with a good prospect of success. The value of such an invention cannot be over-estimated when the resulting cleanliness, saving of the cost of lubricants, and of time and attention in oiling bearings are considered. For the ordinary metal bearings are substituted others of a peculiar composition, less than half the cost of metal, but which can be turned, bored, and is otherwise susceptible of treatment similar to metal. Should this invention realize the expectations reasonably formed from its application thus far, the liability to accidents will be greatly lessened; for it is well known that these frequently occur in oiling bearings. Another source of consolation will be that these new bearings are not likely to find purchasers at the old metal shops, to which their more attractive looking rivals now frequently gravitate. The thanks of those that "go down to the sea in (steam) ships" will also be gratefully rendered to the inventor, for who has not felt nausea from those most gross and fetty smells from the engine room. As to the comparative durability of these bearings with the metal ones, it should be stated that the first bearings at Vienna, now nearly nine months in use, do not exhibit any signs of wear or deterioration.—*Colliery Guardian.*

AN OYSTER PATENT.—One of the great troubles which oystermen have to contend with is the starfish. This rapacious enemy destroys thousands of bushels of oysters every year, and no device has heretofore proved effective as a protection. But the ingenuity of a Connecticut Yankee has at last triumphed. Mr. Oliver Cook, of Darien, Conn., has lately obtained a patent on the subject. His invention consists in spreading a net, under water, on the ground composing the oyster bed. Mr. Starfish puckers his fingers together, squeezes himself up through the meshes of the net, and then extends his digits again. Being now upon the upper side of the net, he will be infallibly captured whenever the oysterman raises the net to the surface. This is to be frequently done until the enemy is cleared from the coast, when the oysters at once begin to laugh and grow fat.—*Scientific American.*

ICE MANUFACTURE.—A Scotch inventor claims improvements in apparatus for the manufacture of ice. In these hollow partitions are made of cast iron; the passages are oblong in cross-section, and bars of wood are placed along their middles to reduce the actual passages for the freezing fluid to very narrow spaces along the sides. The hollow partitions which hold the brine are fixed with their bottom edges some distance above the bottom of the tank, and bars of wood are placed along the bottom edges to prevent the formation of ice round those edges. Steel, malleable iron, brass or zinc may be used instead of cast iron for forming the partitions. Brushes or flexible wipers are made to reciprocate over the surfaces of the ice whilst it is forming, to remove air bubbles.

COMBINED SAIL AND DRAG FOR BOATS.—This invention consists in a novel construction of drag or drag-sheet, which not only has an improved hold upon the water to keep the boat's or other vessel's head to the sea, or act as a floating anchor to a life raft, as the case may be, but which is readily convertible into a sail when its use as a drag is unnecessary, and may otherwise be used to advantage in saving life and property.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, July 15, 1874.

NAME OF COMPANY.	IN MINE.	FEET IN MINE.	SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.							
Alamo		300	6000	13½T	12¾F	½	
Alpha Con		3600					
Alta			30000	7¾F	7W		¼
American Flat		65	24000				
Bacon M. & M			54000	8T	7⅝S		⅛
Baltimora Con		1040	104000	85TH	72W		1½
Belcher		224	22400	24⅝TH	22W		
Best & Belcher		20	5000				
Bowers			16000				
Buckeye		2500	25000	8½T	8S		⅜
Bullion		5000	20000	18½T	17½W		1½
Caledonia				37½T	36¾F		
California		2600	26000	63F	60W		4
Chollar-Potosi		130	24960	12F	10½W		1¼
Conince		34½	20000	3¼F	2⅜S		1
Con.Gold Hill Quartz		1160	116000	82TH	78½W		½
Con. Virginia		1000	50000				
Cook & Geyer		600	100000	82F	73½W		½
Crown Point		2000	24000	2¼T	2W		
Daney		1200	24000				
Dardanelles				5¼T	4⅝TH		¼
Dayton		70	25000	6¼T	6T		⅜
Eclipse		75	50000	7¼T	6S		½
Empire M. & M		400	8000	65T	59F		1
Exchequer							
Fairmount		3000	12000				
Flowery				2½TH	2W		
Franklin			20000	2T	⅜S		⅝
Globe		1200	48000	21F	18½W		2
Gould & Curry		400	16000	51½F	45¾TH		2¾
Hale & Norcross		184	100000	8T	7½W		
Imperial							
Indus		2000	30000				
Insurance							
Jacob Little							
Julia		2000	30000	3½TH	2⅞W		
Justice		3000	21000	8W	5¼S		½
Kentuck		95	30000	15T	13¾M		1
Knickerhooker		1200	24000	5T	4W		
Kossnth				1W	¾F		⅛
Lady Bryan							
McMeans		3650	36500				
Mint		1600	50000				
Nevada		3000	40000				
New York Con		3600	36000	3T	2⅝W		¼
Occidental		800	10000	3S	3S		1
Ophir		1400	16800	18T	16½S		⅛
Overman		1200	37400	33M	30TH		3
Phil. Sheridan		1200	24000				
Pintou		2000	30000	40cs	35cs		
Rock Island			24000	2½TH	2¼F		¼
Savage		800	16000	88F	75W		2
Seg. Belcher		160	6400	81½TH	75½T		6½
Seg. Caledonia			10000				
Seg. Rock Island				¾T	¾T		
Senator			24000	1¼H	⅞S		
Sierra Nevada			20000	24½S	20½TH		½
Silver Hill			54000	6¾S	6W		⅛
South Comstock							
South Overman			24000				
Sumner M. & M		7600	22800	2S	1½W		
Sutro			24000	2½T	2⅜W		
Trench		20	50-0	8F	8F		1
Tyler		2200	33000	1W	¾T		5c
Union Con		803	20000	12¾W	11F		
Utah				4½TH	4¼TH		1½
Woodville		1400	28000	3⅝W	2½F		¼
Yellow Jacket		1200	24000	88½TH	76W		2½
NEVADA.							
Adams Hill			50000				
Alps		800	30000				
Amador Tunnel							
American Flag M. & M			30000	3½TH	3W		
Arkansas		300	30000				
Belmont				6W	4½F		½
Bowery			30000				
Chapman M. & M			30000				
Charter Oak		1000	30000				
Chief of the Hill			30000				
Chief East Extension			36000				
Columbus M. & M		10000	50000				
Condor			25000				
El Dorado South				3¾F	3W		¾
Eureka Con			50000	17½TH	14½W		¾
Excelsior			30000				
Harper			30000				
Hayes							
Hermes		1000	30000				
Home Ticket				2½F	2½F		
Hunn & Hunt		2600	30000				
Ingomar		1000	40000				
Ivannoe			30000				
Jackson			50000				
Josephine							
Juniata Con		5000	50000				
K. K. Con							
Kentncky		1000	30000				
Kinston		1000	30000				
Lehigh		1000	30000				
Lillian Hall		1000	15000				
Louise		2400	30000				
McMahon		1000	30000				
Marion			30000				
Meadow Valley		24023	60000	8¼TH	7W		½
Mocking-Bird		1200	30000				
Momtor-Belmont				2⅛S	1½F		
Murphy		2000	60000				
Newark		800	32000				
Pacific Tunnel							
Page & Panaca		2400	40000				
Peavine		2000	30000				
Phœnix			50000				
Pioche		1000	20000	6⅞S	6W		½
Pioche West Ex			35000				
Pioche-Phœnix			40000				
Portland							
Raymond & Ely		5000	30000	19½TH	14½W		1
Rye Patch				1⅝W	1½W		⅛
Silver Peak			30000				
Silver West Con							
Standard M. & M							
Star Con		18000	50000				
Starlight		6300	25000				
Sterling			30000				
Spring Mountt			35000				
Spring Mt. Tunnel			20000				
Ward Beecher							
Washington & Creole		300	30000	1¾F	1½T		½
Watson							
Yellowstone							
CALIFORNIA.							
Alpine		1200	12000				
Bellevue		8000	20000	2⅛S	2T		¼
Calaveras		3200	20000				
Oederberg			24000	2¼F.	2T		
Chamber Mill				7½T	6¾TH	1	
Jon. Amador							
Cottonwood Creek			20000				
Dunderberg M. & M							
El Dorado							
Eureka		1650	20000	7⅛S	7S		⅛
Gillis			24000				
Independent		1800	25000				
Keystone			10000				
Mt. Jefferson		1500	25000				
Oakville							
St. Lawrence M. & M							
St. Patrick		1800	20000				
Tecumseh		3000	30000				
Yale Gravel		400	10000				
IDAHO.							
Empire			25000	5⅜S	4¾T		
Golden Chariot		750	30000	10½T	8TH		¾
Ida Elmore		1300	10000	2½F	2S		½
Mahogany		720	10000	4¼F	4T		¾
Red Jacket				3F	3F		
South Chariot		660	20000	12⅛S	11¾TH		⅛
War Eagle		1000	10000	3F	2⅛S		
WHITE PINE.							
General Lee		1000	20000				
Mammoth		1800	36000	1¢TH	1¢TH		
Noonday		1000	20000				
Orig. Hidden Treas.		800	21333				
Silver Wave							
Ward Beecher			24000				
UTAH.							
Deseret Con		2400	20000				
Wellington			50000				
OREGON.							
Virtuc			20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Adams Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	E Landers	507 Montgomery st
Arizona & Utah	Washoe	9	1 00	June 11	July 15	Augnst 4	Joseph Maguire	419 California st
Baltimore Cons M Co	Washoe	6	1 00	May 23	July 2	July 25	D T Bagley	410 California st
Best & Belcher M Co	Washoe	9	50	July 13	Aug 17	Sept 12	W Willis	419 California st
Caroline M Co	Ely District	5	25	June 30	Aug 8	Aug 31	R H Brown	402 Montgomery st
Chief East Extension M Co	Ely District	3	10	July 7	Aug 12	Sept 8	R Wegener	414 California st
Europe M Co	Washoe	2	25	July 14	Aug 18	Sept 10	F G J Margetson	418 California st
Eureka M & Smelting Co	Eoreka Nev	4	25	July 14	Aug 18	Sept 7	T P Beach	424 Montgomery st
Europa M Co	Nevada	2	25	June 9	July 15	Aug 7	F G J Margetson	418 California st
Globe Cons M Co	Washoe	2	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Globe M Co	Washoe	7	1 00	June 11	July 15	Augnst 4	Joseph Maguire	419 California st
Golden Chariot M Co	Idaho	10	3 00	July 3	Aug 7	Aug 27	L Kaplan	Merchants' Ex
Hale & Norcross S M Co	Washoe	42	5 00	June 9	July 14	August 4	J F Lightner	438 California st
Hayes G & S M Co		6	50	June 4	July 13	August 10	Geo R Splnney	326 California st
Imperial S M Co	Washoe	19	1 00	June 5	July 8	July 30	W E Dean	419 California st
Independent G M Co	Cal	6	50	Junc 4	July 9	July 31	G T Grimes	240 Montgomery st
Julia G & S M Co	Washoe	18	1 00	May 23	June 29	July 20	A Noel	419 California st
Jnstice M Co	Washoe	10	2 50	Junc 13	July 14	August 3	Frank Swift	419 California st
Kossuth M Co	Washoe	1	25	June 29	July 31	Aug 31	F F Stone	419 California st
Lady Washington M Co	Washoe	2	50	July 1	Aug 3	Aug 31	H C Kibbe	419 California st
Leo M Co	Washoe	3	50	June 8	July 16	Aug 14	C J Eaton	Express Building
Mammoth S M Co	White Pine		10	July 13	Aug 17	Sept 15	D A Jennings	401 California st
Mint M Co	Washoe		10	June 30	Aug 5	Aug 27	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	June 1	Aug 13	Sept 7	W W Hopkins	411½ California st
Overman S M Co	Washoe	29	3 00	June 9	July 13	July 31	W W Stetson	414 California st
Pauper M Co	Idaho	2	25	June 16	July 25	Aug 17	D Wilder	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	C S Neal	419 California st
Quintero M Co	Nevada	2	10	May 27	June 30	July 19	H C Kibbe	419 California st
Regretted Caledonia M Co	Washoe	2	10	June 22	July 27	Aug 27	A Eyre	308 California st
Senator S M Co	Washoe	10	50	June 3	July 11	July 31	H Boyle	Stevenson's Building
Silver Cord M Co	Idaho	4	50	July 3	Aug 6	Aug 31	F Swift	419 California st
Silver Hill M Co	Washoe	3	2 00	June 25	July 29	Aug 20	W E Dean	419 California st
Spring Mountain Tunnel Co	Ely Dist	9	50	May 27	July 3	July 25	J M Buffington	Merchants' Ex
St Laurence M & M Co	Placer Co Cal	7	1 00	June 25	July 27	Aug 13	R B Noyes	411½ California st
Table Mt Alpha M Co	Cal	4	25	June 18	July 28	Aug 18	T F Cronise	438 California st
Tyler M Co	Washoe	5	30	June 4	July 9	July 29	G K Durbrow	Merchants' Ex
Union Cons S M Co	Washoe	6	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
War Eagle M Co	Idaho	6	50	June 19	July 23	Aug 12	L Kaplan	Merchants' Ex
Yule Gravel M Co	Cal	4	15	June 10	July 15	Aug 6	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
El Dorado Water & Gravel M Co	Cal	4	5 00	June 19	July 20	Aug 5	H Elias	416 Montgomery st
Electric M Co	Cal		10	June 27	July 15	August 5	J Paul	318 California st
Emma Hill Cons M Co	Utah	1	50	June 3	July 13	August 10	L O Fowler	302 Montgomery st
Enterprise G & S M Co	Nevada		10	June 22	July 22	Aug 25	E E Rice	411½ California st
Equitable Tunncl M Co	Utah	7	25	June 12	July 12	Aug 4	C S Healy	Merchants' Ex
Glasgow G M Co	Yuha Co Cal	3	25	June 16	July 20	Aug 7	D L Thomas	419 California st
Gold Run M Co	Cal	6	25	May 22	June 29	July 20	C C Palmer	cor Market & Spear sts
Hartford M Co	Washoe	2	20	July 13	Aug 13	Sept 1	F F Stone	419 California st
Heckerdorn G & S M Co	Cal	13	25	July 7	Aug 10	Aug 29	P J Roberts	620 Washington st
Independence G M Co	Cal	6	50	June 4	July 9	July 31	Geo T Grimes	240 Montgomery st
Keystone M & M 2 M Co	Arizona	3	50	June 27	July 18	Aug 3	W R Townsend	419 California st
Knickerhocker M Co	Nevada	9	1 50	June 23	July 25	Aug 14	H Boyle	Stevenson's Building
Magenta G M Co	Grass Valley Cal	1	10	June 27	July 30	Aug 18	L Kaplan	Merchants' Ex
North Bloomfield G M Co	Cal	32	1 00	June 15	July 20	August 10	Thomes Derby	220 Sansome st
North Fork M Co	Cal	3	1 25	June 1	July 1	July 20	A Martin	620 Washington st
Ohio Man M Co	Calaveras Co Cal		20	May 30	July 1	July 20	W Andrew Knapp	116 Liedesdorff st
Phœnix Tunnel & M Co	Utah	5	20	June 12	July 12	Aug 4	C S Healy	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	C S Neal	419 California st
Prussian G & S M Co	Nev	1	75	May 26	June 30	July 22	R H Brown	402 Montgomery st
Sanderson G M Co	Cal	1	20	June 11	July 13	July 30	W Stuart	112 Liedesdorff st
San Marcial S M Co	Mexico	14	1 00	June 18	July 28	Aug 17	C F Schulze	426 Montgomery st
Sonth Fork M Co	Placer Co Cal		5	May 30	July 6	July 27	P H Blake	306 Montgomery st
Starr King S M Co	Nevada	6	25	June 11	July 14	Aug 3	L Kaplan	Merchants' Ex
Umpire Tunnol & M Co	Utah	3	5	June 29	Aug 3	Aug 24	P A Eakins	239 Kearny st
Valley Copper M Co	Nevada		10	June 15	July 15	August 1	Wm H Martin	534 California st
Venus G & S M Co	Cal	1	3 00	June 8	July 18	August 8	S Pattee	328 California st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Alhambra M Co	Cal	Celled by Trnstees	210 Front st	Special	Aug 3
Challenge M Co	Idaho	Thos J Owens	215 Sansome st	Annual	July 23
Cons Gold Hill Quartz M Co	Washoe	R Wegener	414 California st	Annual	Aug 3
Eastport Coos Bay Coal M Co	Oregon	I L Pool		Annnel	July 22
Eclipse Works & Pinto M Co		J Marlin	419 California st	Annnal	July 20
Edith Quicksilver M Co	Cal	Charles A Bacon	318 California st	Annual	July 22
New York Cons M Co	Washoe	H C Kibbe	419 California st	Annual	July 27
Phil Sheridan G & S M Co	Washoe	E B Holmes	419 California st	Annual	July 27
Pioton M Co	Washoe	S Phillips	409 California st	Annual	July 22
Sierra Nevada S M Co	Nevada	Called by Trustees	414 California st	Special.	July 20
Sonth Overman S M Co	Washoe	David Wilder	Merchants' Ex	Annnal	July 25
Tyler M Co	Washoe	A K Durhrow	Merchants' Ex	Annnal	July 27
Union Cons M Co	Washoe	J M Baffington	Merchants' Ex	Annual	July 18
William Shakespeare G M Co	Washoe	W F Townsend	10 Welsh st	Annual	July 15
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Annual	July 20
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Special	Aug 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Cliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	5 00	July 18
Cedenberg G. M. Co.	California.	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Con. Amador M. Co.	Cal.	F. B. Latham,	402 Montgomery st.	50	April 8
Consolidated Virginia M Co	Washoe	D T Bacley	401 California st	3 00	July 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	July 11
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidatad M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	B. B. Minor.	411½ California st.	50	Dec. 5
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

Another bad week for stocke hae just closed, everything having gone down pretty low. Nobody knowe any reaeon for it, since reports generally are pretty favorable from the mines. On the Comstock affaire are going on very smoothly and with encouraging proepects. The *Enterprise* of last week says: Here, at home, there ie no exčitement in regard to any stock on the list, and our people appear to be quietly awaiting the conrse of events in the San Francieco Stook Market, feeling that they can endnre a dnll market as long ae any dsalers in stocks on the Pacific coast. Meantime our leading mines are looking unnsnally well, and prospecting and all other mining operatione are being prosecuted with untiring energy. The developments made in the lower levels of all of our leading mines are very enconraging to the owners of neighboring claims, and all are going down with their shafts and inolines ae rapidly as possible. Many of our outside minee are meeting with very favorable indicatione in the shape of feeders and hnnchse of ore, or bodies of water which show a near approach to large bodies of qnartz, if not of ore. In several instances the reservoirs of water tapped have bsen so large as to greatly interfere with the progrese of mining operations, and in a few casee it hae been found neceesary to at once make preparations for the ereotion of new and more powerful machinery. But finally all dificultiee will be overcome, and at length no nook of any of our minee will remain unexplored. In all directions the utmost activity prevaile among ench companies as are engaged in prospecting. Theee occaeionally meet with accidents and detentione of variove kinds, but on the whole the majority of them manage to keep pretty conetantly at work.

Fluctuatione in prominent stocks have been as follows during the week: Belcher varied hetween $72 and $85; Best & Belcher, $22 and $24.50; Caledonia, $17.50 and $18.50; Chollar, $60 and $68; Confidence, $10.50 and $12; Cons. Virginia, $78.50 and $82; Crown Point, $73.50 and $82; Exchequer, $59 and $65; Gould & Cnrry, $18.50 and $21; Hale & Norcross, $45.50 and $51.50; Kentuck, $13.75 and $15; Ophir, $16.75 and $18; Overman, $30 and $33; Savage, $75 and $88; Sierra Nevada, $20.50 and $24.50; Yellow Jacket, $76 and $88.50; Eureka Cons., $14.50 and $17.50; Raymond & Ely, $14.50 and $19.50; Golden Chariot, $8 and $10.50; South Chariot, $11.25 and $12.25.

Declinee from highest prices of last week were ae follows: Best & Belcher, $1.50; Caledonia, $1.25; Chollar, $4; Gonld & Cnrry, $2; Hale & Norcrose, $2.50; Overman, $3; Savage, $2; Seg. Belcher, $6.50; Yellow Jacket, $2.50.

The mills along Carson river will this year have what wood they require floated down to them. At the Eureka mill abont 2,000 corde will be taken out, and other mills will take out what they need as the drive passee down the stream. This will he mnch cheaper than hiring the wood hauled either by rail or by teams.

The Manzanita mine, Nevada county, yielded $30,000 at a olean-up last week.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

California Reduction Works.—July 9. Object: The purchase and sale of real estate, huying mines, mining claims and property of every description, etc.; the manufacture of paints, drugs and dyes of every description; to give and take promissory notes for the procurement of money. Directors: H. H. Eames, H. P. Minear, George R. Dodge, William Willis and C. E. Scott. Capital stock, $600,000.

Agricultural and Mechanical Fair Ground and Race Track Association.—July 10. Object: To construct and maintain Agricultural and Mechanical Fair Grounds and a Race Track, etc. Directors: H. R. Covey, Jasper N. Killip, James R. Dickey, E. M. Chase and Daniel Z. Yost. Capital stock, $260,000.

The Alabama Silver M. Co.—July 13. Location: Panamint mining district, Inyo county. Capital stock, $6,000,000, in shares of $100. Directors: John Copely and J. N. Parker, Inyo; J. A. Pritchard, S. A. Raymond and W. E. Hale, San Franolsco.

Hudson River Silver Mining Co.—July 13. Location: Panamint district. Capital, $6,000,000. Directors: John Copley, D. G. Tipton, J. A. Pritchard, S. A. Raymond and W. E. Hale.

Dempsey Silver Mining Co.—July 13. Location: Panamint district. Capital, $6,000,000. Directors: John Copely, J. A. Pritchard, Henry Gibbons, S. A. Raymond and W. E. Hale.

Harrison Silver M. Co.—July 13. Location: Panamint district. Capital, $6,000,000. Directors: W. S. Hobart, J. A. Pritchard, S. A. Raymend, W. E. Hale and John Copely.

Good Friday M. Co.—July 16. Location: Placer county. Directors: J. M. Bogart, Mark Leonard, W. F. Bogart, A. Treadwell and R. B. Noyes. Capital stock, $1,250,000.

Red Hill Hydraulic M. and Water Co.—July 16. Object: To mine for gold and other metals, sell water, transport wood, etc. Directors: J. G. Swift, Geo. Swift, W. B. Douglass, G. F. Whitem and T. B. Wingard. Capital stock, $500,000.

James Lick M. Co.—July 16. Object: Mining for gold and silver, huy and sell the same, etc. Directors: Wm. Gibbons, James Ellsworth, H. C. Blake, Robert Armstrong and James Du Bois. Capital stock, $1,000,000.

The following articles of incorporation were filed in the office of the Secretary of State, Sacramento:

Tauckee Reduction and Refining Co.—Capital stock, $350,000, in shares of $100 each.

Cedar and Pilot Knob Quicksilver M. Co.—Capital stock, $3,000,000, in shares of $100 each.

Meetings and Elections.

Best & Belcher M. Co.—July 13. Directors: J. C. Flood, W. S. O'Brien, Edward Barton, L. S. Rose and Robert Sherwood; William Willis, Secretary; James G. Fair, Superintendent. Eight assessments of $225,000 have already heen collected on account of this mine, and another of $11,200 was levied at the close of the meeting on Monday, to further prosecute the discovery for pay ore. The claim is hetween Gonld & Curry and Consolidated Virginia, and consists of 224 feet.

Central Pacific Railroad Co.—July 16. Directors: Leland Stanford, C. P. Huntington, Mark Hopkins, E. H. Miller, Jr., Rohert Robinson, C. H. Cummings, harles Crocker.

Sacramento Valley Railroad Co.—July 16. Directors: Leland Stanford, C. P. Huntington, Mark Hopkins, E. H. Miller, Jr., C. H. Cummings.

California Pacific Railroad Co.—July 16. Directors: George E. Gray, R. P. Hammond, Moses Hopkins, Jo. B. Gunn, C. J. Robinson, N. T. Smith, J. L. Willcutt.

Stockton and Copperopolis Railroad Co.—July 16. Directors: Leland Stanford, C. P. Huntington, Mark Hopkins, E. H. Miller, Jr., Robert Robinson, C. H. Cummings, N. T. Smith.

Stockton and Visalia Railroad Co.—July 16. Directors: Leland Stanford, C. P. Huntington, Mark Hopkins, E. H. Miller, Jr., Rohert Rohinson, C. H. Cummings, N. T. Smith.

San Pablo and Tulare Railroad Co.—July 16. Directors: Leland Stanford, C. P. Huntington, Mark Hopkins, E. H. Miller, Jr., C. H. Cummings.

Northern Railway Co.—July 16. Directors: Leland Stanford, C. P. Huntington, Mark Hopkins, E. H. Miller, Jr., C. H. Cummings.

Terminal Railroad Co.—July 16. Directors: Leland Stanford, C. P. Huntington, Mark Hopkins, E. H. Miller, Jr., Robert Robinson, E. J. Rohinson, Chas. Crocker.

Quicksilver in Mexico.—There is no metal which cansee more attention in Mexico than quicksilver; and ite high price, ae well as the premiums offered by several States, has doubled ths exertione to find new deposits; the lateet discoveries of thie kind are at Hnitzuero, State of Guerrero, and if report ie trne this new mining district will vie with Almaden.

Six echoonere are employed in shipping chrome iron ore from Petalnma to San Francisco, where it is to be pnt on the ship "General McClellan," preparatory to ehipment to New York.

Mining Summary.

The following ia mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

Ite Progress. — *Chronicle*, Jnly 11: The McGlew farnace, at the M. and N. W. Co.'s mill, below Bnlliona, ie progressing finely under the enperintendence of the inventor, who proposes to show, in abont two weeks, a successful reduction of our rebellione ores. The progrees of thie furnace ie watched with unnsnal interest.

AMADOR COUNTY.

The Lincoln Ditch.—*Dispatch*, July 11: The work of cntting the Linoln ditch was finished last Friday, and the water will be let into it in a few daye. The ditch ie eeventeen milee in length, and was constrnoted for the pnrpoee of furnishing water to the celebrated Lincoln mine, at Sntter creek. The water ie taken from the month of Grase Valley creek.

CALAVERAS COUNTY.

Rich Specimens.—*Chronicle*, Jnly 11: Some very rich specimens of qnartz, taken from the Wallace & Fergnson mine, at Sheep ranch, were on exhibition recently. The rock taken from the Wallace & Ferguson averages better than any other mine in the State, paying $75 per ton. The ledge hae been opened for a dis-

tance of 1,400 feet, showing a continuous vein of unprecedentedly rich ore.

Good Clean-up.—Veith & Co., the Tunnel ridge hydraulicists, have recently made another good clean-up after a short run. The yield of the mino was $2,000, in a very short space of time.

EL DORADO COUNTY.

Mining.—El Dorado *Republican*, July 11: Mining operations are being diligently prosecuted all about us, and although but little is said, miners generally look and act as though everything was satisfactory.

INYO COUNTY.

Bullion.—*Independent*, July 4: Since January last 65,000 hurs of bullion have been shipped on teams from Cartago. The teams take 400 bars every day, which is about the number turned out hy the two Cerro Gordo furnaces. There are now 5,000 burs on hands.

LAKE COUNTY.

Quicksilver Mines.—*Bee*, July 9: The Great Western Co. have just completed a 30-ton furnace, and expect to run out from 600 to 800 flasks of quicksilver per month.

The American mine will soon have their reduction works finished, and will undouhtedly have plonty of metal to ship, as they have fine ore in large quantities.

The Kearsarge is developing finely. They have one small retort now in operation, and intend putting up others soon.

The London, Almadra und Pacifio mines, on the "No. 2" lode, are working a large force of men in the development of the same.

LOS ANGELES COUNTY.

Petroleum.—*Express*, July 7: The Los Angeles Petroleum Refining Company are proceeding with energy to organize their oil works in connection with the Carreras process, and in a short time we may look to see Los Angeles illuminating oils amoug the regular commeroial articles of this market. In this connection we have nothing hut good news from the oil regiou. The prospecting is proeeeding satisfactorily.

MENDOCINO COUNTY.

Quicksilver.—*Independent Dispatch*, July 10: We lesrn that work is beiug vigorously prosecuted on the Sodu Spriug quicksilver mine, near Anderson valley, and that late assays show a prospect of five per cent. of quicksilver. The McGimsey lead, about one and a half miles from the Soda Spriug lead, is also reported to be good.

NAPA COUNTY.

Calistooa Items.—*Free Press*, July 11: Recent explorations have developed excellent cinnabar indioations in Alexander valley, on Sunsal creek, about 20 miles west of this place. At least a hundred looations have already been mude.

One of the largest yields of qnicksilver yet recorded in Napa county is that of the California compauy. On last Satnrday they shipped 67 flasks of this metal from their miue, all the result of one week's work.

NEVADA COUNTY.

Dartmouth Mine.—The Dartmouth company have closed down their mill for the preaent, for want of water—the mill being run by that power. The explorations carried on during the last year satisfy the company that they have a large and rich hody of blue lead, sulphur, oement gravel. A thirty-six-hour run on promiscuous gravel, not selected gravel, gave the handsome yield of $600. They intend to enlarge their preaent working shaft so as to raise the gravel by car and cage, instead by buckets aa at present. The Dartmouth's finonoial standing is first-olaas. always promptly paying all bills on the 5th day of each month, and the managemeut of mill and mine is most energetically and efficiently done by Captaiu Miller, the Superintendent.

Milton Mining Company.—The Milton company operates in French Corral neighborhood, in this county. The Manzanito tunnel belonging to the Milton company will he 1,700 ft. in length when completed. Only about 150 ft. of the tunnel remains to he run, and that is being worked on two faces from a shaft. From the mouth of the tunnel a grade is being made for the purpose of setting the flume. This grade will be a mile or more long and will run to the Yuba river. When the tunnel is completed a very large body of rich gravel will be opened for profitable work.

Idaho.—Grass Valley *Union*, July 13: The old abaft of the Idaho mine is being repaired and re-timbered for the purpose of putting a pump down to keep the mine free from wuter. There is not a great deal of water there now, but as the nndergrouud works become more extensive of course the amount becomes greater.

Seven-Thirty Mine.—A rich strike has been made at the Seven-Thirty mine. Some of the heaviest and best rock we have ever seen was brought from the mine yesterday. The three owners are in luck, and they are the kind of men who deserve fortunes—Rohert McCook, David McCook and Elmer Sunford being the owners.

New York Hill.—Work is stoadily progressing on this mine in both tunnels, aud good ledges are found in hoth. Very satisfactory results have come from all the crushings of ore, all paying a handsome profit on expenses. The lower tunnel is in ahout 500 ft. The present contraot will carry the tunnel 200 ft., with a bsck of 350 ft. An air shaft is nearly completed in the tunnel. Rich specimens are beiug so constantly taken out that they are no longer chronicled.

A Good Clean-up.—Nevada *Transcript*, July 14: We heard it stated arouud town that the Manzanita mine took out at its last clean-up, the nice little sum of $30,000. Such clean-ups are oommon around the county, but we cannot alwaye obtain the figures.

Pushing Ahead.—The ditoh being out by the Blue Tent Consolidated compsny, under the euperintendence of C. W. Tozer, is being pushed ahead as fast as possible. The oompany are now working a huudred meu on the line of the ditoh. There will be four miles of fluming to build, and several long tuunels to run. They have one mile of flume already completed.

PLACER COUNTY.

Dutch Flat.—*Herald*, July 11: Parties from Dutch Flat inform us that the tunnel, which has been run from Bear river to tap the bottom of the deep gravel deposits near Dutch Flat, is so far advunced as to be serviceable. They have already commenced piping on a deep stratum, the tailings from which are washed out through this tunnel.

From a short run, of 100 tons of average rock, from the Orleans mine, there was oleaned up last Thursday, what is safely estimated at $4,500.

PLUMAS COUNTY.

Sale of the Buckeye.—*National*, July 4: We learn that the Buckeye claims, at Sawpit Flat, were sold last week to a Mr. Breed, of New York, for the sum of $50,000.

Conly & Gowell have stripped about six acres of hed-rock in their La Porte hydraulic claims this season. They are now hiring a large number of hands, and cleaniug np.

The Bluckhawk company (Miller, Musick & Shaffer), are making first-rate wages—from five to ten dollars per day.

SISKIYOU COUNTY.

Good Yield.—Yreka *Union*, July 11: The Bunker Hill company on the Klamath below Happy camp oleaned up $800, as the result of six days run.

Cornish & Clurk are running a tunnel to strike their ledge at a lower level. The quartz taken from this ledge has heen about the richest of any ever found in the conuty. Some 60 or 70 tons croshed about a year ago averaged a good deal over $100 to the ton.

TULARE COUNTY.

Tulare.—Visalia *Delta*, July 9: That exaggerating reports should he set afloat in regard to the new mines is nothing more than should be expected. The report that $300,000 had been offered for the discovery clsim on the White Chief was, of course, almost pure fabrication. There is much truth in the statement, however, that the agent of a rich mining company is on the ground, and is willing to contract for the claim in the sum mentioned if snbsequent developments should prove it as rich as a certain other claim owned hy the company. The report that Creighton offered $50,000 for the Lsdy Franklin is not so. Good judges ure of the opinion that the White Chief is a large lead; but a large stream of water sinks in it, and coming out some two miles below, it would require a lsrge outlay of oapital to drain the lead below this water level. It is helieved, however, that the lead will ultimately prove one of the most valuahle discoveries of modern times.

TUOLUMNE COUNTY.

Tuolumne Silver.—*Independent*, July 11: Jack Kuowles haa started for the Summit Silver vein with six men, determined to try its hottom.

The Knox & Boyle is paying splendidly. For the months of April and May, they shipped bullion amounting to over $10,000. The shaft is now over 400 feet down and the rock shows first-class.

The Heslep mine started up on the 16th of June. They are takiug ont rock on top now, and will commence taking out of the shaft in about a week. Everythiug is ready for the latter. The mine, worked as it ahould be, is a valnable one, and we hope those interested will give it a chance to show itself.

Good Quartz.—P. Eastman, of Cherokee, has a vein of quartz six feet wide, which he calls the "Mother Vein," sitnated near the Laurel mill. Two tons were tested in his arrastra from a 60 ft. incline from a 300 ft. tunnel, and panned out $25.50. We hope, as he goes down on it, it will increase in size and quality.

The Telegraph Mine.—Superintendent Murphy has twenty men at work in and about this mine. Two tunnels are being run on the hill aide. The upper tunnel, which is about 500 ft. in, has struck the vein, and they have already run 140 ft. on the chute and are getting out $25 and $30 rook; are every day expecting to strike the chute in the lower tunnel. The ten-stamp mill which is being erected will be in readiuess to crush in about three weeks, when another ten-stamps will be added. Tulloch's self-feeders will be employed in the mill.

Tulloch's Self Feeders.—*Union Democrat*, July 11: The proprietors of the Spring Gulch mine recently placed two of these "feeders" in their mill. They report them as being all tbat is claimed hy the iuventor, saving the labor of a man and keepiug the battery evenly fed, with great saving in the wear of shoes. Mr. Whitto informs us it is one of the best, simplest and most practical improvements he has seen introduced to facilitate the crushing of ore, during his experience of many years. The same is said of them by Judge Preston, who runs them in the various mines under his control.

TRINITY COUNTY.

Indian Creek Quartz.—*Journal*, July 11: Further developments on the Bullychoop ledge are of an encouraging character. The vein is from two to four feet in width and well defined. An assay from average rock shows $241.17 gold to the ton. It is the intention of the locators to prospect the ledge extensively.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Gold Hill *News*, July 9: Daily yield 300 tons of ore. The ore hreasts on the 1,300-foot levels are both looking well and yielding splendidly. The bottom of the winze from the 1,300 to connect with the 1,400-ft level is still in rich ore. Three drifts are being extended on the 1,400-ft level for the development of the ore hody—one north, one south and another east, all of which are in rich ore, with no indication whatever of a ohange. The north winze from the 1,400-ft level is sinking through high grsde ore. The grading and other necessary preparations for the erection of u new 60-stamp mill, is making rapid progress.

Hale & Norcross.—Sinking the main incline below the 2,000-ft level goes steadily on. A large water-tsnk for the pump is heing erected 50 feet below the 2,000-ft station. Both the main north and west drifts are being driveu vigorously ahead, with favorable prospects of ore developments. The ore found in the west drift on this level last week, although of excellent qnality, proved to be only two or three feet in thickness, but may yet lead to the development of a large and extensive hody.

Ophir.—The suit in the Distriot Court for the settlement of the dispute in regard to the control of this miue has been postponed until the 18th. In the meantime work has again heen resumed in the miue under the control of the present superintendent, Samuel T. Curtis. This is highly gratifying, as, hsd the mine remained shut down three days more, the Empire State mill, which was being run on the reserve ore in the dumps, would also have been ohliged to stop. The extraction of ore from the ore breasts on both the 1,300 and 1,465-foot levels has been resumed. Sinking the winze from the 1,465-foot level, to connect with the up-raise from the 1,700-foot, has been stopped on acoonnt of the intense heat.

Gould & Curry.—The face of the north drift on the 1,500-ft. level is in low grade quartz, aud shows a slight improvement since our last report. Sinkiug the double winze below the 1,000-ft. station is making good headway, with some good indications in the hottom. The east drift, spoken of in our last report as just having beeu commenced, was run in a distance of 8 ft., when it was discontinned on acconnt of nndoubted indiostions of the close proximity of a heavy body of water.

Globe Consolidated.—The ore body in the north drift from the head of the incline has widened out to 15 and 16 ft. in width, and is of an excellent quality. The winze from this drift is down 69 ft., also in ore of a fine quality. The pay streak in the hottom of this winze is about 5 ft. in width, the grain of the quartz coarse, and has a very promisiug look. The grading for the erection of the new 20-stamp mill has been oommenced, and is being pushed with all the vigor possihle. Daily yield, 20 tons of ore.

Sierra Nevada.—The erection of the new hoisting and pumping machinery is making steady and very favorable progress. The hydranlic worka are doiug good execution, and continue to work spleuidly. Many pieces of ore extremely rich in gold are found, and it is the opinion of many that a rich chimney will yet be found somewhere in the vicinity. Daily yield, 60 tons of ore, keeping the mill steadily running. The ore hreasts are all looking well and yielding finely.

Yellow Jacket.—The work of cross-outting on the 1,540-ft. level is being prosecuted vigorously. The winze which is being sunk from this level, has attained a depth of 120 ft. The oompany have commenced sinking a sump below the 1,740-ft. level station. As soon as this sump is finished, prospecting that level will be commenced.

Belcher.—Daily yield, 550 tons of ore. The ore hreasts throughout the entire mine are looking well and yielding splendidly. Sinking the main incline is making fair progress, notwithstanding the extreme hardness of the rock. It is now down 20 feet below the 1,500-ft. level. The works are to be ahut down for a day or two, to ohange some of the hoisting gear, aud put in new rails in the main inoline shaft. A spleudid new cable rope is now on its way from San Francisco, and will be put in as soon as it arrives.

Crown Point.—Daily yield, 550 tons of ore, which is heing extracted from the 1,000, 1,200, 1,300 and 1,400-ft. levels. Since our last report, another wiuze, called the south winze, has been started from the 1,400-ft. level, and is now down 14 feet in good ore. The various ore hreasts throughout the mine are looking as well as nsual.

Chollar-Potosi.—Daily yield, 90 tons of ore, the assay value of which is $30 per ton. The cross-cuts, No. 1 and No. 2, at the fourth station level, have both reached the west country rock without developing anything of material value.

Savage.—Sinking the main shaft for the 2,100-ft. level is makiug steady progress, the rock in the hottom blasting out finely. The main south drift on the 2,000 ft. level has been enlarged and timhered up in good working condition, and is now being steadily driven ahead to connect with the north drift on the same level from the Hale & Norcross.

Goodman.—This mine is situated about a mile west of Silver City, near the Red Jacket mine and the American Flat tunnel of the railroad. The company have sunk a shaft about 160 feet, developing a good-sized ledge, which assays well in silver and gold. The Goodman oompany have a valuable piece of mining property, which only lacks full and proper development.

Julia.—Work on the 900-ft. level has beeu discontinued for u short time, pending the erection of the new pumping machinery. The excavatiou for the machinery is nearly oompleted.

Baltimore Consolidated.—The water has been drained from the shaft and the sinking resumed, which is now making favorable headwsy. The new machinery is all working with the utmost perfection, and the development of the new level is being looked forward to with intense and hopeful expectation.

Imperial-Empire.—Sinking the main incline is makiug fair progress, and has only 8 ft. more to sink, when everything will he in readiness to open the 2,000-ft. station. The south drift, from the main east crossout, has penetrated the ore body, mentioned in our last report, 40 ft. showing it to be $30 to $35 ore, and giving fair promise of the development of a large body.

Utah.—The flow of water has ountinued stronger in the shaft than wae at first suspected. However, the steady and persistent efforts of the management are beginning to tell, and the water is slowly and gradually being drained.

Justice.—Sinking the main inoline is making good progress. The extraction of ore from the Waller Defeat shaft is ountinued at the rate of 40 tons per day. The excavations for the foundation of the new hoisting works and machinery is making steady and favorable progress.

Caledonia.—Sinking the main shaft is makiug favorable progress. It is now down 35 ft. helow the 800-ft. level.

Leo.—The ledge is becoming somewhat softer again in the face of the tunnel, and a better quality of qnartz is met with. The ledge is hearing more nearly a north and south course than at any time heretofore, and the indioations are more favorable at present than they have been for some time past.

Phil. Sheridan.—New shaft down 97 ft. today. The reqnisite steam hoisting machinery will be put in position the last of this month. No water interferes with sinking.

Dayton.—Cutting out and enlarging the shaft for a third compartment is nearly completed to the level of the drain tunnel. Preparation for the erection of the new machinery goes steadily on.

Tyler.—The main east drift has cut a fine vein of quartz, 2 or 3 feet in thickuess, which carries hoth gold and silver in very promising quantities. This streak is now being fully prospected, as the ohances are excellent for its lesding to a permanent and paying body.

Overman.—There is no change, if we except the progress made on the north drift on the 1,200-ft. level.

Succor.—The erection of the new hoisting works is making good headway. One of the hoisting engines will he in readiness to start up again in a very few days.

Daney.—The main west drift on the 400-foot level is in 149 feet from the shaft, the face in hard hlasting rock.

Silver Hill.—The oross-cut from the south drift, on the first level, is still in ore. The face of the main south drift on the second station level is still in white qnartz and low grade ore.

Nevada.—Still running ahead in the new tnnnel, with good progress, in excellent working gronnd. This tunnel will soon be into the ledge itself, and follow it until it reaches the old workings, which are in good pay ore 100 feet above.

Buckeye.—The south drift at the first station is rapidly approaching the south winze. As soon as the connection is completed hetween thia drift and the winze, it is the intention to commence the extraction of ore from that level.

Lady Bryan.—Sinking the new shaft is making good headway. There is no water to interfere.

Alamo.—Sinking the new shaft on the body of ore, struck a few days since, is making good progress, with every indication of its developing into a fine and extensive body.

Occidental.—Sinking the winze from the tunnel level is making good progress, the hottom still in fine ore. The new hoisting machinery is working to perfection.

Knickerbocker.—The water has been drained from the shaft and the sinking resumed.

Woodville.—Siuking the prospecting winze below the 300-ft. level is making fair progress.

New York.—Sinking the shaft has been again resumed, and is making favorable progress. Driving the east drift at the 600-ft. level has been commenced.

Florida.—The shaft is down 145 feet. The machiuery worka well.

California.—Driving hoth the north drifts, on the 1,400 and 1,500-ft. levels is makiug good headway.

Dardanelles.—The new ehaft is down 45 feet, the bottom in hard blasting ground.

Bullion.—The north drift ou the 1,700-ft. level is making favorable progress.

Mint.—Sinkiug the main shaft is making the usual good progress.

Sutro.—Driving the main west tunnel is still making rapid progress.

Kossuth.—The erection of the new hoisting and pumpiug machiuery is making good progress.

Pictou.—Tunnel driving ahead. Rock in face somewhat harder. No water.

Lady Washington.—Work progressiug as usual.

Ten Thousand Feet Above the Level of the Sea.

The altitude of Belmont, Nevada, is 8,400 feet above the level of the sea, being 2,000 feet higher than the city of Austin. Twelve or fifteen miles north of Belmont is a high mountain, the altitude of which is estimated to be 11,000 feet, and at the base of it are located those flourishing rich mines, known as the Jefferson mines, so recently discovered, and upon which work is now being vigorously prosecuted.

One thousand feet from the top of Mount Jefferson, and 10,000 feet above the sea, is a plateau or piece of table land from which a bird's-eye view can be had of the thriving little town of Belmont, with its mines, mills and hoisting works; and beyond, as far as the eye can reach, to the south, east and west, is a vast expanse of mineral wealth, that lies slumbering, as it were, in rocky beds that line range after range of mountains, stretching far to the southward in sinuous, undulating lines until lost in the dimness of space.

What would our friends that live down by the tidal waves think and say could they look directly up over-head to given point a mile and a half or two miles into the sky, and tell them that there, on a level with that point, 500 miles eastward, was Belmont, Nevada, and many other towns that are more than a mile above them?

In most of the larger valleys water is found in abundance, flowing from the mountain sides; arable land suitable for the horticulturist and grass for graziers, is plentiful. Here, as civilization advances into the interior, farms and stock ranches are located in the valleys and cañons, and wood ranches in the mountains. Salt marshes exist in many places, from which large quantities of salt are gathered, to be used in the extraction of ores in the mills and furnaces. Borax mines are also found, besides copper, lead and iron. Notwithstanding the bleak and barren aspect which the country first presents to the beholder when traveling over the alkali flats and through the rocky cañons, Providence seems to have ordained that it shall not be the least valued in point of wealth and natural resources, having so arranged and adapted the products of the country as to produce in one place what it lacks in another towards supplying the wants of the hardy pioneers, upon whose shoulders devolves the arduous task of unearthing and bringing to light those precious metals that are so quickly changed into the circulating medium so much coveted by the outside world, and which so naturally finds its way into the coffers of the monopolist.

One of the many features of this country is, that here and there, covering an area of hundreds of miles, can be seen those high peaks and mountains towering up above the rest, like sentinels, as it were, guarding hidden treasures that lie beneath, and protecting those that are folded in their rocky embrace. It is a noticeable fact, that wherever these large peaks or mountains are found, so also is silver ore, in more or less quantities, and some proving very rich; and yet it is not to be argued that all the silver lodes exist near these places, for many ledges of silver-bearing quartz have been discovered in lower ranges of mountains that have proven quite rich; but we may very well believe that these high points only serve as outposts, showing, in their silent way, the boundaries of mineral belts; and it is to these landmarks that the prospector directs his course, when visions of grander discoveries, to be made in other localities, persuade him to shoulder his pick and shovel, and travel.

It is very evident that at some anterior date, probably centuries ago, this whole country, comprising the Pacific slope, has been thrown into terrible convulsions at different times, by the natural workings of the internal fires and gases which exist in all mineral countries; consequently there was bound to be more or less of the mineral quartz left uncovered on and around the highest peaks. This, then, is undoubtedly the reason why float rock and ledges happen to be first discovered in and around these places.

That the entire southwestern portion of Nevada is equally as rich in mineral resources as the rest of the State, there can be no question or doubt. Does not the finger of destiny point in this direction, indicating that it will not be many years before this section will be teeming with life and activity, from the overflowed population of the Eastern States and Europe, who are forced to leave their fatherland and seek a foothold and home in the Far West? Ledges now unthought of will be discovered, towns and cities will spring up, year after year, as the magic wand of industry and enterprise waves over the land in its onward course. Even now many old districts that were discovered several years ago, and neglected or abandoned for richer fields, are beginning to attract renewed attention from capital, which, through hard experience, is discovering new characteristics in those long neglected ores, that promise safer investments, with greater percentages on the money invested, that can be found in the older localities. And so it will be as the age of science and metallurgy advances.

In order to show what sudden transitions are liable to take place in localities, we will take the mines of Eureka district for example: A few years ago these mines were discovered and work done on a great many, but all seemingly to no purpose, and finally the original locators had to abandon them, discouraged and disheartened at their failure. But now, presto, look at the change! Those same mines are worth their millions, and a city has risen second to none but one in the State. But will this story of wondrous enchantment end here? May not Morey, Hot Creek, Reveille, Ione, San Antonio, Ellsworth and Twin River districts do likewise when their turn comes in the dim future? Austin still asserts her mining dignity in the catalogue of mines, although she has been frequently down to the bed-rock during the last ten years, but, like a cork in the water, she will come up again and swim on top. Tybo is just beginning to make itself heard through a silver trumpet, to let us know that it is sleeping no more. The mines of Jefferson, Spanish Belt and Belmont speak for themselves every day. Alida valley and Gold mountain, slumbering so long near the shades of Death valley, far to the south of here, have tumbled out of their cradle at last, and though still in infancy, has shown a decided inclination to walk in the silvery girdle; and now, as General Page has extended a helping hand, we may soon hear favorable news from that remote district. Montezuma, Silver Peak, Cerro Gordo and Columbus are still on picket duty, awaiting the vanguard of progress to come up and reward them for their long and faithful watchings.—*Belmont Courier.*

Mining at Dutch Flat and Gold Run.

We condense the following matter of general interest from an extended article in the *Placer Argus:*

The mining district of Dutch Flat and Gold Run, for the two towns are so close together and their mining interests are so closely blended that we shall treat them as one, has long been noted for its yield of the precious metals, and for the certainty with which the hardy miner could count on a return for his labor. Early in the history of placer mining in this State, the gulches and ravines were filled with miners, and large amounts of gold were taken out. The existence of the great gravel banks, and the fact that they contained gold was well known at the time, but the want of water prevented working them on a scale of sufficient magnitude to pay.

Mining at Gold Run

By the hydraulic process first begun in the spring of 1865, the Bear river ditch, supplying about 650 inches of water, having been brought in. The yield that year was light, but in the succeeding years of 1866 and 1867 work was prosecuted very extensively, and about $600,000 was taken out each year. In 1868 a party of miners owning these claims bought the Beaver river ditch and organized the

Gold Run Ditch and Mining Co.,

And it is now the largest operation in that place. The company incorporated in 1870. The capital stock is $905,000, and is all owned by citizens of Gold Run and Dutch Flat. Allen Towle is President, H. H. Brown is Secretary and Treasurer, and J. L. Gould is General Superintendent. They have over $300,000 invested in mining property, of which $80,000 is in ditches. Their water comes from Bear and South Yuba rivers through 28 miles of ditches. This season they have had plenty of water, and expect to run seven or eight months. They are working five claims, use 2,000 inches of water and employ 40 men. They own the following claims:

Indiana Hill, 65 acres; North Star, 65 acres; two-fifths of the Druid, eight acres; one-half of the Gold Run, 70 acres; Church and Golden Gate, 35 acres; Kearsarge, 30 acres; Bay State No. 2, 25 acres; Pinetop, 30 acres. Thus far the surface gravel to the depth of 100 to 175 feet only, has been worked, the lower stratum of over 200 feet in thickness not being workable for want of fall to carry off the tailings. The company are now engaged in the prosecution of an enterprise that cannot fail to have a very beneficial influence on the mining interests of this section. For several years the yield of gold has been declining, and the surface beds are rapidly being worked out. The Gold Run company only has enough of ground to keep its men employed for about two years, and if something is not done, the day of prosperity would soon be over, and the prosperous towns of Gold Run and Dutch Flat would soon become dilapidated and deserted. The richest beds of gravel, fully 200 feet in depth, are yet untouched. To procure the necessary fall, and enable them to work these rich beds the Gold Run Co. is running a tunnel over 3,000 feet in length through the mountain, at a depth of 600 feet below the crest of the ridge. The lower end of this tunnel opens into Cañon creek, while the head will open directly under the great deposits of blue gravel and furnishing means of working them to the bed rock. Clambering down the precipitous sides of the cañon, we found an active little engine pumping away condensing air by which the drills are driven. A very steep and narrow wagon-road has been blasted in the rock, and the necessary buildings are perched on projecting crags. Wood is supplied by a slide on the opposite side of the cañon, and water from a reservoir, situated some 400 feet above the engine house. The main tunnel, which is 12 feet wide by 9 feet in hight, has been driven a distance of 600 feet, and when completed will be 2,200 feet in length. At a distance of 454 feet from the lower end, a branch tunnel leaves the main cut, and is now in about 300 feet from the point of intersection. The branch is eight feet square, and will be about 1,000 feet long. The whole force is now at work on the branch, which will be ready for use by the first of January, when washing will begin. The branch is run for the purpose of reaching some claims not tapped by the main tunnel. As soon as it is finished, work will be resumed on the main cut, and it will be put through in about two years, or by the time the surface gravel belonging to the company is exhausted. The Burleigh drill, driven by compressed air is the effective agent in penetrating the rock, and it is walking into the mountain at the rapid rate of 100 feet per month, on an average. Twenty-five men are employed, and some $3,000 per month is disbursed in paying expenses, and supplying the necessary materials. The total cost of the tunnel is estimated at $125,000. The vast importance of this enterprise is manifest when we consider that the ground, which by its aid alone can be worked, is far richer than the best of the gravel that has already been washed, and that there is enough of it to employ all the water that can be had for the next century. Shafts have been sunk 200 feet to the bed-rock, and good pay found the whole distance. Under the influence of this great work which is to unlock the hitherto inaccessible riches of the district, every kind of business is brightening up, and the future prospects of the towns dependent on the mines are proportionately improved. In addition to the Gold Run company the following parties are engaged in mining:

Hoskins & Brother are working a claim of 70 acres. They employ 15 men and use 600 inches of water.

The Fishhawk Company have a claim of 40 acres. Use 550 inches of water and employ 10 men.

Sachs & Company's claim contains 100 acres. They use 350 inches of water and employ six men.

O. Harkness uses 500 inches of water, employs seven men, and works a claim of 40 acres.

The Indiana Hill Blue Gravel Company is drifting on the channel, and crushing the gravel in an eight-stamp mill, driven by water-power. It is working 30 hands and is doing well. J. F. Moody works the tailings of all these claims; and, we should judge, is making a better thing of it than any of the claims. He owns about 3,000 feet of the cañon, in which he has fitted flumes and undercurrents, and now has nothing to do but to catch the gold that escapes the workmen above. His cleanups have been of the most satisfactory character, and this season's work will probably net him a larger amount than usual. In fact, all the claims have paid well, and an expression of satisfaction rests on the countenances of all the miners.

The Cedar Creek Gold Mining Company is mentioned at length in another column.

Sacramento Smelting Works Commencing Operations.

Instead of a delay of several days, as anticipated, from striking the hardpan in the artesian well, at the smelting works, it was bored through on Tuesday night, and operations in smelting commenced. An abundant supply of good water, free from alkali, and very cold, was struck below the hardpan, and a donkey-engine is employed to pump it into the pipes, from which it is taken through hydrants for immediate use. About all the impurity in the water is a slight impregnation of iron—not enough to hurt in any way, however. The fires were started in the furnace—but one of the two furnaces is run at yet—at two o'clock yesterday morning, and at seven o'clock the metal commenced flowing from the bottom. Since then, there has been a continuous flow. During the forenoon the directors of the company visited the works, examined their workings, and expressed satisfaction with their operations. There are now fifteen men employed at the works, but it will require thirty to run them shortly. Several of the new hands gave out after a few hours' work, the heat being too intense. The fires have been kept burning night and day. The ore is spread in layers upon the floor and mixed with different fluxes, scrap iron, limestone and slag. A charge is then cast into the furnace for reduction. The charge consists of two bushels of charcoal and two hundred pounds of the ore mixture. When reduced to a liquid state, the vents are opened, and the molten metal is allowed to run into large iron pots. It is then poured into iron moulds and allowed to cool. Each bar of bullion thus produced weighs about ninety-four pounds. The metal is a mixture of silver and lead, and is ready for the separating process. This is as far as the work can be done here. The slag, or melted rock, dirt, etc., flows from a vent above that from which the metal flows, and on another side, into iron pots securely fixed on trucks, from which it is dumped into the slough. At 12 M. three tons of bullion had been run out, and by 7 P. M. one hundred and fifty bars were made which is the result of the first twenty-four hours' run. A bath-house has been put up for the use of the employes, which is now ready for use. The works appear to be a success, so far as the work is concerned.—*Sacramento Union, July 9th.*

Eight car-loads of new steel rails arrived at Gold Hill, recently, from Carson, for the Virginia and Truckee railroad. A gang of men will soon commence laying them from Gold Hill toward Carson. The road between Virginia City and Gold Hill has already been laid with them.

The Perkins mill, at the mouth of Dixie cañon, Plumas county, is now running splendidly, and the rock is paying well. A run of five days last week turned out 100 ounces of amalgam.

The Cedar Creek Mines.

From an article in the Placer *Argus* we take the following concerning the property of the Cedar Creek Gold Mines Company, the principal concern doing business at Dutch Flat: It is an English corporation; having a capital of $200,000 and is noted throughout the country for its enterprise and liberality. The principal office is in London, where the President, George Batters, and the Secretary, W. J. Lavington, reside. Its business headquarters are at Dutch flat, and the management of its extensive works is intrusted to T. B. Ludlum, an energetic young Illinoisan, who has been a citizen of our county so long that he feels like a native. The company is prosecuting its work with vigor, and employs a large force of hands. The old Placer county canal, after passing into its hands, has been improved and extended until the company now owns about 60 miles of ditches. The capacity of the main ditch is 6,000 inches of water, the greater portion of which is used by the company in operating its claims. Of these the principal are the Pacific, 40 acres, the Central, 30 acres, Jehoshaphat, 20 acres, half of the Gold run, the Home Ticket, 20 acres, the Gem, 15 acres, etc. Altogether it owns 32 claims, comprising some 200 acres of mining ground, employs 150 men, and uses 3,800 inches of water, besides selling 1,450 inches twenty-four-hour water to outside parties. It is also engaged in running a

Bedrock Tunnel

For, the purpose of tapping the Dutch Flat channel, work on which has been progressing for some time with favorable results. The tunnel when completed will be 3,000 feet in length and 8 feet by 8 in size. It is now in 660, and has reached the first shaft, from which washing will begin about the first of this month. In prosecuting this important work 18 men are employed. Three Burleigh drills are used, the air being compressed by water-power. The importance of the Burleigh drilling machines to the mining interests of the State have been pretty thoroughly tested here and at Gold Run. Notwithstanding their great cost they are indispensable to the successful prosecution of such heavy work. The drill and machinery in use by the Cedar Creek Company cost $12,000, and while the work of driving a tunnel is not materially cheapened by their use, the great saving of time outweighs every other consideration and renders their general use inevitable.

The beginning of the work in the blue gravel will be watched with interest by all parties, as on its success the future prosperity of this district depends. The beds are known to contain coarser gold than the surface gravel, and are supposed to be richer, but they will be harder to work.

A blast of 300 kegs of powder is now about to be fired in the Yankee Jim claim, which is being prepared for working. It is expected to open up a large bed of gravel for working. Besides the Cedar Creek Co., the South Yuba Canal Co. is supplying water to the miners, its canal having a capacity of 3,000 inches. The water is taken from the South Yuba river, and is carried through about 25 miles of ditches.

The following claims are being worked: North Star No. 2, owned by Lakamp & Voight. They employ ten men and use 500 inches of water. Their claim is paying well. The Red Bank Co. have 60 acres of gravel left, on which it is working five men and using 450 inches of water. The Summit claim runs seven men and 500 inches of water. The Somerset claim, owned by Staples & Bro., works eight men and uses 450 inches of water. Kidder employs five men and uses 350 inches of water.

The general report is that more men are employed than ever before, that the mines are paying well, and that the prospects for the future are exceptionally brilliant.

Pacific Company.—The mines of this company are looking better at the present time than at any time for months past. The last ore worked—which came from strata in the north Star ledge below the 400-ft. level—worked $1,650 per ton at Manhattan mill. Work is being prosecuted in the cross-cut, below the break, into the north Star ledge. Small strata of high grade ore, are being encountered in the ledge, which widens as progress is being made, and the prospects are good for a large body of high grade ore ere long. We are pleased to note that the mines of Lander hill, almost without exception, are at this time looking better than at any period in their history. The Manhattan mill is pushed forward to its utmost capacity, and the extraction of ore is largely in excess of the reducing facilities of the district. One thing has been demonstrated by the system of mining pursued by the Manhattan company: That as depth is attained on our mines they increase in extent and richness. All that is required to make Reese river district one of the most prominent bullion producing sections of the State is energy and capital for the development of our mines. Mining in Lander hill is no longer an experiment; it is an established fact that our ledges are permanent and rich and improve with depth.—*Reese River Reveille.*

Eagle Mine.—Again it becomes our duty to chronicle another improvement in the Eagle mine. Now, at a depth of 60 feet, the ledge is ten feet eight inches wide, carrying a four-foot streak of ore which assays $428 in silver to the ton. Will the San Francisco expert who pronounced it worthless please take notice?—*Silver State.*

Useful Information.

An Architectural Infliction.

A few years ago the monotonous style of roof used in architectnre was agreeably varied by the introdnction of what is known as the Mansard roof, sometimes called the French attic. The splendid architectural piles in Paris received some of their best graces of expression from the handsome sky-lines the Mansard roof gave them, and almost every American traveling abroad wondered why so graceful a roof could not be adopted in our American cities, where the largo buildings usually terminated with an abrupt, sharp, and unpictnresque sky-line. The Mansard roof after a time was introduced, and its peculiar beauty soon made it very popnlsr. But, like all fashions which become the rage, and which are adopted by people imitatively, without perception of the principle that governs them, the French attic has become with na an architectnral infliction. The Mansard roof was designed for tall buildings. Its special purpose is to break the monotony of a massive pile, and to rednce in appearance its real hight. A structure that would seem awkwardly tall, with an nnvaried succession of stories, has not only, by means of the Mansard roof, a more graceful caption, bnt attains more agreeable proportions. The specific purpose of this roof being recognized, the absurdity of its use in small buildings becomes at once apparent. Onr builders, however, seem to lack all power of perception, and to have redneed the art of architectnre to indiscriminste imitations. Everywhere now the Mansard roof confronts us. Every new cottage on the roadside, new cheap villas in those extemporized villages that line our metropolitan railways, new public buildings of every sort and degree, railroad station-houses all over the country—everything of the kind now, no matter if only a story high, must have its Mansard roof, with entire disregard of fitness or propriety. It is exasperating to see a good idea thus dragged into absurd and ignoble nses. As we at first hailed with pleaanre the appearance of the Mansard roof, we shall now look with hope for the signs that will indicate the termination of its career. And yet whatever may follow will have to undergo the same experience. It is our natural way to try and appropriate every big thing for every little purpose.—*American Builder.*

Protecting Varnish.—A simple invention for the preservation of cards, photographs, and, in fact, of anything likely to be injnred by moisture or dirt, has just been announced. It consists of a preparation of gutta-percha in solntion. This liquid is thrown in a very fine spray over the article to be protected, by an atomizer. By this process a thin film is prodnced, and when the liquid part has evaporated, as is very speedily done, the object is coated with a transincent substance, impervious to water. Gutta-percha, in its pure state, is of a semi-transparent grayish color. But its transparency, as a covering for pictures, depends on the thinness of the film. The gum first needs to be purified, and then, if it has not been treated with alchohol, it is soluble in chloroform or ether. The process of dissolving it is in itself a purifying one. The ether, being highly volatile, very soon disappears when the spray is deposited on any object. A drawing or photograph thus protected can be washed, the gum not being permeable by water, and resisting any amonnt of heat so long as it is wet. It begins to soften, however, at a temperatnre of 150° Fahrenheit. But this is a temperature to which our climate naturally snbjects nothing. This simple invention might come into very practical and general use; and if it did no more than to give additional security to the work of the camera, it would be a highly valuable invention.

Nitro-glycerine.—Nitro-glycerine is an explosive oil, in many respects analogous to guncotton. It is produced by the action of nitric acid, mixed with oil of vitriol, npon glycerine, the sweet substance obtained when oils and fat are steamed. It is one of the most treacherona explosive substances known to chemists, and frightful accidents have been caused by inadvertently nsing it in its crnde state. In the course of many endeavors to counteract or redince the sources of danger attending the use of nitro-glycerine, M. Nobel made the important observation that its explosive properties were not reduced; but, on the contrary, somewhat favored, by mixing the liquid with solid substances, in themselves thoroughly inert. This led to the production of dynamite, which constitutes one of the safest, most powerful, and most convenient explosive agents applicable to industrial purposes, although it is not, in our opinion, equally applicable to military purposes. Dynamite is made by mixing nitro-glycerine with a porous, infusorial earth, known in German as "Kiesselgnhr." The earth absorbs the oil, and the result is a plastic, putty-like substance of a brick-dust color, containing about 75 per cent. of nitro-glycerine and 25 of absorbent earth.—*Jour. of Chemistry.*

Air.—In air containing not more than 0.0006 of its volume of carbonic acid, the odor from presence of organic matter is imperceptible. Pure air contains a proportion of about 0.0005 of carbonic acid.

Fruit contains germs of decay, which must first be destroyed, otherwise the formation of a vacuum about them will not snffice to preserve the fruit.

A Natural Hygrometer.—An instrument for measuring the humidity of the atmosphere, and one which, combined with the thermometer and barometer, might be of great nse to farmers, in prognosticating the weather, may be made, according to M. H. De La Blanchere, as follows: The grain of the common oat of agriculture, and also of the wild oat, is surmounted by a barb, which is terminated by a right-angled elbow. Let one of these grains at maturity be cut in half, and the upper half be attached by means of glue to the center of a circle marked upon the plane surface of a piece of wood or metal. To the extremity of the barb may be attached a fine piece of straw which will serve as a needle, and will amplify the indications. To graduate this simple little instrument, place it in very hot air, and mark 0 at the point indicated by the needle; then place it in an atmosphere saturated with humidity by means of wet cloths, and mark the point indicated by the needle 100, and divide the interval between 0 and 100 into one hundred equal parts. The straw needle may be made of considerable length, so as to give its indications clearly. Such a hygrometer costs bnt little, and is always comparable with itself.

Incombustible Wood.—Several attempts have been made at different times to render timber nnlnflammable. A new and apparently successful method has recently been tested, of which, perhaps, the most convincing of the first series of experiments was that in which a large heap of the prepared timber, about two feet high and seven or eight feet in circumference, placed on large iron sheets, was saturated with paraffin and set on fire. As soon as the paraffin was consumed the fire spontaneously went ont. The timber was then examined, and found to be scarcely injured. The pieces of wood were of various sizes, the majority being about eighteen inches long by two and three inches square. Not only does the process render timber uninflammable, but it has the not less important property of making the softer kinds of timber (such as white and yellow pine) throughout, both in appearance and hardness, like teak or oak. What adds immensely to the valne of the discovery is that the system can be applied by a simple method to ships already built, so as to render those containing incipient dry-rot almost as good as new, and absolntely arresting any further damage from these destructive fungi.

Blisters in Veneering.—Cut out the blistered part with a very sharp, thin-edged cutting instrument, and glue it on again, after soaking the piece thoroughly in hot water, and then flattening it ont between two flat hard-wood surfaces brought together firmly by heavy pressure. Before gluing, its under side should be again moistened with hot water, and, after wiping off the water which stands on the surface, the glue, which should be hot and not be too thick, should be applied; then replace the piece, and hold it down firmly to place in the usual way till it is dry. The spot where the piece is to be replaced ought also to be sponged with hot water before applying the patch. If this be done carefully, the defect will be remedied; and the joining will only be seen on the closest inspection.—*Artisan.*

Testing Belting Leather.—M. Eitner proposes the following simple method of determining the value of leather employed on belting. A cutting of the material about 0.03 of an inch in thickness is placed in strong vinegar. If the leather has been thoroughly acted upon by the tanning, and is hence of good quality, it will remain, for months even, immersed without alteration, simply becoming a little darker in color. But, on the contrary, if not well impregnated by the tannin, the fibers will quickly swell, and, after a short period, become transformed into a gelatinous mass.

Cement for Glass and Porcelain.—Two parts of isinglass are soaked in water until well swollen; the water is then poured off, and isinglass is dissolved in alcohol by the aid of heat. One part of mastic is then dissolved in three parts of alcohol and added to the above solntion; then one part of gum ammoniacum. The solution is well shaken, and evaporated to the consistency of strong glue, when it solidifies on cooling. For use, the cement and the articles themselves must be warmed.

The *American Chemist* states that a waterproof paper, transparent and impervious to grease, is obtained by soaking good paper in an aqueous solution of shellac and borax. It resembles parchment paper in some respects; if the aqueous solntion is colored with aniline colors, very handsome paper, of use for artificial flowers, is prepared.

To Soften Skins.—Soak the skins in a mixture of two quarts bran and one gallon of water, for three days; take them ont and rub them with a handful of salt (if they have hair or wool on, add powdered alum with the salt) and hang up to dry. When done in this manner they become as soft as kid.—*Jour. of Chem.*

One-half to one per cent. of fusel oil may be detected in ordinary alcohol by introducing into it, in a long test tube, a few fragments of potassic iodide, agitating gently. If fusel oil is present, a light yellow coloration makes its appearance in a few minutes. Heating develops this color more rapidly.

Gas from Clay.—Rev. Henry Moule, after a series of experiments extending over 20 years, has devised a process of manufacturing an illuminating gas from clay found at Kimmeridge, England.

Good Health.

The Human Frame.

No. 6—The Larnyx.

The larnyx is one of the most delicate and beautiful organs of the body. It is, in fact, an admirably constructed musical instrument so placed as to utilize the currents of air, passing in and out of the lungs, for the production of sound. It is a piano, flute and clarionet all in one; and all compressed within the space of a cubical inch. The lungs are the bellows which supply the air; the trachea is the tube which concentrates and conducts it to the mnsic box, while the "vocal chords" supply the place of the numerous wires which cause the different tones to be produced in the piano. But, while there are dozens and dozens of these wires required in the piano, this tiny, but unrivaled instrument has but two, and these, like the eyes and ears, are perfect duplicates. Yet, these two "chords" of yellow elastic tissue are capable of producing a far greater variety of sounds than the boasted Chickering with its seven or eight octaves. True, the human voice, except in rare cases, does not exceed two or two and a-half octaves, but the instrument of art only has a single half tone between each note, while the voice in this respect is almost unlimited—Jenny Lind, it is said, being capable of producing one hundred appreciable tones between any two major intervals in the scale. Besides this, when we consider the endless variety of expression the voice is capable of, compared with the puny "stops" of other instruments, it becomes useless to draw comparisons further.

But perhaps it may be desired to know something more of the mechanism by means of which those wonderful results are accomplished. Well, this box, placed just below the base of the tongue, and the forepart of which constitutes the well-known Adam's apple, is triangular in form, with the apex pointing outward, and is constructed ont of nine "boards," or pieces of cartilage; these being bound together by eight muscles and about a dozen ligaments. Two of these cartilages have little horn-like terminations which project upwards into the cavity of this box, and at the ends of these are attached one extremity of each vocal chord, the other being attached on the opposite side. These cartilages are movable by means of muscles which cause them to partially rotate; thus putting the chords on the stretch or otherwise. These muscles are under the control of the will; and, just as the violin string gives a shriller sound when drawn tighter, so the owner has only to telegraph down, and these cartilages are "yanked" around in a twinkling, the vocal chords put upon extreme tension, and "Come out of that, John Henry!" is uttered with a shrillness that makes the little culprit fairly jump ont of his boots.

These chords are, as we have said, composed of elastic, yellow fibrous tissue, and covered by an extremely delicate mucous membrane, the thickening of which, by colds or otherwise, causes that huskiness of voice so often observed.

Another curiosity connected with the voice, is a "sounding box," hollowed ont of the frontal bones, known as the "frontal sinus," and which communicates with the fossa of the nose by means of tiny apertures. These often become also closed through the thickening of the mucous membrane from colds, etc., and hence occasion that peculiar, flat tone of voice known as "talking through the nose." When the cold passes away the aqueducts are reopened, resonance restored, and the nasal tone ceases.

The "Open Treatment" of Wounds.—The principal maxims followed by Prof. Rose in the treatment of wounds are to secure absolute rest after arrest of bleeding, and to provide for perfect freedom of discharge and scrupulous cleanliness. Another principle is to interfere with the healing process of wounds only when special indications are afforded, and to consider stitches and bandages of all kinds as interferences to be so avoided. The air to which the wounds are freely exposed in the open treatment must, of course, be pure, and the system accordingly includes the use of energetic ventilation. In the hospital, ventilation is obtained only by constant opening of the doors and windows, a proceeding which, it is true, renders the heating arrangements often insufficient in winter. The advantages claimed for this method are: There is no pressure or constriction by dressings. An irritation of the wounds by changing the position and external applications is avoided. There is no danger of infecting the wounds by impure articles. The danger of retention of matter is small. The state of the wounds may be controlled at any time by simply lifting the coverlets. As healing by the first intention is given up, as many ligatures may be applied as are desirable, and thus secondary hemorrhage may be better avoided. The air of the wards is not infected by emanations from the dressings, as in the case of other methods, except Lister's. There is less need for materials for dressings, therefore less expense.

An infusion of flaxseed, with licorice-root and lemon juice added, is recommended as a common drink in catarrh.

Taking Cold.

The secret of avoiding the unpleasant consequences thought to spring wholly from the action of cold upon the body has very little dependence upon exposure, but a great deal upon an impure and weak condition of all the vital processes. In other words, with an average or superior constitution, and an intelligent observance of all the laws of health, men and women could not take cold if they wanted to; they might be exposed to the action of cold to a degree equal to the beast of the field, and with like impunity. But in the case of persons with feeble constitutions, and who disregard knowingly or otherwise—and most frequently otherwise—the conditions of healthy existence, no degree of care will prevent the taking of cold, as it is termed. They may live in houses regulated with all the precision of a hot-house—they may cover themselves with the most highly protective clothing the market provides, and yet they will take cold. The consumptive person does not live, nor ever will live, even if kept in a temperature absolutely uniform, and clothed in a wholly faultless manner, in whom the well known signs of one cold after another will not be apparent. But, on the other hand, there are those who, like the late Sir Henry Holland, of good constitutions and living in accordance with the laws of health, may travel as he did from the tropics to the arctics again and again, clad only in an ordinary dress coat, and yet scarcely know what it is to have a cold, or sickness of any kind. The truth is, that in order to avoid taking cold from ordinary, or even extraordinary exposure, the vital processes of the body must be made strong enough to rise above the untoward influence of external conditions. If the body is not thus superior, if it is so weak that it can only act harmoniously under the most favorable conditions, a continued state of health is not among the possibilities. No more will a weak body maintain itself without harm amid great external disturbance than will the weak machinery of a steam vessel maintain itself without injury amid a severe storm. The avoidance of elemental disturbances are not possible in the one case any more than in the other, yet it is precisely what persons by the ten thousand are to-day seeking to accomplish in the preservation of their health. The study is not how to make their blood purer, their bodies stronger, but how to dodge the ugly weather.

The conclusion from all this is, that neglecting the conditions upon which strength of constitution and purity of blood depend, and then striving to avoid in a sedulously careful manner the evil influences of colds upon the body, is like neglecting the substance for the shadow of health; or more properly, it is like one who starves his body, and then strives to keep quiet in order that his strength shall not be exhausted. Let food be taken, and the exhaustion from exercise will not ensue; let all the conditions of health be observed, and then the natural changes of the weather will fall harmlessly on the healthy functions of the body.—*Sanitarian.*

Transfusion of Blood.—In many cases, particularly those in which exhaustion had taken place from hemorrhage, transfusion has been attended with remarkable success. In cases where organic disease previously existed, failures have been frequent. Dr. Flint states that while normally a patient should have from fourteen to eighteen pounds of blood in the system to properly sustain the functions of the body, the injection of from four to seven ounces of blood into the circulation of a person apparently dying has been known to completely restore the patient to life. The introduction of portions of blood without the red blood-globules has been unattended with good results. These blood-corpuscles are the oxygen carriers. It is Dr. Flint's opinion that this operation is perfectly practicable, and that it should not only be employed in those desperate cases where favorable results are scarcely expected, but should be resorted to before patients have fallen into such a desperate condition.

Legislation and Hygiene.—The various lessons given us by Nature as to the possibility of checking or preventing disease have culminated in the fact that the State uses its moral power and material resources toward preserving the health of its citizens. As to how far the State may thus exercise authority, there is a difference of opinion; but the neglect of a city government to provide proper sewerage and the course of a common drunkard, both tending to disturb the public peace and the comfort of individuals, are alike crimes and should be considered as such in law. The existence of vile deposits which overwhelm the inhabitants with a tainted atmosphere, or the spread of the habit which strikes at the root of the physical, moral and intellectual health of the people, are both producers of disease to the community, which should be as sedulously guarded against as the visitation of a fever to the individual, and the means used to defend the people from their ravages are striking examples of pure preventative medicine.—*Sc. Am.*

Prevention in Place of Cure.—President Barnard says that the advance of modern sciences is such that the physician will eventually find his occupation gone. The people would, as they advance further in knowledge of natural laws, become more and more able to dispense with the doctor, and in brief would learn so to apply the "ounce of prevention" as to obviate the necessity of the "pound cure."

MINING AND SCIENTIFIC PRESS

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San Francisco:

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Removal.

July 13th, 1874, the business office of this Journal was removed just one block east of our former location, to No. 224 Sansome Street, southeast corner of California, over the Bank of British Columbia, where we have secured large and elegant quarters. This removal is made in consequence of the sale of the building which we formerly occupied, to parties who will proceed immediately to demolish the present structure and erect a new and magnificent block in its place.

THE Seattle Coal and Transportation company, through their agent, Mr. Hewes, are rapidly getting things in shape for the resumption of coal mining and shipping. Last week Mr. Alexander went from Tacoma with 40 Chinamen, to build the new road, and a contract was given the Freeport company to furnish nearly 200,000 feet of lumber required in the work. Next month they will be selling in the San Francisco market.

MESSRS. SIMPSON BROS., of Coos Bay, have now on the stocks, and nearly ready for launching, a 2,000-ton ship, which they expect to complete by October next, when they will send her round to Portland to load with grain for Liverpool. She is said to be of handsome model, and in all respects a first-class vessel.

THE snow is rapidly disappearing from the more prominent peaks of the Sierras visible from the Comstock range, and but little is now to be seen on any of the peaks to the eastward about the Humboldt range.

THE ice at the Stockeen mines has all disappeared, but the miners have still to thaw off the top dirt. The miners expect Dease creek to pan out big as soon as the water goes down.

THE Virginia and Truckee railroad shipped 23,780 tons of ore from the Comstock lode during June.

THE petroleum business is rapidly developing into one of the most important industries of Los Angeles county.

THE Emperor Alexander is reported ill at St. Petersburg.

THE American quicksilver mine will soon have the new reduction works completed.

A Prosperous Mine.

What the Crown Point has Done During the Past Year.

The Crown Point mine, on the Comstock lode, has, through its immense bullion production, attained a world-wide reputation. During the past year it has maintained this enviable position, and seems likely to do so for many years to come. The work of opening up the mine ahead has been prosecuted with great vigor, and attended with the gratifying results of adding reserves equal, if not more, than were developed at the time of the last annual meeting, thus insuring equally satisfactory disbursements to stockholders for the incoming year. Prospecting is still being pushed forward with every confidence of adding largely to present developments. The 1,400 and 1,500-foot levels are now open, with the stations and drifts necessary to extract the ore; and with the improved facilities for operating the mine, that they have with the new hoisting works, there is every reason to anticipate success.

Developments This Year.

The annual report of this company contains some interesting figures concerning the expenses and profits of working a large and paying mine. The figures are made up to the first of May, 1874. At the date of the last general report of the Superintendent, the 1,300-foot level was the deepest ore-producing level in the mine, although the main incline was down to the 1,500-foot level, and the necessary preparations to cut out a station there were made. Since that time, the drift in the 1,400-foot level, south, along the foot wall, has been continued south to the Belcher line, and has been connected with the 1,300-foot level by three winzes, thus securing good ventilation, etc. The north winze, which is 252 feet due north of the Belcher line, shows a continuous ore body from the 1,300 to the 1,400-foot levels, with many rich spots and streaks; and, in some places, the ore is mixed with porphyry and barren quartz. Both the middle and south winzes showed ore of a superior character and quality for about 75 feet down, when they passed into the nearly barren material lying next to the east wall. No cross-cuts have been run on the 1,400-foot level. The north cross-cut developed two bodies of ore aggregating 42 feet in width, separated by a belt of porphyry, eight feet wide. The middle cross-cut also exposed two ore bodies; they show an aggregate width of 80 feet, and the intervening belt of porphyry is 85 feet wide. These cross-cuts are 158 feet apart, but the various vein peculiarities exposed in both present convincing evidence that the ore bodies are continuous, and that the last development in the middle cross-cut is identical with that in the north cross-cut. The fact that the porphyry which separates the two bodies has contracted in the north cross-cut to a belt only eight feet wide, would seem to strengthen the story of the Superintendent, in his last annual report, that the east and west chimneys would eventually unite and form one large and compact ore body.

On the 1,500 foot-level a commodious station has been cut out, 45 feet long, 14 feet wide and 9 feet high. A double drift 10x6 was started from this station, running south 73½ E. When 250 feet long and 345 feet due north of the Belcher line the west wall was struck, in passing through which exceedingly rich ore four feet in width was struck. The drift was further continued 38 feet in low grade quartz when rich ore was again struck and continued for 10 feet, when the wall was found and the drift discontinued. The last ore struck was worth from $100 to $250 per ton. This drift will soon be pushed ahead again to find the east ore body. The developments on the 1,500-foot level are very encouraging; and it is expected that in point of richness and extent it will be equal to any yet opened.

The East Ore Body.

The first discovery of the east ore body was made on the sill floor of the 1,200-foot level, at which point it was two hundred feet long. On the sill floor it was 25 feet long. On the sill floor of the 1,400-foot level it has not been traced to its northern extremity, but it has been shown to be more than 320 feet in length. When discovered it was supposed that it extended but a short distance above the sill floor of the 1,200-foot level, but since that time drifts on the 2d, 3d, 5th and 9th floors of that level have been run, and in each drift ore has been found worth from $50 to $80 per ton and averaging ten feet in width. The Superintendent thinks this ore body will extend up to the 1,100-foot level and perhaps higher. They have already found ore enough to enable the 1,200-foot level to hold out, at present rate of extraction, a year longer than it otherwise would.

During the last fiscal year a large amount of

Dead Work

Has been necessarily done. The stations on the 600, 700, 800 and 900-ft. levels have been retimbered, etc.; 300 feet of the main south drift of the 900-ft level have also been retimbered. On the 1,000, 1,100 and 1,200-ft levels they have in the aggregate retimbered 2,200 feet of drifts, and 400 feet of winzes and timber chutes. The timber chute from the 1,100 to the 1,200-ft level, 184 ft. long and 3½x5 ft., has been retimbered four times during the year. Extensive repairs have been made in the main shaft and incline, and a new compartment has been raised from the 1,000-ft level to the surface. This compartment adjoins the north hoisting compartment on the east, and is intended as a rope shaft for the new incline hoisting machinery.

Improvements at the Mine.

The following work has been done in prospecting, working and ventilating the mine: drifts run, 1,200 ft.; cross-cuts run, 500 ft.; raises made, 200 ft.; winzes sunk, 1,250 ft.; drifts retimbered, 2,500 ft. The following outside improvements were also made: two substantial wood elevators have been erected, by which one man can deliver all the wood required in running the entire machinery of the mine. A carpenter and machine shop, 36x100 ft. and two stories high, and a building 36x100 ft. with 19 ft. posts, for the incline machinery, have been erected. A 12x24 engine in the carpenter shop drives two circular saws.

Facilities for contending with fires have been increased. The main large reservoir of the mine has been connected with the mine by new and stronger pipe. The water company supplies plenty of water, and they have no longer to pump from the mine to keep this reservoir full. The works have been surrounded by hydrants, enabling them to attack a fire at any point.

The New Hoisting Machinery.

The building for the new machinery is very substantial. The foundation consists of brick and stone masonry 17 feet in depth, and contains sixteen 2¼ inch anchor bolts for the pillow blocks and 30 two-inch anchor bolts for the engines. The hoisting reel for this machinery is the largest on the coast, being 21 ft. 6 inches in diameter, with a face of 6 ft. 6 inches. The face has a spiral groove of sufficient capacity to wind a two-inch steel rope to work the mine to a depth of 3,000 feet. The reel is heavy and strong, and will hoist 12 tons of ore at a load. It is driven by a pair of 20x42 link-motion engines, so arranged as to run singly or together. The two engines are equal to 250 horse-power. The gear and pinion wheels are all duplicated, so that in case of accident there will be little delay in hoisting.

The following statement will show the economy and advantages of the new machinery over the old used on the same incline:

The old works hoisted two tons of ore at a load; the car and rope used to hoist the same (figuring from the 1,500-foot level), weigh 11,000 pounds. The car and rope of the new machinery will hoist 12 tons at the load, and weigh 18,100 pounds. Now, taking the hoisting of 500 tons of ore per day as a basis for calculation, the following result will be shown:

To hoist 500 tons of ore by the old works requires 250 trips of the car, which, at 11,000 pounds per trip, aggregate in dead weight	2,760,000 lbs.
To hoist 500 tons of ore the new works would have to make 41⅔ trips, which at 18,100 pounds per trip, aggregate in dead weight	764,166 lbs.
	1,995,844 lbs.

Showing that in hoisting 500 tons of ore the new machinery saves over the old the expense of hoisting 1,195,844 pounds.

To hoist 1,995,844 pounds from the 1,500-foot level requires 2¼ cords of wood at $12 per cord, amounting to $30 per day, and for the year to $10,950. The old works wear out six ropes per year, at $3,000 each, aggregating $18,000; one rope, costing $6,000, will last the new works two years. Here is a clear saving in ropes per year of $15,000, and in wood of $10,950.

In addition to the above, a great saving will be made in the more speedy transportation of men and materials to the various levels, and, what is of more importance, it will be attended with much less peril to human life. The cost of this machinery, including the freight and the expenses of setting it up, will be about $50,000.

Ore Extracted.

The amount of ore extracted during the fiscal year was as follows: from the 1,000-ft. level, 16,576 tons; from the 1,100-ft. level, 388 tons; from the 1,200-ft. level, 23,636 tons; from the 1,300-ft. level, 84,000 tons; from the 1,400-ft. level, 15,000 tons; total 139,600 tons. The actual amount of the ore reduced at the mills was 140,132 tons, yielding on the average $50.96 per ton. A large amount of ore remains in each of the above named levels, and as the above figures show, the 1,400-ft. level is almost intact, while from the 900 and 1,500-ft. levels no ore was extracted.

The company's mill has been kept constantly running since the last annual report. It has been supplied with an entirely new battery. A tank 110x36 for catching slimes has been placed within 50 feet of the mill. This tank is divided into 30 compartments. In concluding his report the Superintendent, S. L. Jones, says: "I desire to say the future of the mine never looked brighter than it does at present. It is true that a very large amount of ore has been extracted during the year, but at the same time the developments in the mine have been equally great, and in my judgment there is more ore in sight in the mine to-day than there was at the time of the last annual report."

The report of the Secretary, Charles E. Elliott, shows the financial affairs of the mine in detail from May 1st, 1873, to May 1st, 1874:

RECEIPTS.

Bullion	$7,417,115 30
Mine Expense	10,487 95
Rhode Island Mill	2,575 14
Interest	2,750 00
S. F. A. and R. Works	288 54
Cash	1,873,891 41
Total	$9,306,106 26

DISBURSEMENTS.

Mine Expense (Engineer, etc.)	$1,449,301 86
Mine Improvement	31,200 00
Rhode Island Mill	172,651 16
Rhode Island Mill Improvement	1,204 00
Crushing	1,488,019 34
Legal Expense	41,604 72
General Expense	26,940 88
San Francisco Expense	11,331 14
Taxes	86,097 49
Discount	112,811 69
Treasure Freight	30,917 38
Assaying	63,410 98
Assay Office	48 16
Interest	914 63
Dividends (Nos. 31 to 42 inclusive)	5,300,000 00
Cash	490,651 90
Total	$9,307,106 25

In the disbursements for "mine expense," $912,689.75 was expended for labor; $261,312.64 for lumber; $53,978 for wood; $50,496.65 for castings, machinery, etc.; for freight and supplies, $14,532.39; candles, oils, hardware, rope, etc., $146,292.43.

On the Rhode Island mill they paid for labor $45,658.87; for wood, $28,987.25; for machinery and castings, $23,003.42; water, $8,400; quicksilver, chemicals, oils, etc, $66,601.60.

Under "legal expense" they paid out $36,147.72 for adverse claims and titles, and the balance, $5,457, for lawyers' fees.

It cost $75,498.54 for the quarterly tax on ores; $109,857.57 for discount on bullion; $30,917 for freight on bullion; $10,978 for ore assays; $14,035.23 for bullion assays; and $38,397.70 for coinage and parting bars. Following is the

Ore Statement.

Tons.	Lbs.		Yield.
16,044	820	At Rhode Island Mill (Average per ton $53.)	$ 860,360 61
37,619	1,300	At Brunswick Mill (Average per ton, $50 79.)	1,910,658 61
26,333	....	At Mexican Mill (Average per ton, $51 89.)	1,366,587 69
26,479	1,740	At Morgan Mill (Average per ton, $60 23.)	1,280,062 08
12,333	300	At Petaluma Mill (Average per ton, $60 64.)	824,644 12
10,488	650	At Pioneer Mill (Average per ton, $49 78.)	622,079 50
7,490	050	At Atlas Mill (Average per ton, $51 54.)	386,122 08
375	1,100	At Hoosier State Mill (Average per ton, $66 70.)	26,048 09
1,713	900	At Devil's Gate Mill (Average per ton, $44 25.)	75,828 87
1,804	100	At Sapphire Mill (Average per ton, $46 90.)	84,636 60
449	350	At Sherman Mill (Average per ton, $36 22.)	15,853 21
140,129	110	Total	$7,141,736 46

There were 140,129 110-2000 tons of ore worked, yielding $7,151,736.46, making average yield per ton $50.96¼.

The Bullion Statement,

As per assay certificate, was as follows:

Value of Gold	$3,107,326 74
Value of Silver	4,018,336 32
Assay, Grains and Chips	17,634 97
Reclamation, Belcher S. M. Co.	275,000 00
Wrecked ores, ores lost, V. & T. R. R. Co.	378 84
	$7,419,274 87
Reclamation on Bars Computed at Standard Value	2,169 57
	$8,417,116 30

The weight of amalgam before melting was $3,363,375.30 ozs.; weight after melting, $3,393,894.41; this equals 69,478.89 ounces, or a loss, say, of 2 1-20 per cent. The weight of bullion after melting was 329,389,641 ozs. Troy, or equal to 112 80-2000 tons; average value per oz., $2.16.

The average cost of working 140,129 tons of ore was $11.85 per ton.

Total cost of mining 140,937 110-2000 tons of ore, including all cost of running drifts, repairs to shaft and machinery, pumping, etc., was $9.24 per ton.

The assets and liabilities of the mine are as follows:

ASSETS.

Cash on hand May 1, 1874	$430,661 90
Mine Improvements, Buildings, etc	130,000 00
Rhode Island Mill	80,000 00
Real Estate	15,000 00
Supplies at Mine	28,023 91
Supplies at Mill	14,318 36
Lumber at Clear Creek Flume, 2,600,540 ft.	62,010 80
Lumber at Carson Yard, 1,720,743 feet	35,685 60
Wood at Empire, 2,604 cords	16,926 00
Ore on Hand at Mills, 615 410-2000 tons	22,730 91
Ore on Hand at Mine, 580 tons	20,578 40
Sundry Book Accounts	3,374 44
	$909,750 32

LIABILITIES.

Balance due on Lumber	$1,542 66
S. F. A. and R. Works	286 45
	$1,829 11

HEAVY BOOM CUT.—One night last week the boom at the mouth of Markleville creek broke loose, or was maliciously cut, and stampeded about 80,000 cords of wood. The *Alpine Chronicle* says that the sudden release of this immense body of wood, extending miles up the East Carson river, brought the several jams together with irresistible force, and a tidal wave of wood swept down into the main Carson river, and passed on through Carson valley, in its course strewing either bank with thousands of cords, piled up from ten to fifty feet high. On the East Carson the wood was forced upon the banks, piling it upon the toll road a depth of from twelve to twenty-five feet, large quantities lodging on bluffs forty feet high.

A DITCH, 16½ miles long, is being constructed by the Milton company, to convey water to Moore's Flat, Nevada county. It is to be seven feet wide on top, four at bottom and three and a half feet deep, and is intended to carry 2,500 inches of water.

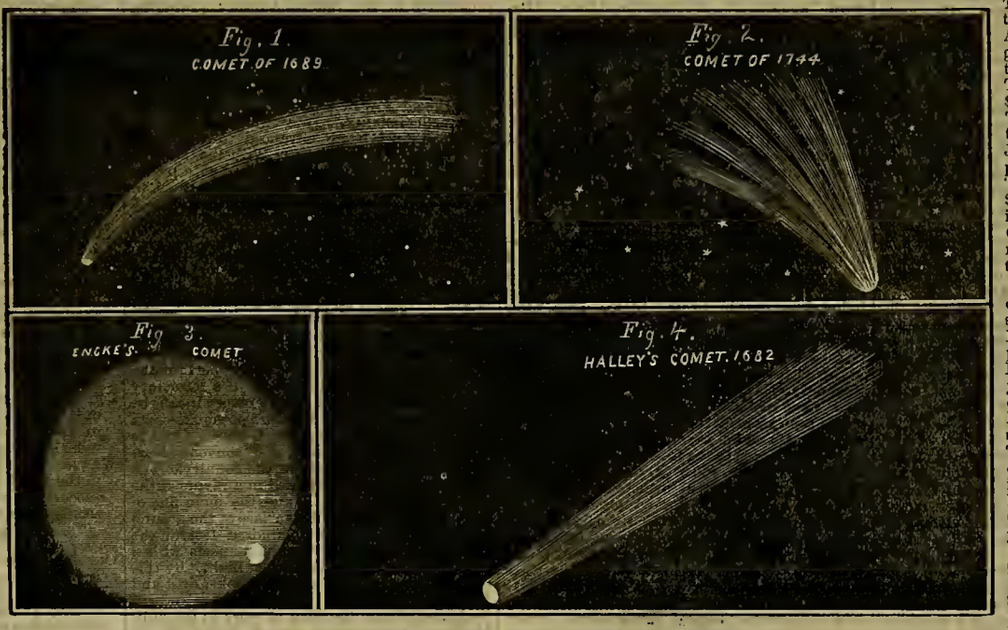
THE Phœnix mine, Calistoga, shipped 21 flasks of quicksilver last week.

More About Comets.

We gave a short chapter on comets last week, and so much interest appears to be taken in this class of heaveoly bodies just at this time, that we have been persuaded to add another chapter to-day, which we premise by calling attention to the accompanying engraving, that presents a vivid illustration of the four chief characteristic appearances which heavenly bodies of this class present to the vision. Fig. 1 represents the comet of 1689, which presented a curvilinear-shaped tail like that which accompanied the famous comet of 1858. Fig. 2 represents the somewhat unusual appearance of a double or many tails. Fig. 4 represents one, whose tail, either from its particular position with reference to the observer appears straight like a shadow, or which really is so. Fig. 3 represents the only instance we have had of a comet without any appearance of a caudal appendage, even at its nearest approach to the sun. Fig. 5 represents a portion of the ordinary orbit of a comet which it will be seen is extremely elliptical.

Notwithstanding all that has been written and said about comets, we really know but very little about them; but nearly all people, scientific men especially, are very anxious to know more. Philosophers have talked wisely, but generally very vaguely about them, and have expressed opinions in some respects quite at variance. Sometimes we are told that they are composed of such flimsy stuff, that were one condensed into a solid body, it might be readily carried in an ordinary pocket—that they are simply visible nothings! Of course such talk is arrant nonsense; because the value or weight of the mass of many comets has been approximately calculated, which have been ascertained to be bodies of large gravitating power, and in some cases the nucleus is known to consist of a dense opaque mass.

The nucleus of the comet now in the heavens is evidently a comparatively solid mass. This is known by the intense brilliancy which it presents when examined through a telescope. We have repeatedly made such examination since its appearance, with a small, but very superior instrument, having a 3-inch object glass, and find that the brightness of the nucleus is rapidly increasing as the comet approaches the sun. At this time its brilliancy is far superior to any star, and can be compared to nothing but the sun itself. But whether viewed as ephemeral or substantial bodies, comets present a most interesting subject of study and speculation.



What We Know About Comets.

We know positively that they differ widely from planets in their lesser density and very eccentric orbits. Planets all revolve around the sun in one direction, and in very nearly the same plane; while comets move in every possible direction and at every possible inclination from any given plane. The paths of comets are either an ellipse, a parabola, or a hyperbola; in the latter case they come into the solar system from one direction and go off in another, and in such tracks that it is impossible that they can ever come back to us when they have once left. They are simply wanderers in space, without any fixed track. Some comets have revolutions as short as three years; one, that of 1811, is estimated to have a revolution stretching through a period of not less than 3,000 years! Planets have a uniform speed, while the speed of comets varies according as they recede from or approach the sun. When near their aphelion or greatest distance from the sun their movements is exceedingly slow; when at their perihelion or nearest the sun they move with almost incredible velocity, even for heavenly bodies. It was calculated that the comet of 1843, when nearest the sun, moved at the velocity of 22,000 miles a minute, while the earth moves only about 1,100 miles a minute.

What We Don't Know about Them—Chances of Collision with the Earth.

It is estimated that there must be at least a million of comets, and probably several millions, which revolve our solar system; but of all this vast number not over 1,500 ever come within the earth's orbit, and of course the chances of collision are restricted to this small number only. And when we reflect that only 150 visit us in a century, and that they come in upon us from each an infinite diversity of directions, we must become aware that the chance of collision are so infinitely small that the mind can scarcely comprehend the fraction of danger. It is safe to say that the chances of any given individual being killed by lightning, even here in California, are as many hundreds of millions to one of the probability of danger of injury from any collision of the earth with a comet. Moreover, it is very definitely known that much of the largest portion of those which do reach the earth's orbit are of such extremely gaseous consistency, that even were they to come in contact with the earth they could no more penetrate the atmosphere, so as to reach anything upon the earth's surface, than could a dry sponge, if thrown upon the surface of the water, reach and crash a lobster or other slow crawling object which might at the moment be upon the earth at the bottom of that water.

Again, there is only one comet known whose orbit crosses the earth's plane at any point in the earth's orbit; and the only chance of collision is that both should reach the same point at the same time. The chances of a collision even with *that* body are enormously large against such an occurrence. The chances of collision with any other known comet are about as great as would be the chances of a street car on Montgomery street, in this city, colliding with another on Broadway, New York. The idea that comets are dangerous visitors to our system has its only support from superstition and nervousness, and not from reason or science.

The lack of danger from the approach of a comet near a planet was remarkably illustrated by the approach of Lexell's comet to the planet Jupiter in 1779. That comet evidently became entangled with Jupiter's moons, or came so completely within the influence of the attraction of that planet, as to be entirely held from its course for several months, and yet not the slightest disturbance could be observed in the equanimity of even the smallest of those satellites.

Comets' Tails.

We endeavored last week to illustrate the philosophy of the tails or trains of comets, showing that they, in all probability, consisted simply of reflected light, nothing more. There are various and diverse phenomena accompanying these appendages, for which it is difficult to account upon this or any other theory. This is especially the case with regard to the comet of 1744, shown in our illustration with six different tails. Why they are thus divided up or spread out into such a fan-shape is a puzzle for scientists. We are told that our present visitor is giving symptoms of a development of two tails.

The gradual development and disappearance of the tail of a comet is shown in the illustration of the orbit of a comet, fig. 5. When first seen by a powerful telescope a comet presents a round, nebulous mass like that shown in fig. 3. As they approach the sun the tail is gradually developed, as shown by the approaching comet, in fig. 5, and disappears in the same way as is seen by the same body on its retrocession, as indicated by the arrow in same figure.

Another peculiarity is the remarkable deflection or curvature of the tail, which is often presented, and which deflection, when seen, is greater when the comet is near the sun. The tail when near the sun is sometimes seen much more deflected than herewith shown. Cases have occurred where the tail was almost at right angles with a line passing from the center of the sun through the center of the comet. This incline is greatest when the comet is approaching the sun, as shown in fig. 5, and is always toward that region of space from which the comet is moving. In some comets either this deflection does not exist, or the tail is so presented to our vision that it is not perceptible. That such may be the case can be illustrated by holding up to the vision, some considerable distance from the eye, a curved stick. When held in the proper position the curve is distinctly seen; but when turned one-quarter round, the stick appears perfectly straight.

The tails of comets vary immensely in length—that of 1680 was not less than ninety-six millions of miles in length—a length representing the entire distance of the earth from the sun. The free movements of these immense streamers through space, and the fact that though many millions of miles in thickness, the faintest stars may be seen through them, afford abundant evidence that whatever may be their nature, they do not consist of matter of any kind. Hence, no sensible effect can be produced by their contact with the earth, or from the earth being actually immersed in them, unless it be an excess of light for the time. From the enormous expanse in space which they occupy or sweep through, it is by no means an improbability that these appendages may often come in contact with our orb. Indeed there are at least one or two instances in which there is but little doubt that the earth actually passed through a comet's tail, and without any perceptible effect whatever. Among the most singular phenomena connected with comets' tails is the remarkable trembling or pulsating motion often observable in them—something like the wave motions sometimes observed in the aurora. These pulsations seem to start from the nucleus, and run slowly along the whole length of the tail.

Distance of the Present Comet from the Sun and Earth.

According to the observations of Prof. Parkhurst, who is making the present comet a special study, that body reached its nearest point to the sun—its perihelion—on Wednesday of last week, and will make its nearest approach to the earth on Monday next, July 20th, when it will be 25,000,000 of miles distant. This distance is about 3,000,000 of miles less than that of Venus when that planet is at its nearest approach to us. Twenty-five millions of miles is quite a respectable distance, and little danger need be apprehended as our celestial visitor thus flits past us on flight to the regions of space beyond our solar system.

Timorous and superstitious people are an unhappy race of mortals under any circumstances, and the appearance of comets and all other unusual natural phenomena, are well calculated to sorely plague them; but it is to be hoped that such important discoveries may be made during the continuance of the present comet within our vision, that the old superstitions notions which still linger in the minds of many, may be entirely done away with.

Reported Attempt at Compromise in Cuba.

It is stated that two gentlemen from Venezuela arrived in New York, who have a commission from the President *pro tem.* of Cuba, to treat with Captain-General Concha about a compromise between the Cubans and Spaniards. They have already had several interviews with Concha, and have seen General Alent, of Cuba, in New York.

Mining Dividends.

The dividends from mining companies on the Stock Board for the half year ending June 30th, foot up in the aggregate the sum of $86,049,600. The following table shows the dividends paid by mining companies during the first six months of this and last year.

	1873.	1874.
Belcher Mining Company	$3,432,000	$3,120,000
Black Bear Quartz	15,000	51,000
Cederberg Mining Company	24,000	.....
Consolidated Amador Mining Co.	120,000	30,000
Consolidated Virginia Mining Co.	.....	648,000
Crown Point Mining Company	3,100,000	2,000,000
Eureka Mining Company	180,000	.....
Eureka Consolidated Mining Co.	50,000	100,000
Keystone Quartz Mining Co.	.....	5,000
K. K. Consolidated Mining Co.	12,500	.....
Lyon Mill and Mining Company.	.....	20,000
La Grange Ditch Mining Co.	12,500	.....
Meadow Valley Mining Company.	120,000	.....
Monitor Belmont Mining Co.	50,000	.....
Raymond & Ely Mining Company.	300,000	.....
Redington Quicksilver M. Co.	.....	75,600
Total	$7,416,000	$6,049,600

The sum total does not amount to so much as that disbursed in the first half of 1873, but it is nevertheless, very respectable. For the first half of 1872, the amount was $4,026,300. The Belcher has paid $5 per share each month this year. The Black Bear has paid two of 25c each and four of 30c each. The Consolidated Amador paid two of 50c each in March and April. The Consolidated Virginia paid $3 in May and June the first paid by that claim. The Crown Point paid four of $3 each and two of $4 each. The Eureka Consolidated paid two of $1 each in May and June. The Keystone Quartz paid one of 50c in February. The first quarterly dividend of $1 was paid by the Lyon mill in April. The Redington Quicksilver has paid $10 per month since the beginning of the year.

Last year the Black Diamond coal company paid in the first six months, $25,000, and the Eastport Coos Bay coal company paid $10,000. The Black Diamond company paid this year, dividends of one-half of one per cent. in February, March, May and June, but none in January or April. The Eastport Coos Bay coal company paid one per cent. in January and February, but has paid nothing since. The Cederberg paid $24,000 last year; the Raymond & Ely, $300,000; the Eureka, $180,000; the K K Consolidated, $12,500; the La Grange Ditch, $12,500; the Meadow Valley, $120,000 and the Monitor-Belmont, $50,000, yet none of these have paid anything this year. The large dividends of Belcher, Crown Point and Consolidated Virginia have brought the aggregate up pretty high.

It must be recollected when summing up these dividends that they are only from mines which are listed on our Stock Board. There are thousands of other mines paying dividends of which little or nothing finds its way into the newspapers. When mines are either worked by a small company or a few men jointly, and the profits divided among them, they are never called on the Stock Board, and are consequently seldom heard of. The owners of such mines are reticent in giving any information on the subject of dividends, so the figures do not go to swell the amount disbursed by dividend paying mines.

Virginia City and Gold Hill are fast becoming one town, so rapidly are buildings being erected. The gap on the divide, separating the two places, is fast closing. Heretofore, for some years, there has been a sort of straggling row of houses between the suburbs of Virginia and Gold Hill. Now, not only are the spaces along this straggling street filling up, but the suburbs themselves of the two towns are beginning to meet.

The Weber River Coal Beds.—We give in another column an interesting article from our Salt Lake correspondent on the coal beds of Weber river. It treats upon a section of country which has not been written up before, though it possesses merits that should have long before this been brought to the public notice, especially as it is the section from which Salt Lake city and Ogden derive their main supplies of coal for domestic use.

A rich strike has been made in the Seven-Thirty mine, at Deadman's Flat, below Grass Valley, owned by E. P. Sanford & Co. A candle box filled with rock was taken out the other day, and it is estimated the specimens are worth over a thousand dollars.

Some parties who were taking out ore from the Pioche mine on shares had 23 tons crushed at the Floral mill, which yielded the handsome sum of $5,300, being 81 per cent. of the assay value. Some of the bars range up to 920 fine.

Dr. Mucer, of La Porte, last week picked up a hundred dollars' worth of nuggets in his diggings at Gibsonville, Sierra county.

Typographical Errors.

[From the Pacific Rural Press.]

The proof-reader has the floor. It is so seldom that this much abused individual has an opportunity to speak for himself, that he may perhaps be forgiven if for once he becomes garrulous, and even a little spiteful. Any one who is acquainted with newspaper work understands the peculiar and not over comfortable position occupied by the proof-reader, but for the benefit of the uninitiated the situation is briefly reviewed. To describe it geometrically, a square may be imagined, in the center of which stands the proof-reader; at each corner are his natural enemies, the writers, the printers, the great reading public, and last and worst of all—himself. A crossfire is usually considered a very bad thing to get into; but when the cross is doubled, so to speak, it becomes more than human nature can well bear. The writers agonize if a word or a comma of their precious manuscript be altered; the compositors also row if "copy" is changed; the great public wonder how that stupid wretch of a proof-reader got things so mixed; and his own conscience troubles him because he has not been more relentless, even at the risk of offending the first two classes of critics. He stands alone, in that center of never ceasing fire. Truly it needs a martyr's courage, or a stoic's indifference, to maintain a calm front. But then, if he is thus assailed, he also has just grounds of complaint against at least two orders of foes. The writers perversely say what they evidently don't mean, or say what they do mean in a language that might as well be Syriac, or do their worst in covering errors of sense and of grammar under illegible chirography. And the printers are not much better. Time is money to them, if to any; and the first interpretation to the ofttimes cabalistic hieroglyphics they are called upon to "set" is accepted and acted on, regardless of the frenzy of the horror-stricken author, or the bewilderment of the long-suffering reader.

But as the contributors are generally the least merciful, our proof-reader proceeds to accuse them first. The most direct mode of conviction is to give a few instances of the manner in which they perplex and overwhelm both printer and proof-reader by carelessness in construction of sentences, etc., which have required only a moment's time, perhaps, to put upon paper; but which call for careful study or lucky guess-work, occupying much time, before they become intelligible to the reader. Such slips are most frequently owing merely to a want of care, but sometimes, and not seldom, are due to a perverse contempt for the simplest rules of speech. To begin at home:

An attaché of this office, whose manuscript unfortunately came to our proof-reader's notice, in a single article was guilty of the following: "Hats are manufactured in a dozen establishments, not more than three, however, being of any size. . . . . Two powder factories, or rather, we should say, explosive factories." Pretty rough on the hats and the powder factories, that. It is hardly necessary to specify which particular section of the ould country this editor hails from.

In the PRESS office all of the editors would not be absolutely certain of carrying off prizes for penmanship; but so long as there is English at the bottom of the obscure pothooks and hangers, there is always a fair chance of getting at it, and nobody complains.

Occasionally, however, there is a muss; as when, for instance, a correspondent, in writing of the wonderful restoration of Chicago since the fire, grows classical and speaks of "*Neptune* rising from the ashes;" or when a reporting committee-man deliberately says: "Visiting members were invited to take seats on *the floor!*"

On the whole, it isn't a bad idea, after all, to write moderately plainly. This conclusion is reached on recalling a sentence of one of our Grange friends, which should have read: "We are not taking the rag-tag and bob-tails of creation into our Order," and which was so penned that the compositor was really justified in calling a *t* a *w*, and sending in a proof-sheet with: "We are *now* taking the rag-tag and bob-tails of creation into our Order!" a piece of news which would certainly have astonished the Grangers at large, as well as the particular correspondent.

We noticed in *Moore's Rural New-Yorker* an account of the noble conduct of a Newfoundland dog, which bravely plunged, to rescue a drowning person, "from a bluff fully *fifteen* feet out of the water." It would be hard to say whether the compositor was to blame for his evident conservatism in the matter of figures, for probably the "copy" was here only a conundrum.

Punctuation is a matter for which the compositor and proof-reader are responsible; yet, in some cases, the fault, if there be one, should be attributed to the writer. The importance of correct punctuation was strongly illustrated, recently, at a meeting of the Ways and Means Committee, when it was shown that a comma in one place was worth $2,000,000. In the tariff bill which went into effect Aug. 1, 1872, the free list was extended by the addition of several hundred articles. Among the number added were "fruit plants, tropical and semi-tropical," for the purpose of propagation and cultivation. In engrossing the bill, or in the process of copying it for official printing, a comma was inserted after "fruit," and all fruit was thereby placed upon the free list. The custom officers, however, not noticing the change, continued to collect duties on fruit until the error was discovered. The Ways and Means Committee reported a bill to remove the comma, in accordance with the intent of the law of 1872. The amount of tax illegally collected is not far from $2,000,000.

The comma, like the tongue, is a little thing, and like it will make good sense or nonsense, just according as it is used. Take, for instance, the old nursery rhyme. With the commas misplaced, it is so nonsensical that it needs a commentary to explain it:

> Every lady in the land
> Has twenty nails on each hand,
> Five and twenty on hands and feet;
> This is true without deceit.

Alter the position of the commas and the meaning is clear:

> Every lady in the land
> Has twenty nails, on each hand
> Five, and twenty on hands and feet;
> This is true without deceit.

The omission of a comma has frequently given a very awkward turn to a sentence. We remember an epitaph which suffered severely from such an oversight. It ran pretty much as follows: "Erected to the memory of John Phillips, accidentally shot as a mark of affection by his brother."

A printer meddling with the verdict of a Coroner's jury, struck out a comma after the word "apoplexy," making it read thus: "Deceased came to his death by excessive drinking, producing apoplexy in the minds of the jury."

A correspondent introduces a piece of poetry to the editor of an American newspaper in these words: "The following lines were written fifty years ago by one who has for many years slept in his grave merely for his amusement. A comma at "grave" would have rendered the sentence, at all events, comprehensible, though nothing would efface its absurd diction.

Mineral Wealth.

Little, practically, is yet known of the inexhaustible mineral wealth that lies undisturbed along the entire belt of the foot-hills, which will yet be developed whenever capital can be induced to remain in the State. Iron, coal, copper and gold in rock, in places, can be found in large quantities in most of the foot-hill counties. We have seen prospects in quartz found in this vicinity, from well-defined ledges, which if found in Nevada or Amador counties, would soon have mills erected, and large fortunes would soon be made. The same may be said of copper. One mine near Michigan bar, in this county, belonging to the Cosumnes Copper Mining Co., of which John M. Carroll, of Sacramento, is the principal owner, has paid well and been continuously worked for three years, and a new furnace has recently been erected whereby the copper will be run into bars. This will double the profit to the owners, and is believed to be the first time that copper has been made into bars in California. We only cite this mine to show what energy, combined with well directed capital, can achieve. There are numerous mines just as good as this one, in Amador, El Dorado and Placer counties. All that is required to develop them is money and energy. The same may be said of iron. Numerous mines exist that run as high as 50 per cent., but like the other mines, they are too near home for any display of home energy or capital. If such mines are found in Nevada or Utah, they are at once worked, taken up, their advantages made known, and are sold to Eastern or foreign companies. California needs an infusion of Eastern energy; but we suppose we will have to wait for both that energy and capital until a return to specie payments takes place. Very few can now be induced to invest, either to open a mine or erect a mill, under the present financial system of this State. All we can do is to patiently wait for the coming good time.—*Folsom Telegraph.*

PILGRIM BAR MINES.—For the past four or five years Pilgrim bar, eleven miles west of Deer Lodge, has been the most productive placer of its area in Montana. During '70-'71-'72 its product was probably not much less than $1,000,000, and it may have been more. But the old bar is pretty thoroughly worked out; even the town site of Pike's Peak, where its busy workers lived, is buried under 20 feet of tailings, and the rich places that knew the toilers for gold will know them no more forever. But although the old bar is exhausted, the gold-bearing channel is not, and the indications are that more gold will yet be taken out of it than has been heretofore. As the lower mines worked out, Rogers, Broaddus, Irvine, Batterton, and others opened ground further up the bar with equally good results, and this spring the principal work is being done three-fourths of a mile south of and several hundred feet higher than Pilgrim bar, and the product is exceeding the most sanguine expectations of the owners. The present location is known as Granite bar, the back-bone separating Pike's Peak and Squaw gulches. There are four companies now working with hydraulice and Little Giants on the two sides of this bar, using 1,200 inches of water, with from 150 to 315 feet pressure, and employing 34 men.—*New Northwest.*

ASPHALTE PAVING.—Among the many new pavements patented and proposed is one which is made by embedding strips or blocks of wood in the asphalte; the two substances wear away at different rates, and thus depressions or channels and corresponding ridges are left in the roadway, forming good foothold for horses, which is the object of the invention.

Smelting Outlook at White Pine.

Matters here at Hamilton seem to assume a cheerful aspect just now, and great confidence is being expressed in the ultimate future of our base metal mines. Operations looking toward the speedy and successful reduction of ores are being commenced, and anguries for success are significant of the future we have so often and so earnestly predicted. The plans contemplated, as nearly as we have been able thus far to learn, are being rapidly perfected, and we can shortly expect to see smoke issuing from the smoke-stacks of the old Mattison furnaces, so long a monument to the misdirected efforts of the well-meaning but ignorant ore smelters. Mr. Prescott proposes to reline and repair one of the furnaces now standing, and arrangements have been made for the necessary coal and other material to start at once. The present run is intended as an experimental trip to guide future operations, no reasonable doubt being entertained of ultimate success. We are more than pleased to notice the evident desire on the part of our people to aid and assist in every way the work now being inaugurated, and judge that the efforts of the projector will be richly recompensed by golden reward. It is only a question of time when our district will again rank, as she should, among the best and most productive in the State. Another gratifying circumstance presents itself to us, which is, that no failure need be feared from incapacity on the part of the gentleman having the actual work in charge, his reputation as a successful smelter having been established in Eureka beyond the shadow of a doubt, and, united with his practical ability, we are informed that sufficient capital is being advanced to carry the work through successfully. With the assured fact that our ores can be smelted at a profit, then demonstrate that sufficient quantities to run furnaces can be obtained, and no difficulty will be experienced in inducing capital to assist in developing our mining interests.

HOLT'S MILL, at Golconda, has been lying idle for the past ten days, undergoing repairs. It will be started up again in a few days. Mr. Holt has just completed a new roasting and chloridising furnace, to be used in connection with the mill. This will prove a very convenient arrangement, as the greater part of the ore obtained in that district is of a refractory nature and requires roasting before it can be worked successfully. The flue or smoke-stack of the new furnace is quite a novelty, and is the most ingenious, safe, and convenient arrangement of the kind in the country. The mill and furnace are situated in a ravine at the foot of a very steep hill, and the main flue of the furnace is built on the surface of the ground for a distance of several hundred feet up the side of the mountain, where it connects with a sheet-iron stack about 40 feet high. By this ingenious contrivance all the smoke, dust and poisonous fumes are carried far above and entirely away from the men at work in the mill. Holt is of the opinion that it would not be worth while to patent this invention, as it might not always be convenient to build furnaces at the foot of a steep mountain.—*Humboldt Register.*

BOTTLES.—An original genius thinks his fortune is made, now that he has patented the plan of having bottles made rough in the interior surface, to which all crust and sediment would adhere, to prevent the rise and fall of crust and sediment in the bottle, whilst it is being changed from its position, and also whilst the liquid is being poured out from the bottle.

FOR some time past, parties have been prospecting for gold and silver-bearing leads on the Chehalis river, Washington Territory, from near James Smith's up to Lincoln creek on the latter, and the other creeks further south. Rock from Lincoln creek has been brought in and tested, and found to contain more or less silver.

NEW SHAFT.—We understand that the Sheba mining company, in Star district, have commenced sinking a shaft for the purpose of working the mine to better advantage. It is the intention of the company to erect hoisting works over the new shaft. The mine is looking well, and is yielding large quantities of rich ore.

A LARGE FORCE.—The Belcher mining company employ in their mine and on the surface, including those engaged in sinking the new air shaft, 1,000 workmen. They also consume three and a half tons of ice in rendering water fit for drinking purposes in the lower levels of the mine.

THE Buckeye mine, at Sawpit flat, Plumne county, was last week sold to Mr. Breed, of New York, for $50,000.

MACHINERY for the first mill in the Panamint mining district, Inyo county, is now en route.

A COMPLIMENT.

PLAINSBURG, MERCED CO., CAL., June 22, 1874.

DEWEY & CO.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which you have displayed in procuring my patent.

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In addition to American Patents, we secures with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, British Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales, Queensland, Tasmania, Brazil, New Grenada, Chile, Argentine Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainable.

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Our long experience in obtaining patents for Inventors on this Coast has familiarized us with the character of most of the inventions already patented; hence we are frequently able to save our patrons the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applications which will interfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

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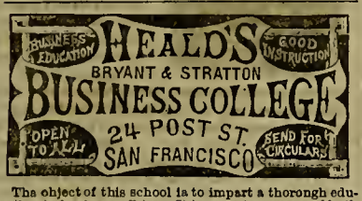

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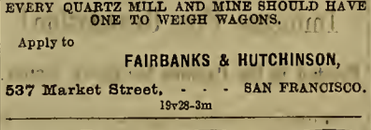

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The Steam Tug "Fearless."

The steam tug "Fearless," recently constructed for Capt. A. M. Simpson hy the Pacific Iron Works, of this city, has proved quite a success. Her hull is 100 feet long, 29 feet 6 inches beam, with 8 feet depth of hold. She is fitted with compound engines, substantially the same as those put into the new steamers of the Pacific Mail Co. The engines were designed hy Mr. Geo. W. Fogg, superintendent of the Pacific Iron Works. They consist of one 18-inch high pressure and one 29-inch low pressure cylinder, 18-inch stroke, with surface condenser, air pumps, circulating pumps, etc., and are so arranged that they can he run together as high and low pressure, or both high pressure. In case of accident they can be disconnected, and either cylinder run independently of the other.

The "Fearless" is designed for use in Coos bay, and it is said will tow the largest class of vessels at a speed of eight miles per hour. She was designed only for towing and has a tow instead of a speed wheel; yet the builders inform us that on a recent trial trip of some 100 miles, she made an average of 14 miles an hour without crowding, and with a consumption of less than 300 pounds of soft coal per hour. This seems rather extraordinary, considering the size and build of the vessel, for steam tugs of such dimensions seldom attain any such speed. Moreover, they are usually built more with regard to strength and towing capacity, than for fine lines and high speed. The builders also assure us that the cost of running the steamer is nearly 50 per cent. less than that of any other boat on the coast of equal size and power, proving at least that we can build steamers quite equal to those built in the Eastern States, machinery, hull and all. We are told that the performance of this little craft on her trial is regarded hy nautical men as very extraordinary, a fact not to he wondered at, while her towing large vessels at eight miles an hour is still more surprising.

SEVERE AFFLICTION.—Our long time agent in this city, and carrier of both the RURAL and SCIENTIFIC PRESS, Mr. A. C. KNOX, has been suddenly struck down by a disease which, for the present, at least, must render him utterly incapable of transacting any business. In fact, he has been unable to make to us a complete report of how his business as a carrier stands; hence subscribers in this city must hear with us, should any irregularity occur in the delivery of their papers, or their accounts. Mr. Knox has been connected with us, in one capacity and another, for some eight or nine years, and has ever proven himself a most faithful and honest agent. We trust that he may ere long be once more restored to full health and reason, and long continue to enjoy the society of his now afflicted family and many friends.

THE Gunboat ledge, owned by the Bayley brothers and N. H. Gray, is situated near Pocohontas, Baker county, Oregon. One day last week they cleaned up their sluice-boxes, after a run of five days, and crushing two tons of rock in their arrastra, and had $302 as the result. This is $151 to the ton.

REPORTS are current of new gold discoveries in Northern Arizona. A large number of new gold lodes have already been located, in all of which fine gold is discerned. The ledges are broad on the surface.

IT is reported that valuable gold mines have been discovered on the headquarters of Briggs creek, Josephine county, Oregon. Some miners, who went there last fall, have found several nuggets, valued at $90 each.

A PROSPECTING party returned to Boise City from Smoky creek country a few days since, bringing encouraging reports concerning rich discoveries.

THE Deering quicksilver mine, near the Reed mine, in the vicinity of Knoxville, was bonded last week hy the Deering brothers to Parrott & Co., of San Francisco, for $25,000.

DR. BAKER'S quicksilver mine at Soda Springs, near Lower Lake, was bonded last week to T. Parrott, of San Francisco, for the sum of $40,000.

THE Belcher mining company employ in their mine and on the surface, including those engaged in sinking the new air shaft, 1,000 men.

A THREE hundred pound boulder discovered last Friday in Henry Hays' claim, at Moore's flat, Nevada county, yielded about $2,500 worth of gold.

A PARTY left Olympia on the 6th inst. to explore the Upper Skagit river region in search of gold.

THE Great Western quicksilver mine, Lake county, expects to produce from 600 to 800 flasks a month hereafter, with a new furnace just completed.

JOSEPH WARNLOW, a pioneer miner of Siskiyou county, was found dead in his cabin near Hawkinsville, July 3d.

THE Lincoln ditch, in Amador county, is completed. It is 17 miles long.

SAN FRANCISCO prospectors have discovered a promising cinnabar deposit in Rockland district, Del Norte county. Quicksilver seems to be very generally distributed all over California.

THE Clear Creek ditch, in Shasta county, is said to have been purchased by Messrs. Hall, Taylor and others, and the property will be put in first-class order.

STEAM hoisting works will he put up on the new shaft of the Prussian Hill mine, Railroad Flat, Calaveras county.

THE Sohome coal mine, in Washington Territory, shipped to San Francisco last year 21,211 tons of coal, against 4,100 tons the year before.

THE Stockton tannery on Thursday shipped eleven tons of leather, for Germany and Yokahama, to San Francisco.

SINCE January last 65,000 bars of bullion have been shipped on teams from Cartago, Inyo county.

SEVEN teams with machinery for the Panamint mines left Los Angeles on Friday. Three more are to follow.

THE BLACK HILLS.—A number of Washoe miners and prospectors are talking about an expedition to the Black Hill region.

THE Knox & Boyle mine, Tuolumne county, shipped over $10,000 in bullion, during April and May.

THE Santa Cruz narrow-gauge railroad has purchased its first locomotive.

THE Rocky Bar, Oregon, mines are paying well.

THE Saratoga paper mill has shut down for repairs.

NEW machinery is to he purchased for another mill for the Black Bear Quartz Company.

THE Auburn Gold Mining Company's property has been sold by the Sheriff.

WORK is progressing steadily at "29 Palms," district, San Bernardino county.

SIX flasks of quicksilver came down on Saturday from the Missouri mine, Sonoma county.

SILVER CITY, Nevada, has a Piute boot-black.

General News Items.

TROUBLES AT THE EAST.—With hydrophobia, grasshopper plagues, hurricanes, lightning, floods, sunstrokes, hail-storms, and other dispensations too numerous to mention, the people of the Eastern States find themselves in the midst of more tribulations than they feel able to bear. Hail-stones fell in the northern part of New Jersey on the evening of the Fourth, some of which were two and a half inches in diameter; and still the Eastern people profess to sympathize with us for having an occasional slight earthquake, which does not hurt anything.

SINGULAR COINCIDENCE.—Two fires occurred in this city on Sunday night at points nearly a mile distant. The property destroyed in both instances belonged to the same parties—Messrs. Wever and Taylor. The first fire was in a slipper factory owned hy them at the corner of Mason and Geary streets—loss about $8,000—cause of fire unknown. About an hour later another fire was discovered in their warehouse corner of Market and Front streets. Loss $2,500—caught from some unknown cause in a mass of rubbish in the cellar.

THE PRESS GAG LAW.—It is stated that the Washington grand jury have found two indictments against Mr. Dana, of the New York *Sun*, on complaint of ex-Governor Shepherd. It is expected that the President will issue on the Governor of New York a requisition for the accused at an early date. So it seems the odious Press gag law is about to be put in force. A more infamous attempt on the liberty of the Press in this country never was attempted.

ANOTHER COINCIDENCE.—It was not a little remarkable that two destructive oil fires should occur at almost precisely the same hour—one at Weehawken, N. J., and the other in this city. The fire in this city occurred at the oil store of Allyne & White, 121 and 125 California street, whose loss was about $50,000. The fire at Weehawken was occasioned hy lightning. About 75,000 barrels of oil were consumed.

BISMARCK SHOT AT.—While Prince Bismarck was driving in the country near Kissingen, at noon, recently, he was fired at by a young man. The ball grazed his wrist. The wound is insignificant. The would-he assassin was promptly arrested. He has not been identified. At 1:30 P. M. Bismarck drove through Kissingen and showed himself to the public.

FIRE IN LOS ANGELES.—The Aliso flour mill at Los Angeles was destroyed hy fire on the night of Friday of last week. Loss on the building fully insured. The stock of grain on hand was a total loss, without insurance. The fire was caused hy the heating of some part of the machinery. The mill will be immediately rebuilt.

A YOUNG man of Baker City, Oregon, has a very ugly gash in his face. He was chopping wood under a clothes-line.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., July 14th, 1874.

FOR WEEK ENDING June 30th, 1874.*

ANIMAL TRAP.—Richard S. Pardee, San Diego, Cal.

APPARATUS FOR CONVEYING AND COOLING WASHED ORES.—Robert Teats, Central City, Colorado Ter.

CAR COUPLING. — Gabriel Thomas, Reno, Nevada.

PLATE RACK.—John J. Collins, Lodi, Cal.

INDEXING.—Walter Knight, San Andreas, Cal.

PROCESS OF TAKING PHOTOGRAPHIC PICTURES.—Nathaniel Weston, S. F., Cal.

RE-ISSUE.

SHOE AND DIE FOR GRINDING AND AMALGAMATING MACHINES.—Francillo G. Belknap, Washoe, Nevada.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

MECHANICS' FAIR DAILY.

Immense Free Circulation!

Printed in the Pavilion for Every Visitor.

The DAILY will he a large, eight-page sheet, 28 by 42 inches. It will be circulated each day, in part, to a new list of readers—residents of both City and Country, throughout the Coast—numbering during the Exhibition

Over 100,000 Readers,

Making a list of individual readers greater than that of all other city papers combined. Each issue will be

Handsomely Illustrated,

Spicily written and beautifully printed, with new body type, on a new press of a style never before used in this city.

Advertisements Displayed

In showy type will be one of our Specialties. Rates will he reasonable.

Our Columns will afford the best, first-class advertising in the Fair.

As a reliable firm of Established business, we will guarantee Satisfaction to all patrons. ☞ No objectionable advertising will he admitted.

Advertisements should he sent in soon to secure a good position and an early insertion in our

Prospectus Edition,

To be issued before the opening of the Fair. The

M. F. Daily Printing Office

Will open in the pavilion for printing business, address and visiting cards, labels, circulars, notices, etc., for Exhibitors and Visitors. The Nonpariel (new style) job press will be used, with new and unique type.

☞ Send for or call and see our Sample Sheet.

L. P. McCARTY, Business Manager.

DEWEY & CO.,

Publishers and Patent Agents.

Office of the MINING AND SCIENTIFIC PRESS and PACIFIC RURAL PRESS, No. 224 Sansome, Cor. of California Street. July 16, 1874.

N. W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont Street, near Market.

MANUFACTURER OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect.

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices.

Ayer's Hair Vigor

—FOR—

RESTORING GRAY HAIR

TO ITS NATURAL VITALITY AND COLOR.

Advancing years, sickness, care, disappointment, and hereditary predisposition, all turn the hair gray, and either of them incline it to shed prematurely.

AYER'S HAIR VIGOR, by long and extensive use, has proven that it stops the falling of the hair immediately, often renews the growth, and always surely restores its color, when faded or gray. It stimulates the nutritive organs to healthy activity, and preserves both the hair and its beauty. Thus harshy, weak or sickly hair becomes glossy, pliable and strengthened; lost hair regrows with lively expression; falling hair is checked and stablished; thin hair thickens; and faded or gray hair resume their original color. Its operation is sure and harmless. It cures dandruff, heals all humors, and keeps the scalp cool, clean and soft—under which conditions, diseases of the scalp are impossible.

As a dressing for ladies' hair, the VIGOR is praised for its grateful and agreeable perfume, and valued for the soft lustre and richness of tone it imparts.

PREPARED BY

DR. J. C. AYER & CO., Lowell, Mass.,

PRACTICAL AND ANALYTICAL CHEMISTS.

☞ Sold by all Druggists and Dealers in Medicine.

CRANE & BRIGHAM, Wholesale Agents,

jy18-ss SAN FRANCISCO.

THE ONE-PLUNGER JIG,

Delivered on R. R. Car at Denver, Col., or St. Louis, Mo.,

CONTAINING SIX SIEVES, END TO END,

Separates in one and the same operation—1. galena and sulphide of silver; 2. pyrites or blende; 3. tailings, containing no valuable parts; or, 1. gold; 2. pyrites; 3. tailings (quartz, etc.) containing no valuable parts; or, 1. copper; 2. tailings, containing no valuable parts. The One-Plunger Jig can he combined with existing stamp-mills with highly important advantages, as after amalgamation it will recover completely all fine metal and all base ores and all mercury out of tailings. It concentrates all fine metal ores to such cleanness that low grade ores can be shipped, after concentration, as first-class ores. Its feed and discharge are automatic. Its construction offers better guarantee against loss and repairs than any other apparatus in use. For particulars, apply to the Inventor, F. CAZIN,

Mining and Civil Engineer, Denver City, Col.

L. Box 2225. 13v28-1y

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
Blackwood	
Hours at Home	
Good Words	
Peterson	3 00
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Lady's Friend	
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Literary Album	
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AND STATIONER,

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SUPPLIES ALL

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jy18-hp-tf

MINERS write for your paper.

KABATH & LADD,

109 California Street, SAN FRANCISCO.

HAVE JUST RECEIVED IN PRIME ORDER, PER "CLEOPATRA" AND "SOLOMON,"

A FRESH SUPPLY OF

EASTERN IRON KEG POWDER,

Manufactured by the World-Wide Known

LAFLIN & RAND

POWDER COMPANY

PATENT SAFETY FUSE,

Electrical Blasting Apparatus, Electrical Fuse, Rubber Tubing,

LEADING AND CONNECTING WIRE CAPS, ETC.,

AND EVERYTHING IN THE LINE OF

MINE & MILL SUPPLIES.

Send for Further Information.

To Mining Secretaries.

An amendment to Section 330 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the M. & S. Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements

Stockholder's Meeting—Bandereta M. & M. Co., Mariposa County, Cal.

Notice is hereby given, that the annual meeting of the stockholders of the above named company, for the purpose of electing Trustees for the ensuing year, and transacting such other business as may be brought before the meeting, will be held at their office, No. 408 California street, San Francisco, California, on Saturday, the 18th day of July, 1874, at 12 o'clock, M. By order,

jy11-2t J. W. TRIPP, Secretary.

Diamond Silver Mining Company.—Location of works, East Tintic Mining District, Juab County, Utah Territory. Principal place of business, San Francisco.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 1, levied on the 18th day of April, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm Sherman, Trustee	7	550	$55 00
Thos W Moore	15	550	55 00
H T Felton, Trustee	22	100	10 00
J P Chamberlin	28	110	11 00
S L Marston	34	110	11 00
S L Marston	207	110	11 00
H C Gregory	35	110	11 00
I Salz	38	55	5 50
S Salz	87	55	5 50
L E Osgood	38	110	11 00
Wm Walton	39	110	11 00
I S Marston	40	110	11 00
Solomon Jewett	43	550	55 00
Mrs. Angie Eeger	49	22	2 20
John J Duffy	50	11	1 10
Hartwig Bornemann	51	220	22 00
Hartwig Bornemann	53	330	33 00
Mrs. Hertwig Bornemann	54	11	1 10
Carl Leutgel	55	11	1 10
E S Hemilton	52	60	0 00
W M Brewer	89	1130	113 00
F Palmer	72	227	22 70
Medalion Mining Company	73	910	90 00
Geo Helm, Trustee	33	275	27 50
Geo Helm, Trustee	132	50	5 00
Geo Helm, Trustee	134	25	2 50
Geo Helm, Trustee	135	50	5 00
Geo Helm, Trustee	136	50	5 00
Geo Helm, Trustee	137	50	5 00
Geo Helm, Trustee	138	50	5 00
Geo Helm, Trustee	139	50	5 00
Geo Helm, Trustee	140	50	5 00
Geo Helm, Trustee	129	125	12 50
Geo Helm, Trustee	122	100	10 00
Geo Helm, Trustee	130	75	7 50
Geo Helm, Trustee	146	50	5 00
Mary Van Reynegom	147	25	2 50
A M Vines	148	25	2 50
J L Van Reynegom	149	50	5 00
J L Van Reynegom	150	50	5 00
J A Fairchild	184	100	10 00
N J Street	185	110	11 00
A J Stevens	186	100	10 00
B M Anthony	197	400	40 00
V P Terry	198	50	5 00
James E Blenthen	199	50	5 00
Benjamin Corey	200	50	5 00
Benjamin Corey	201	50	5 00
Benjamin Corey	202	50	5 00
Benjamin Corey	203	50	5 00
Joseph Fowlar	210	50	5 00
Joseph Fowler	211	50	5 00
C A Washburn, Trustee	221	150	15 00
C A Washburn, Trustee	222	100	10 00
C A Washburn, Trustee	223	25	2 50
C A Washburn, Trustee	224	25	2 50
C A Washburn, Trustee	243	150	15 00
R M Anthony, Trustee	225	50	5 00
E C Morton, Trustee	227	100	10 00
E C Morton, Trustee	228	100	10 00
E C Morton, Trustee	229	100	10 00
E C Morton, Trustee	230	100	10 00
E C Morton, Trustee	231	100	10 00
E C Morton, Trustee	232	100	10 00
E C Morton, Trustee	233	100	10 00
E C Morton, Trustee	234	100	10 00
E C Morton, Trustee	235	100	10 00
E C Morton, Trustee	236	100	10 00
E C Morton, Trustee	237	50	5 00
E C Morton, Trustee	238	50	5 00
E C Morton, Trustee	239	43	4 30
E A Colson	244	50	5 00
M Fahndrick	251	25	2 50
M Fahndrick	253	25	2 50
M Fahndrick	254	25	2 50
M Fahndrick	255	25	2 50
M Fahndrick	250	25	2 50
M Fahndrick	257	25	2 50
M Fahndrick	258	15	1 50
M Fahndrick	259	15	1 50
M Fahndrick	261	12	1 25
Frank Emenegger	289	25	2 50
Chas Munch	290	10	1 00
C C Miller, Trustee	75	50	5 00
C C Miller, Trustee	76	50	5 00
C C Miller, Trustee	79	50	5 00
C C Miller, Trustee	81	50	5 00
C C Miller, Trustee	82	50	5 00
C C Miller, Trustee	83	50	5 00
C C Miller, Trustee	88	50	5 00
C C Miller, Trustee	89	50	5 00
C C Miller, Trustee	90	50	5 00
C C Miller, Trustee	91	50	5 00
C C Miller, Trustee	95	50	5 00
C C Miller, Trustee	153	100	10 00
C C Miller, Trustee	154	100	10 00
C C Miller, Trustee	155	25	2 50
C C Miller, Trustee	161	100	10 00
C C Miller, Trustee	162	100	10 00
C C Miller, Trustee	165	100	10 00
C C Miller, Trustee	167	100	10 00
C C Miller, Trustee	171	100	10 00
C C Miller, Trustee	174	100	10 00
C C Miller, Trustee	178	50	5 00
C C Miller, Trustee	179	50	5 00
C C Miller, Trustee	180	45	4 50
C C Miller, Trustee	212	100	10 00
C C Miller, Trustee	213	100	10 00
C H Le Grange, Trustee	215	100	10 00
C H La Grange, Trustee	218	100	10 00
C H La Grange, Trustee	217	100	10 00
C H Le Grange, Trustee	218	100	10 00
C H La Grange, Trustee	219	100	10 00
C H La Grange, Trustee	220	50	5 00
C H La Grange, Trustee	259	100	10 00
C H La Grange, Trustee	270	100	10 00
C H La Grange, Trustee	275	100	10 00
C H La Grange, Trustee	270	100	10 00
C H La Grange, Trustee	277	100	10 00
C H La Grange, Trustee	278	100	10 00
C H La Grange, Trustee	279	100	10 00
Isaac M. Brower	123	1000	100 00
C D Munson	105	100	10 00
N Hamilton, Trustee	118	100	10 00
N Hamilton, Trustee	119	100	10 00
N Hamilton, Trustee	120	100	10 00
N Hamilton, Trustee	28	275	27 50
N Hamilton, Trustee	27	55	5 50
N Hamilton, Trustee	42	110	11 00
N Hamilton, Trustee	63	50	5 00
N Hamilton, Trustee	118	43	4 30
N Hamilton, Trustee	143	100	10 00
N Hamilton, Trustee	144	50	5 00
N Hamilton, Trustee	145	50	5 00
N Hamilton, Trustee	193	400	40 00
N Hemilton, Trustee	208	100	10 00
N Hamilton, Trustee	112	100	10 00
N Hamilton, Trustee	114	100	10 00
N Hemilton, Trustee	115	57	5 70
N Hamilton	183	100	10 00
N Hamilton	172	200	20 00
W m H Baker	200	375	37 50
G W Terrill	47	600	60 00
G W Terrill	48	500	50 00
G W Terrill	49	500	50 00
G W Terrill	50	500	50 00
G W Terrill	51	500	50 00
G W Terrill	212	390	39 00
Wm H Sparks	64	500	50 00
Wm H Sparks	219	75	7 50
M Ellsworth	9	250	25 00
M Ellsworth	213	37	3 70
A C Knox	71	100	10 00
A C Knox	222	15	1 50
Anna Woode	76	100	10 00
Anna Woods	131	500	50 00
Anna Woods	223	90	9 00
G S Eaton	132	25	2 50
G S Eaton	133	50	5 00
G S Eaton	134	25	2 50
G S Eaton	135	60	6 00
G S Eaton	232	24	2 40
Maria Foley	136	50	5 00
Maria Foley	233	7	70
Maria Foley	234	½	05
Louisa Thompeon	161	400	40 00
Lonisa Thompson	239	60	6 00
Henrietta Grant	162	400	40 00
Henrietta Grant	240	60	6 00
Wm H Sharp	163	100	10 00
Wm H Sharp	241	15	1 50
M G Rader	182	200	20 00
M G Rader	244	30	3 00
M G Rader	249	157	15 70
M G Rader	250	23	2 30
M G Rader	251	½	05
Geo W Mullen, Trustee	126	1000	100 00
Geo W Mullen, Trustee	129	500	50 00
Geo W Mullen, Trustee	153	300	30 00
Geo W Mullen, Trustee	164	500	50 00
Geo W Mullen, Trustee	168	250	25 00
Geo W Mullen, Trustee	252	547	54 70
J H Wood, Trustee	348	100	20 00
W B Boyden	299	500	100 00
W B Boyden	300	100	20 00
W B Boyden	301	100	20 00
W B Boyden	302	100	20 00
W B Boyden	303	100	20 00
W B Boyden	304	100	20 00
Wm Azol	305	50	10 00
D W Spear	376	100	20 00
D W Spear	377	50	10 00
F Franks	344	50	10 00
W A Knapp, Trustee	241	100	20 00
W A Knapp, Trustee	242	100	20 00
W A Knapp, Trustee	243	100	20 00
W A Knapp, Trustee	244	100	20 00
W A Knapp, Trustee	245	100	20 00
W A Knapp, Trustee	247	800	160 00
W A Knapp, Trustee	253	100	20 00
W A Knapp, Trustee	279	100	20 00
H C Hinds	256	1000	200 00
Robt Clifford	389	100	20 00
Robt Clifford	390	100	20 00
W J Hamilton	338	100	20 00
W A Knapp, Trustee	262	50	10 00
W A Knapp, Trustee	264	50	10 00
W A Knapp, Trustee	266	50	10 00
W A Knapp, Trustee	267	50	10 00
W A Knapp, Trustee	268	50	10 00
W A Knapp, Trustee	269	50	10 00
W A Knapp, Trustee	271	50	10 00
W A Knapp, Trustee	282	50	10 00
W A Knapp, Trustee	283	50	10 00
W A Knapp, Trustee	277	105	20 00
W A Knapp, Trustee	278	100	20 00
W A Knapp, Trustee	316	100	20 00
W A Knapp, Trustee	317	100	20 00
W A Knapp, Trustee	318	100	20 00
W A Knapp, Trustee	320	100	20 00
W A Knapp, Trustee	323	50	10 00
W A Knapp, Trustee	325	50	10 00
W A Knapp, Trustee	280	100	20 00
W A Knapp, Trustee	281	100	20 00
W A Knapp, Trustee	326	100	20 00
W A Knapp, Trustee	327	100	20 00
W A Knapp, Trustee	328	100	20 00
W A Knapp, Trustee	329	100	20 00
W A Knapp, Trustee	331	100	20 00
W A Knapp, Trustee	332	100	20 00
W A Knapp, Trustee	333	100	20 00
W A Knapp, Trustee	341	100	20 00
W A Knapp, Trustee	342	200	40 00
W A Knapp, Trustee	345	300	60 00
H P Wood, Trustee	383	100	20 00
W A Knapp, Trustee	384	400	80 00
W A Knapp, Trustee	385	500	100 00
W A Knapp, Trustee	386	100	20 00
W A Knapp, Trustee	387	100	20 00
W A Knapp, Trustee	388	200	40 00
W A Knapp, Trustee	400	50	10 00
W A Knapp, Trustee	401	100	20 00
W A Knapp, Trustee	402	100	20 00
W A Knapp, Trustee	403	100	20 00
W A Knapp, Trustee	404	100	20 00
W A Knepp, Trustee	414	100	20 00
W A Knapp, Trustee	415	100	20 00
W A Knapp, Trustee	416	100	20 00
W A Knapp, Trustee	417	100	20 00
W A Knapp, Trustee	418	100	20 00
W A Knapp, Trustee	419	900	180 00
W A Knapp, Trustee	380	100	20 00
I Pollard	405	50	10 00

And in accordance with the law and an order of the Board of Directors, made on the 10th day of June, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 326 Pine street San Francisco, California, on the 5th day of August, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—No. 318 California street, room 13, San Francisco, Cal. jy18

Enterprise Gold and Silver Mining Company.—Principal place of business, San Francisco, California. Location of works, Meadow Lake District, Nevada County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 22d day of June, 1874, an assessment of ten cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 411½ California street, room 3, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the 23d day of July, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Saturday, the 15th day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

E. E. RICE, Secretary.

Office, Room 3, 411½ California street, San Francisco, Cal. jn27

Annual Meeting—Hasloe Mill and Mining Company. Location of principal place of business, San Francisco, California. Location of works, Mariposa County, State of California.

Notice is hereby given that the annual meeting of the stockholders will be held at the office of the company, 408 California street, room 14, San Francisco, California, on the 12th day of August, 1874, for the purpose of electing Trustees for the ensuing year. By order of the Board of Trustees, J. W. TRIPP, Secretary.

Land Purchasers' Association—Office, No. 425 Keerny siret, San Francisco, Cal.

There are delinquent upon the following described stock, on account of assessment (installment No. 41), levied on the 9th day of June, A. D. 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Sheres.	Amount.
J L Beyee	72	1	$10 00
T Chevallier	93	1	10 00
T Lord	68, 69 and 77	3	30 00
W E Meyhew	23, 24 and 157	3	30 00
H G Robinson	150	1	10 00
J W Eekley	175, 176	2	20 00

And in accordance with the law and an order of the Board of Directors, made on the 9th day of June, A. D. 1874, so many shares of each parcel of said stock as mey he necessary, will he sold at public auction, at the office of the Secretery 425 Kearny street, (up stairs,) San Francisco, Cal., on Tuesday, the 4th day of August, 1874, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising end expenses of sale.

C. S. WRIGHT, Secretary.

Office, No. 425 Kearny street, up stairs, San Francisco, California.

Manhattan Marble Company of California—Principal place of business, San Francisco. Location of works, Cakland, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of June, 1874, on assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 20th day of July, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 11th day of August, 1874, at noon, to pay the delinquent assessment, together with costs of advertising and expenses of sale. SAMUEL B. POPE, Secretary.

Office—212 Sansome street, San Francisco, Cal.

Ohio Consolidated Gold Mining Company. Location, West Point, Calaveras County, Cal. Principal place of business, San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the Thirtieth day of May, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Nemes.	No. Certificate.	No. Shares.	Amonnt.
E L Peckham	9	400	$80 00
E L Peckham	200	300	60 00
E A Richardson, Trustee	68	100	20 00
W A Knapp, Trustee	91	150	30 00
W A Knapp, Trustee	238	100	20 00
H H Huhhard	94	100	20 00
Jno J Crawford	97	100	20 00
B Dore, Trustee	289	50	10 00
B Dore, Trustee	295	100	20 00
B Dore, Trustee	290	50	10 00
B Dore, Trustee	308	100	20 00
B Doro, Trustee	309	100	20 00
B Dore, Trustee	310	100	20 00
B Dore, Trustee	311	100	20 00
B Dore, Trustee	314	200	40 00
J W Searles	207	100	20 00
J H Wood, Trustee	211	100	20 00
J H Wood, Trustee	213	100	20 00
J H Wood, Trustee	225	100	20 00
J H Wood, Trustee	322	200	40 00
J H Wood, Trustee	335	100	20 00
J H Wood, Trustee	334	100	20 00
J H Wood, Trustee	348	100	20 00
W B Boyden	299	500	100 00
W B Boyden	300	100	20 00
W B Boyden	301	100	20 00
W B Boyden	302	100	20 00
W B Boyden	303	100	20 00
W B Boyden	304	100	20 00
Wm Azol	305	50	10 00
D W Spear	376	100	20 00
D W Spear	377	50	10 00
F Franks	344	50	10 00
W A Knapp, Trustee	241	100	20 00
W A Knapp, Trustee	242	100	20 00
W A Knapp, Trustee	243	100	20 00
W A Knapp, Trustee	244	100	20 00
W A Knapp, Trustee	245	100	20 00
W A Knapp, Trustee	247	800	160 00
W A Knapp, Trustee	253	100	20 00
W A Knapp, Trustee	279	100	20 00
H C Hinds	256	1000	200 00
Robt Clifford	389	100	20 00
Robt Clifford	390	100	20 00
W J Hamilton	338	100	20 00
W A Knapp, Trustee	262	50	10 00
W A Knapp, Trustee	264	50	10 00
W A Knapp, Trustee	266	50	10 00
W A Knapp, Trustee	267	50	10 00
W A Knapp, Trustee	268	50	10 00
W A Knapp, Trustee	269	50	10 00
W A Knapp, Trustee	271	50	10 00
W A Knapp, Trustee	282	50	10 00
W A Knapp, Trustee	283	50	10 00
W A Knapp, Trustee	277	105	20 00
W A Knapp, Trustee	278	100	20 00
W A Knapp, Trustee	316	100	20 00
W A Knapp, Trustee	317	100	20 00
W A Knapp, Trustee	318	100	20 00
W A Knapp, Trustee	320	100	20 00
W A Knapp, Trustee	323	50	10 00
W A Knapp, Trustee	325	50	10 00
W A Knapp, Trustee	280	100	20 00
W A Knapp, Trustee	281	100	20 00
W A Knapp, Trustee	326	100	20 00
W A Knapp, Trustee	327	100	20 00
W A Knapp, Trustee	328	100	20 00
W A Knapp, Trustee	329	100	20 00
W A Knapp, Trustee	331	100	20 00
W A Knapp, Trustee	332	100	20 00
W A Knapp, Trustee	333	100	20 00
W A Knapp, Trustee	341	100	20 00
W A Knapp, Trustee	342	200	40 00
W A Knapp, Trustee	345	300	60 00
H P Wood, Trustee	383	100	20 00
W A Knapp, Trustee	384	400	80 00
W A Knapp, Trustee	385	500	100 00
W A Knapp, Trustee	386	100	20 00
W A Knapp, Trustee	387	100	20 00
W A Knapp, Trustee	388	200	40 00
W A Knapp, Trustee	400	50	10 00
W A Knapp, Trustee	401	100	20 00
W A Knapp, Trustee	402	100	20 00
W A Knapp, Trustee	403	100	20 00
W A Knapp, Trustee	404	100	20 00
W A Knepp, Trustee	414	100	20 00
W A Knapp, Trustee	415	100	20 00
W A Knapp, Trustee	416	100	20 00
W A Knapp, Trustee	417	100	20 00
W A Knapp, Trustee	418	100	20 00
W A Knapp, Trustee	419	900	180 00
W A Knapp, Trustee	380	100	20 00
I Pollard	405	50	10 00

And in accordance with law, and an order of the Board of Directors, made on the 30th day of May, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 116 Leidesdorff street, on Monday, the 20th day of July, 1874, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

W. AUGS. KNAPP, Secretary.

Office—116 Leidesdorff street, San Francisco, California. jy4

Providence Gold and Silver Mining Company—Location of principal place of business, San Francisco, State of California. Location of works, Haydoa Hill, Lassen County.

Notice is hereby given, that at a meeting of the Directors, held on the 10th day of July, 1874, an assessment (No. 1) of Ten Cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 331 Montgomery street, room 18, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 17th day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the seventh day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. H. KNIGHT, Secretary.

Office—No. 331 Montgomery street, room 18, San Francisco, California. jy18

South Fork Mining and Canal Company. Location of principal place of business, San Francisco, California. Location of works, Placer County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 30th day of May, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
James Adams	8	1,000	$50 00
H B Congdon	9	2,000	100 00
J W Nye	10	2,000	100 00
P H Blake	11	2,000	100 00
S H Mather	12	2,000	100 00
S Herris	14	2,000	100 00
M Shick	15	4,000	200 00
J J Walker	10	2,000	100 00
Smith	17	2,000	100 00
G E Hinckley	18	1,000	50 00
Hamm	19	1,000	50 00
E J Elzy	21	1,000	50 00

And in accordance with law and an order of the Board of Directors, made on the 30th day of May, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, No. 308 Montgomery street, San Francisco, California, on Monday, the 27th day of July, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

P. H. BLAKE, Secretary.

Office—316 Montgomery street, San Francisco, Cal.

Stockholders' Meeting—Spring Valley Canal and Mining Company.

Notice is hereby given, that the annual meeting of the stockholders of the above named company, for the purpose of electing Trustees for the ensuing year, will be held at their office, No. 402 Front street, San Francisco, Cal., on Tuesday, the 21st day of July, 1874, at one o'clock P. M. By order, EGBERT JUDSON, President.

jy4-3t L. GLASS, Secretary.

Taylor Mill and Mining Company—Location of principal place of business, City and County of San Francisco, California. Location of works, Garden Valley Mining District, El Doredo County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the first day of July, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 607 Montgomery street, in the City and County of San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the eighth day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the twenty-eighth (28th) day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. SAMUEL S. MURPEY, Secretary.

Office, 607 Montgomery street, City and County of San Francisco, California. jy4

Electric Mining Company—Location of principal place of business, San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of June, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Nemes.	No. Certificate.	No. Shares.	Amount.
G W Haskell	29	500	$50 00
G W Heskell	30	500	50 00
G W Haskell	31	500	50 00
G W Haskell	32	500	50 00
G W Haskell	33	500	50 00
G W Haskell	208	375	37 50
Wm R McCew	18	2800	260 00
Wm R McCaw	65	300	30 00
Wm R McCaw	203	435	48 50
J B Honghton	15	1168	116 80
J B Houghton	90	50	5 00
J B Houghton	91	25	2 50
J B Houghton	92	41	4 10
J B Houghton	93	600	60 00
J B Houghton	201	272	27 20
Wm H Baker	7	500	50 00
Wm H Baker	8	2000	200 00

Machine Builders.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO!

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Johbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

GODDARD & CO.

18v20-3m

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

THE RISDON
Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Joseph Moore, Jesse Holladay, C. E. McLane,
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James D. Walker.

WM. H. TAYLOR.....President
JOSEPH MOORE.....Vice-President and Superintendent
LEWIS R. MEAD.....Secretary

21v1f-qy

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting.
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY, P. O. box 2032, San Francisco, Cal., will receive prompt attention.
☞ The highest price paid for Scrap Iron.

UNION IRON WORKS,
Sacramento.

ROOT, NEILSON & CO.,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

Dunbar's Patent Self-Adjueting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
SACRAMENTO CITY.

VULCAN IRON WORKS,

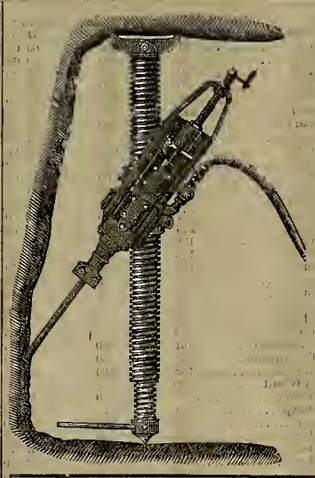
MANUFACTURERS OF

MACHINERY OF EVERY DESCRIPTION.

SOLE MANUFACTURERS OF

MOORE'S PATENT STORE HOIST.

N. D. ARNOT, Manager,
15v28-3m 135 and 137 Fremont Street.



PARKE & LACY,

AGENTS FOR THE

Burleigh Rock Drill Company,

—MANUFACTURERS OF—

PNEUMATIC DRILLING MACHINES,

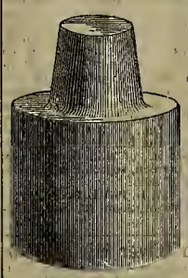
AIR COMPRESSORS AND OTHER MACHINERY.

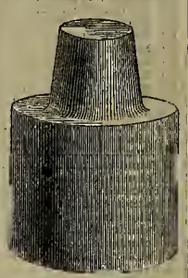
The only Drilling Machinery that has ever done any successful Tunnel work in America, is being used upon the largest tunnels and mining operations on the Comstock lode; also in Placer, Mariposa and Nevada Counties, Cal.

Sample machinery can be seen and further information given, by applying to

PARKE & LACY,

Sole Agents for States and Territories west of the Rocky Mountains, 108½ Leidesdorff steeet, Hayward's Building, San Francisco, Cal. 21v28-3m-hd14p





CAST STEEL SHOE & DIE CO.,

Room 28, Hayward's Building,

No. 419 California street, - - SAN FRANCISCO.

Cast Steel Shoes & Dies for Quartz Mills.

[PATENTED MAY 26TH, 1874.]

An improvement greatly needed, being stronger, more durable and economical than iron.

We guarantee the STEEL SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper, Price, 20 cents per pound, shipped from San Francisco. It takes 40 days to fill orders from the manufactory East.

Address all orders, with dimensions, to

CAST STEEL SHOE & DIE CO.,

Room 28, Hayward's Building, San Francisco.

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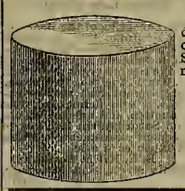
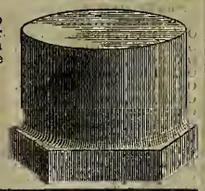




DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

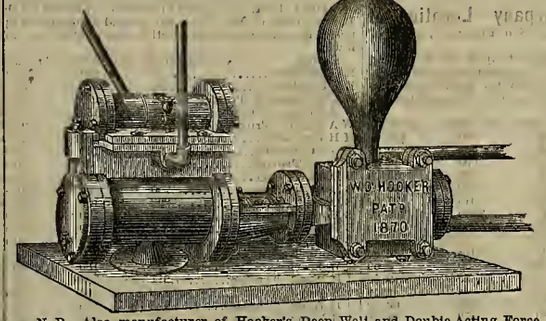
NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	5	6	7	8	10	12	14	16	18	20	24
Diameter of Pump Cylinder, in inches	6	8	9	10	12	15	18	21	24	27	30	36
Stroke of Piston, in inches	6	8	9	10	12	15	18	21	24	27	30	36
Capacity per double Stroke, in gallons	1-6	¾	1	1¼	1½	2	2½	3	4	5	6	8
Capacity at ordinary Speed, per minute	10	25	35	45	60	80	100	125	150	175	200	250
Maximum Capacity	30	80	100	120	150	225	300	350	425	500	600	800
Boilers in horse power they will supply	¾	¾	¾	¾	¾	1	1¼	1½	2	2½	3	4
Size of Steam Pipe, in inches	¾	¾	¾	1	1¼	1½	2	2½	3	3½	4	5
Size of Exhaust Pipe, in inches	1	1¼	1½	2	2½	3	3½	4	4½	5	6	8
Size of Suction Pipe, in inches	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Size of Discharge Pipe, inches	1	1¼	1½	2	2½	3	3½	4	4½	5	6	8
Weight of Pump, in pounds	185	235	400	425	810	875	1,180	1,500	1,612	2,400	3,975	4,800
Length over all, in feet and inches	3-4	1	2-9	2-11	3-11	4-1	4-5	4-8	5-3	5-7	5	5
Height over all, in feet and inches	1-6	1-6	1-9	2-1	1-3	1-4	1-5	1-10	1-10	2-1	2-9	2-10
Width over all, in feet and inches	9	10	1-1	1-3	1-4	1-5	1-7	1-10	2	2-3	2-9	2-10
PRICE	$	$	$	$	$	$	$	$	$	$	$	$

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS. No. 4, 24-in. Stroke, $
No. 5, 24-in. " $
No. 6, 30-in. Stroke, $
No. 7, 30-in. Stroke, $
No. 8, 36-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

Hooker's Patent Direct Acting Steam Pump.



N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump. Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco.

W. T. GARRATT,

Cor. Fremont & Natoma streets, S. F.,

Sole Proprietor & Manufacturer for the Pacific Coast.

SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.

The Best Pump in Use.

☞ SEND FOR CIRCULAR

18v27-2am3m

OCCIDENTAL FOUNDRY,

137 and 139 First street.....SAN FRANCISCO.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the **Hepburn Rolling Pan** and **Callahan Grate Bars,** suitable for Burning Screenings.

NOTICE.—Partionlar attention paid to making Superior Shoes and Dies. 20v26.3m

CALIFORNIA BRASS FOUNORY,

No. 125 First street, opposite Miana,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Meta Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED. V. KINGWELL.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured. 2av15or

Miners' Foundry and Machine Works,

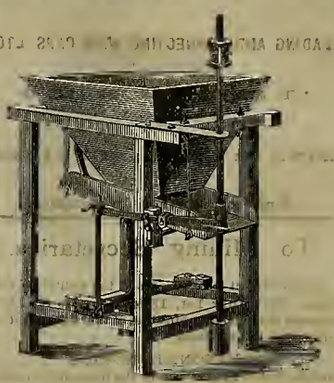
CO-OPERATIVE,

First Street, bet. Howard and Folsom, San Francisco

Machinery and Castings of all kinds.

Machinery.

Tulloch's Automatic Ore Feeder.



At the request of Mr. Jas. Tulloch, we have carefully examined his patent Ore Feeder for Quartz Mills, now on exhibition in this city at the Pacific Foundry, and in view of its simplicity of construction, directness of action, durability and compactness, as well as its small weight and the low price at which they are held by the patentee, so as to place them within reach of all mill owners, are free to state our unqualified opinion that we regard it superior to any Ore Feeder of which we have any knowledge in actual work. We are confirmed in this opinion by the severe tests to which it has been put, doing its work thoroughly well on ores of all kinds. We find the delivery to the mortars of the ore-stuff, whether dry, damp or wet, to be entirely uniform and regular, and that even slimes and aluch can be worked in them under perfect control.

F. REICHLING,
J. W. GASHWILER,
LOUIS BLANDING,
WM. H. HEPBURN,
J. B. HITCHCOCK,
GEO. A. TREADWELL,
GEO. MURCKTON,
JAMES G. HUNTER,
FRANCIS H. HILL.

San Francisco, July 3, 1874. 2v29-1m

STEEL SHOES AND DIES
FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy.*

Die.

Shoe.

Will wear three times longer than any iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separatore, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.

All orders promptly filled.

MOREY & SPERRY,
88 Liberty street, N. Y.

Examination solicited. 9v28-1y

THEODORE KALLENBERG.
MACHINIST,

and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

THE

AMERICAN TURBINE WATER WHEEL.

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ¾ 78.73; ⅞ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

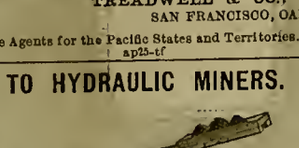
Mr. Emmerson says: "Theee are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

TREADWELL & CO.,
SAN FRANCISCO, CAL.

Sole Agents for the Pacific States and Territories.
ap25-tf

TO HYDRAULIC MINERS.



I warn Hydraulic Miners not to be misled by the advertisement of Mr. F. H. Fisher. Said Fisher has been beaten in every suit to which he has been a party (respecting Patent Rights on Hydraulic Machines), whether as plaintiff or defendant.

His patrons have already paid over Five Thousand Dollars for license to use machines purchased of the self styled

"Only Reliable Party in the Business Who Protects His Customers."

Fisher's Machine is worthless unless the discharge pipe is furnished with appliances, the patent for which is owned by Messrs. CRAIG, and which Fisher is enjoined from making.

The Machine itself is also an infringement on another patent owned by the same parties.

All persons infringing on either of these patents

WILL BE PROMPTLY PROSECUTED.

I am sole LICENSEE to sell Machines manufactured under Craig's, Rice's, Macey's and Hoskin's patents.

I Guarantee Full Indemnity to all my Customers.

Machines of all sizes always on hand.

If you want a Machine that will give satisfaction, and do not want to pay for it twice over, buy an Improved LITTLE GIANT.

For further particulars apply to

R. HOSKIN, Dutch Flat,
Or R. R. & J. CRAIG, Room 6, 240 Montgomery st., S. F. } Agents
WILLIAMSON & CORY, Marysville.

Dutch Flat, August 10, 1873. 6v27-2m

TREADWELL & CO.'S
UPRIGHT SAFETY ENGINES,

2 to 10 Horse Power.

MADE BY THE N. Y. SAFETY STEAM POWER CO.

Has tubular boiler, and therefore is secure against the dangers common to shell boilers. Power is taken from near the base, which avoids vibration or top-heaviness. Occupies but two feet square of floor space and is so simple a boy can run it. All its parts are easily accessible—a great advantage. Is complete in itself as a Portable Engine and Boiler, or the engine can be detached from the boiler and run independently, if required. Its main points are SIMPLICITY, SAFETY, and ECONOMY. For printing offices, laundries, tanneries, ranches, small repair and machine shops, or for hoisting wherever a small and safe power is required, they are peculiarly adapted.

Refer to the following parties who have them in use

E. DETTRICH & CO., Bag Factory, San Francisco;
PACIFIC CHEMICAL WORKS, San Francisco;
ST. IGNATIUS COLLEGE, San Francisco;
STEAMER "PELICAN;"
STEAMER "COQUILLE;"
JAS. STANTON, Mission street, San Francisco,
GEN. NAGLER, San Jose;
S. L. FRUIT PRESERVING CO., San Lorenzo;
H. BEHRENT, Market street, San Francisco;
A. BOOTH & CO., Collinsville.
J. HICKS, Los Angeles;
And many others in different parts of the country.

Send for Circular and Price List to

TREADWELL & CO., Sole Agents,
13v28-cow-tf San Francisco.

STEAM ENGINES AND BOILERS

Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by

10v27tf J. HENDY, No. 32 Fremont Street.

WARING ROCK DRILL COMPANY.

SOLE PROPRIETORS AND MANUFACTURERS OF

WARING'S IMPROVED SELF-FEEDING

Rock Drill,

BY FAR THE MOST

Simple and Effective Machine

FOR ALL DESCRIPTIONS OF

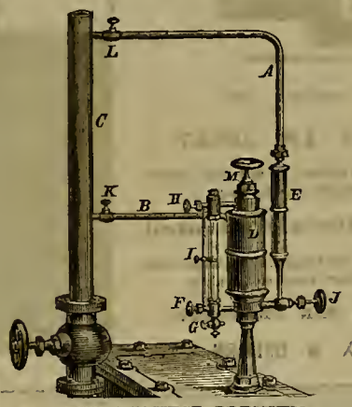
MINING, RAILROAD AND QUARRY WORK

Office, 835 Broadway, Cor. 13th street

NEW YORK.

10v23-6m

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

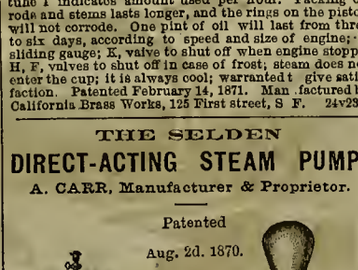
Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; 1, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

THE SELDEN
DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

A. CARR,
10v28-1y 43 Courtland Street, New York.

EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1878.)

The Cheapest and Most effective Furnace now in use Parties desirous of building above furnace, or for any information on same, address,

I. T. MILLIKEN,
a31 No. 302 Montgomery st., room No. 14, S. F.

CROCKER'S PATENT
TRIP HAMMER QUARTZ BATTERY.

This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

G. D. CROCKER,
17v26-tf 315 California street, San Francisco.

Metallurgy and Ores.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Oprates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco.

E. N. RIOTTE. JAS. L. BEYEA. S. O. BROWN

AUBURN MILL COMPANY,

Reno, Nevada.

Purchase Silver Ores in quantities of ten tons and upwards, delivered on board the cars at San Francisco or Oakland at the annexed Net Rates, WITH NO CHARGE FOR SAMPLING OR REDUCTION. On lots of less than 10 tons, freight to Reno will be deducted.

Special Ratee for Gold Ores.

On Gold *contained in Silver Ores* to the amount of $30 and upwards, 63 per cent. will be paid. When less than $30, and above $10, the amount will be added to the Silver value. Sacks promptly returned free of charge. Ores sampled by Battery or Sampling Mill as shipper may elect, and returns made promptly by cheque on San Francisco.

Rates:

Assay Value.	Per Cent. Paid.	Assay Value.	Per Cent.	Assay Value.	Per Cent.	Assay Value.	Per Cent.	Assay Value.	Per Cent.	Assay Value.	Per Cent.
$ 60	25	$ 90	38	$125	47	$166	57	$ 250	66	$ 450	76
66	27	93	39	129	48	175	58	263	67	500	77
70	28	95	40	133	50	188	59	275	68	600	78
73	30	98	41	137	51	200	61	288	70	700	79
76	31	100	42	142	52	210	62	300	71	800	81
80	33	107	43	146	53	220	63	350	72	900	82
84	35	112	44	150	54	230	64	375	74	1000	83
88	37	119	45	158	56	240	65	400	75	2000	84

And on intermediate values in proportion.

C. A. LUCKHARDT, Agent.
21 First St., San Francisco.

S. O. BROWN, Manager,
Reno, Nevada. 3v28-6m

Nevada Metallurgical Works,

21 First street.....San Francisco.

Ores worked by any process.
Ores sampled.
Assaying in all its branches.
Analysis of Ores, Minerals, Waters, etc.
Plans furnished for the most suitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

E. N. RIOTTE,
C. A. LUCKHARDT,
Mining Engineers and Metallurgists.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

ASSAYERS' MATERIALS

Chemical Apparatus and Chemicals,

Druggists' Glassware and Sundries,

PHOTOGRAPHIC GOODS, ETC.,

512 and 514 Washington street, SAN FRANCISCO

We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

ASSAYERS' MATERIALS

—AND—

Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

7v25-tf JOHN TAYLOR & CO.

Morris' Settler and Amalgamator.

PATENTED MARCH 25, 1873.

An important improvement in milling. Cheap, light, efficient and durable. Gains Quicksilver on working tailings. Is discharged from the surface in the center instead of the side, by means of a Syphon which extends to near the center of the Settler. Heaviest casting weighs only 135 pounds. The sides and bottom of the Settler are made of wood, as also Mullers, placed vertically—the friction of which brightens the quicksilver.

One of these machines is in daily operation at No. 618 Merchant street, (basement), San Francisco. Parties desiring information as to rights of use, purchase, etc., can address, FREDERICK MORRIS,
616 Merchant St., S. F.

Ores Assayed and Amalgamated. 8v28-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

Important to Miners and Mill Men.

Silver-Plated Copper Amalgamating Plates, for Saving Gold.

Of all sizes and in any quantity, furnished to order. Full instructions sent for operating. Particular attention given to plating goods for Builders, Plumbers, etc. Hotel and Restaurant work replated.

SAN FRANCISCO GOLD AND SILVER PLATING WORKS,
655 Mission street, San Francisco.

2v25-3m E. G. DENNISTON, Proprietor.

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint.)

SAN FRANCISCO CAL. 7v21-3m

O. W. STRONG. W. L. STRONG.

STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M RAYNOR,
26 Bond street, New York.

Platinum Scrap and Native Platinum purchased.

CHARLES F. KIRCHNER,

Sampler and Crusher of Ores,

NO. 411 DRUMM STREET,

San Francisco.

BLACK DIAMOND FILE WORKS.

TRADE MARK

G. & H. BARNETT,

Manufacturers of Files of every Description.

Nos. 39, 41 and 43 Richmond street,
Philadelphia, Pa.

Sold by all the principal hardware stores on the Pacific Coast. 18v26-1y

Brittan, Holbrook & Co., Importers of Stoves and Metals, Tinners' Goods, Tools and Machines; 111 and 113 California St., 17 and 19 Davis St., San Francisco, and 173 J St., Sacramento. mr.-1y

THE KNOX & OSBORN QUICKSILVER FURNACE.

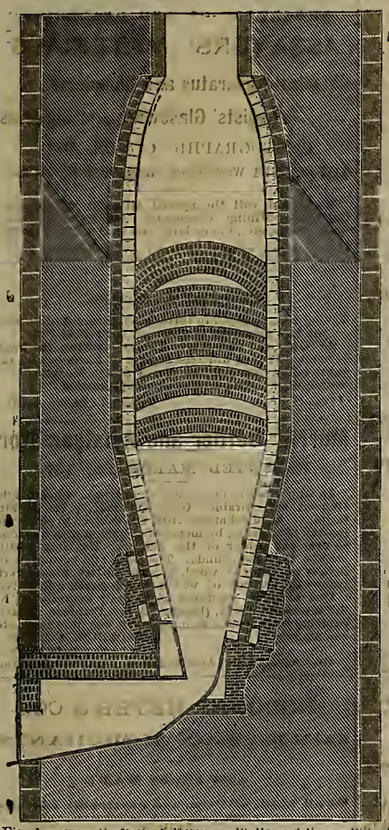


Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches.

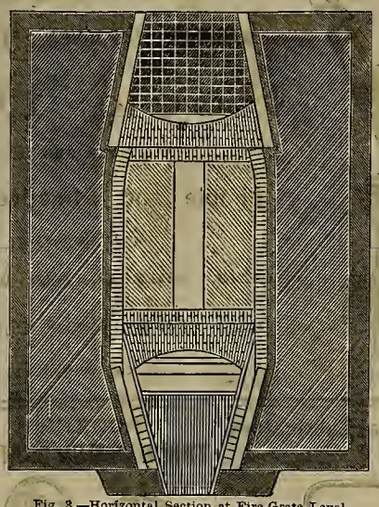


Fig. 3.—Horizontal Section at Fire-Grate Level.

THIS FURNACE REDUCES CINNABAR, AND

WORKS CLOSER TO AN ASSAY

And at **LESS COST** per ton than any other furnace. It will work continuously Twelve to Twenty-four months without stopping.

No Man Has Ever Been Salivated

Or otherwise affected by the mercury about the furnace, either in operating it or making repairs. For full particulars, plans, etc., apply at

19 AND 21 FIRST STREET, SAN FRANCISCO,

TO **KNOX & OSBORN.**

16v28-eow-3m-16p

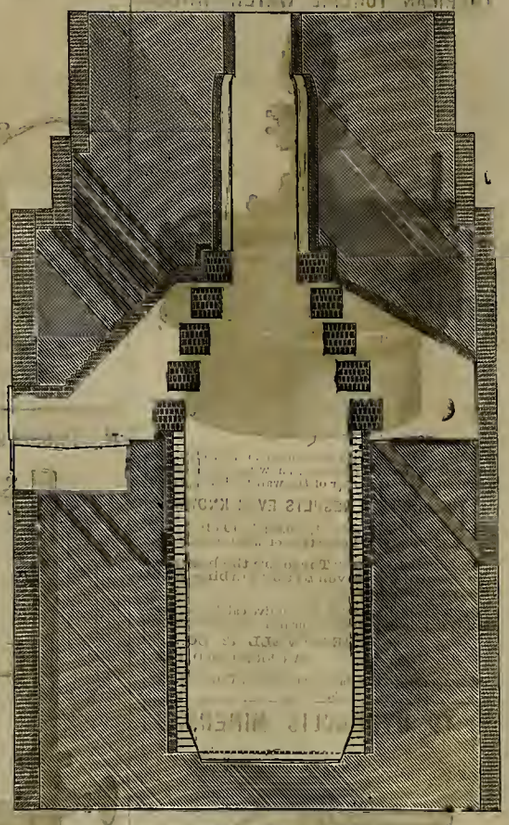
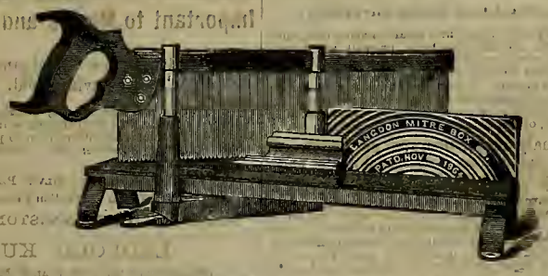


Fig. 2.—Cut Transversely from Fig. 1.

LANGDON'S ADJUSTABLE MITRE BOXES.



Common Mitre Boxes, 6 in. right angle, 4 in. at mitre; price, with Diston's Saws, ready for use, 18 in., $9.00; 20 in., $9.50.
Mitre Boxes with Extension Lever and Dado Stop, 9 1-2 in. right angle, 6 1-4 in. mitre, with Diston's Saws, 22 in., $11.00; 24 in., $11.50. For Metal Moulding, 20 in., $9.50. Sent by Express C. O. D.

CONROY, O'CONNOR & CO., Agents,
SAN FRANCISCO

19v28-eow-6m-16p

GIANT POWDER.

Patented May 26, 1868.

THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,

For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.

GIANT POWDER, NO. 2,

For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.

☞ The only Blasting Powder used in Europe and the Eastern States.

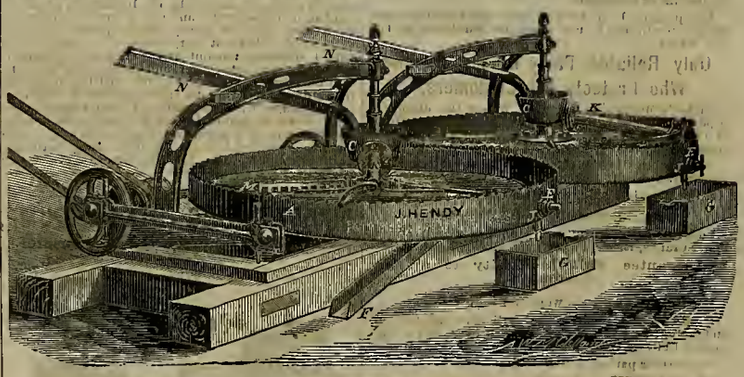
BANDMANN, NIELSEN & CO.,
General Agents, No. 210 Front Street.

v22-3m18p

OVER $3,500 PER MONTH SAVED

BY THE USE OF

HENDY'S IMPROVED CONCENTRATOR.



Can be seen at the Manufactory, 32 Fremont Street, San Francisco.

SAN FRANCISCO, April 27, 1872.

JOSHUA HENDY, Esq.—*Dear Sir:*—As a practical miner and millman, I take pleasure in recommending the use of your Concentrators in all mills where gold or silver ores are reduced. No mills should be without them for the following reasons:

1st. They are good sizers (no perfect concentration in pulverized ores can be effected without first sizing).
2d. The best Concentrator I have ever known—(the concentrated stuff only containing 5 per cent. of sand).
3d. They are good amalgamators, light (feathery) particles of amalgam and particles of coated gold, by attrition are brightened, and from their specific gravity and the action of the pan, fall to the bottom and adhere.
4th. They require but little power and attention to run them, and with ordinary care will last for years.

I have been familiar with the workings of your Concentrators for four years past; have run them myself in the North Star Mine, Grass Valley; am familiar with their practical workings on the Empire Mine, Grass Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this testimonial. For further information you are at liberty to refer to,

Yours respectfully,
JAS. H. CROSSMAN, M. E.

409 California street, or Cosmopolitan Hotel.

SAN FRANCISCO, February 10, 1874.

OFFICE SUPERINTENDENT OF KEYSTONE CON. M. CO., AMADOR, AMADOR COUNTY.

MR. J. HENDY—*Dear Sir:*—In answer to your inquiries as to your concentrators furnished our company last July, I would say that I am more than pleased with them; and the saving to the company has been over $3,500 per month more than with the blankets and huddles formerly in use.

O. C. HEWITT, Supt.

References:

Reference is made to the following mills, some of which have had HENDY'S CONCENTRATORS in use for over four years:

EMPIRE MILL. (8 Concentrators)	Grass Valley, Nevada County
NORTH STAR M. & M. CO. (8 Concentrators)	Grass Valley, Nevada County
VULTURE CO. (8 Concentrators)	Prescott, Arizona
NOYES & CO'S MILL. (2 Concentrators)	Prescott, Arizona
LUCY MINING CO. (3 Concentrators)	Owyhee District, Idaho
EL TASTE CO. (3 Concentrators)	Sonora, Mexico
ST. LAWRENCE MILL	Georgetown, El Dorado Co
ST. PATRICK MILL	Newcastle, Placer Co
JULIAN MILL	Newcastle, Placer Co
VIRTUE MILL	Oregon
KEYSTONE MILL. (22 Concentrators)	Amador Co

CAUTION—All of HENDY'S PATENT CONCENTRATORS are marked thus: "J. HENDY, Patented April 17th, 1866, and May 10th, 1868."

For full description send for Circular. Orders or letters of enquiry, address,

JOSHUA HENDY, San Francisco.

Office and Works, 32 Fremont street.

22v27-2am-tf

ANDERSON & WOODS'

AMERICAN CAST STEEL.

Price, 18c. per lb.

Every Bar Warranted and Guaranteed equal to any English Brand.

HOOKER & CO.,

Sole Agents for the Pacific Coast.

117 AND 119 CALIFORNIA ST., SAN FRANCISCO.

The Phelps' Manufacturing Co.,

(Late S. F. Screw Bolt Works.)

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13, 15 and 17 Drumm Street, San Francisco. 4v24ly

W. T. GARRATT.

CITY

Brass and Bell Founder,

Corner Natoma and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal

CASTINGS,

Church and Steamboat Bells,

TAVERN AND LAND BELLS, GONGS,

FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

California Assay Office—J. A. Mars &

Wm. Irelan, Jr., Chemists and Assayers, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

MINERS write for your paper.

AGENTS WANTED to canvass every town on the Pacific Coast for the MINING AND SCIENTIFIC PRESS, PACIFIC RURAL PRESS, and the ILLUSTRATED PRESS. Experienced canvassers preferred. Good men can make large wages, besides learning much and improving their talents.

PURCHASERS please say advertised in Scientific Press.

HINTS FOR INVENTORS. We will send on receipt of stamp for postage, FREE, our 52-page Circulars containing 112 Illustrated Mechanical Movements; a digest of PATENT LAWS; information how to obtain patents, and about the rights and privileges of inventors and patentees; list of Government fees, practical hints, etc. Address DEWEY & CO., Publishers and Patent Agents, San Francisco.

MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

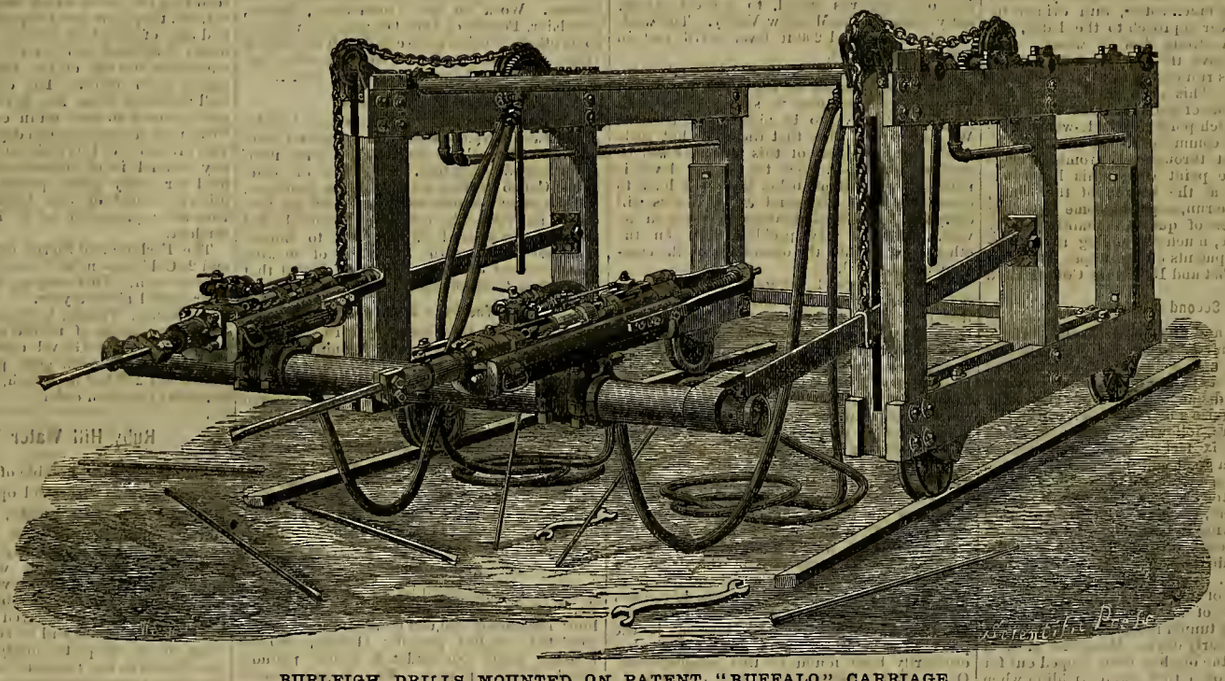
SAN FRANCISCO, SATURDAY, JULY 25, 1874.

VOLUME XXIX Number 4.

Patent "Buffalo" Carriage for Burleigh Drills.

Borleigh drilla of all the different patterns are being rapidly iutroduced in the various mining districts of tho Pacifio coast. In tonneliug, this machinery is peculiarly advantageous. By ita use great worke become easy, that wonld hardly he undertaken with the old appliauces of hand labor. Besidee the great saviog made in the labor of construction, the great saving of time accomplished hy ita use secures a great saving of interest on the cost of such works. An experience of five years has enabled the manufacturers to produce very perfect appliances for the adaptation of the machinery to this class of work, and hae also demonstrated the fact of its great saving hoth of time and expense over haud labor, in favor of the Burleigh drille and compresseors.

Our engraver has prepared a cut of a style of drill just being introduced here by Measrs. Parke & Lacy agents of the Burleigh Rook Drill Co. It is a 'Buffalo' carriage for moonting two drills upon one har, which may be raised and lowered by meana of chaiue pulleya and a windlaes. It is coustructed with an open space of from four to eixteen feet in the clear, between the two sides, so that it may be run in as soon after a blaet ae the track can be cleared by throwing the rock into the center. Drilling can thus be resumed with bnt little loss of time, and the removal of rock proceed simultaneously by means of small care running upon a narrow gauge traok laid inside the carriage-track. It has jack-screws to raise it from the wheels during the drilling, and is held in place, like the smaller carriage, by screws runniug out from the ends of the upper har, or up from the frame to the roof of the tunnel.



BURLEIGH DRILLS MOUNTED ON PATENT "BUFFALO" CARRIAGE.

It is constructed of wood and iron, and runs upon iron car-wheels. A tunnel 8 feet in hight, and from 10 to 16 feet wide, can be constructed by the use of this carriage; and, by means of an enlargement carriage, the size can be increased in hight and width sufficiently for any purpose for which a tunnel will ever be needed. For runniug a double-track railroad tunnel, two carriages of this form are commonly ueed side by side.

This style of carriage is well adapted for sinking inclines iu deep mines. The working of these drills in tunnels can be seen at the Sutro tuunel, Nevada; Cedar Creek Mining Co. and Gold Run Ditch aud Mining Co., Placer county, California; also at the Belcher, Gould & Curry, Consolidated Virginia and Overman mines, in Nevada, and on the Mariposa Land aud Miniug Co'e property, aud in the Idaho (Grass Valley) mine, at all of which places they are giving entire satisfaction.

Two hundren flasks of quicksilver were shipped from Napa City last week, the product of the mines in that vicinity.

The Uses and Benefits of Industrial Fairs.

Industrial Fairs have becomo a great feature of the timos, and a most important means of advancing the iudustrial improvemeuts of the age. By them we cau best oollect and most practically disseminate information of a tangible and oseful character. Without them the world must necessarily he slow iu securing a general dissemiuation of useful inventions and improvements which, from the very nature of things, must have a local origin. The benefits derivable from the frequent collection of the products of industry, aud the assembling together of manufacturers and producers, with the evidences of their skill and industry, are heyond computation.

Each age and country has new wants whioh the progress of civilization creates, and which it is the province of ingenuity and skill to supply; and what better way can be devised to make known such wants, and secnre means for supplying them, than to bring the consumer and producer together as we see them assembled at Iudustrial Fairs—whether County, State, National or International?

There were good artificers in hrass, iron and wood long before mechanics was known as a science. But such artificers worked apart, with no interchange of experience, no rivalry of one with another, to advance the common interest and practical progress of all. There was no incentive to invention, and consequently the steam engine, the telegraph, and hundreds of other importaut and useful iuventious, without which the world would now scarcely know how to do, were not called iuto being until thousands of yeare after the pyramids and numerous cities, still magnificent in their ruins, had fully demonetrated the capacity of man to turn his skill and genius to innumerable contrivances for pleasure, convenience and profit. But in all these thousands of years there was literally no progrese whatever in the useful and practical. Not until we find men coming together in Fairs and Exhibitions to compare notes iu their products of skill and the arts, and to learn the wants of society, do we find them making any material progress. It is only about 100 years since the first effort at an exhibition of this kind was attempted iu any part of the world, and since that time more progrese has been made in invention and discovery than during all the thousands of years from the time of Tubal Cain to that of Robert Watt.

It is not claiming a whit too much for theae Fairs when we aesert that it is to the greater extent to which they have beeu introduced in this country that the Uuited States owe their preseut proud position in the van of all nations for the inventive skill of their artisans. Industrial Fairs are peculiarly a "Yankee Notion," aud afford a most siguificant proof of the advantages derivable from their general introductiou.

In our own State, Fairs havo accomplished most important ends in giving impetus to arts and manufactures on the Pacifio coast by holding out the iucentive of reputation and reward for excellence in the various branches of local iudustry. Had it not heen for the stimulating influence of our Fairs, the high value of labor among us, and the wide and varied field for its employment, would have greatly retarded our especialties of manufacture, and other produotive enterprises. In no portion of the globe hav so many and such manifold advantages been derived from suoh sources as we have here witnessed. Experience has fully demonstrated that in no other way can we so effectually secure for California a steady, industrious and contented populatiou as presenting fairly, to all new comers, and to the world, the capacity of our State for sustaining in comfort a large population, aud the facilities we offer for raisiug a large proportion thereof to competence or affluence. Let us, then, one and all, enter into a generous and friendly rivalry in gatheriug together iu the Great Industrial Pavilion which is now risiug in our midst, every possible, tangible evidence of our producing capacity, embraciug at least something, as may readily be done, in every department of labor known to the civilized world.

Parties still continue to prospect in the vicinity of Dease creek, in the Stickeen mines, though little work can be done uutil the end of the month.

The miuiug prospect of Colorado was never more promisiug than at the present time, not only for the immediate future, but for years to come.

The new road to Teal Marsh, Columbia district, will soon be completed, when shipments of borax will be made daily via Carson City.

The proposed rolling mills of the Union Pacific Railroad Company will be built at Fort Steele, 17 miles east of Rawlins.

The Ready Relief Mine.

The Ready Relief, or Bailey Bros. miue, ic Banner District, San Felipe cañon, San Diego county, has been bonded to partiee from Grass Valley for $45,000. This mine is the southerly extension of the Redman, the first ledge struck in Banner district. It was taken up hy the Bailey Bros. iu Aug. 1870, immediately after the Redmau wae discovered. It is in a peculiarly favorable situation for working, and these advautages combined with the energy of its owners, have developed it into a pretty good mine. The ledge crops boldly out on the face of the mountain on the eastern eide of the south fork of San Felipe oreek. A fine etream of water flows by it, which the ownerstapped some distance above, and by means of a ditnh and small flume brought the water to run their three-stamp mill, so as to crush their own ore. The ledge averaged from three to eight feet in thickness where it cropped out, and showed free gold iu nearly all the croppings from the point of commencement on the level of the creek to the top of the hill which risee at an angle of 40° to the hight of several hundred feet. The owners ran several levels in on the ledge and rich ore wae taken from each one. The claim oomprises 1,000 feet. The young men who own this claim have all been hard workere, aud have put their property in such shape that they deserve to get a good price for it. They first crushed their rock in arrastras, and obtaiued in that way the money necessary to erect the little mill, which has done them such good service. They have lived at the mine ever since it was located, and have done a good part of the work themselves. The mine has paid all along, but will douhtless show a heavier yield when more men are put at work and a larger mill is put up.

Since writing the above item, we learn from the San Diego *Union*, of the 8th iust., that the boud referred to has expired, and the claim was bought by Messrs. A. Neyhart & D. Schuyler of San Diego for $45,000. It is stated that the new owners propose to erect a large mill and conduct operations on a scale of some magnitude, having command of all needed capital for that purpose.

Favorable reports come from a few of the other mines in this district, the Chariot particularly showing a goodjrecord. The principal part of the population of the district has moved from Julian city down into the cañon, where most of the work is going on. The country about these mines is also a good agricultural region, in fact the best part of San Diego county, aud we notice that a flour mill is to he erected there.

D. W. Walker and Ieaac E. Shaw, of Cloverdale, have begun developing a chrome iron mine, recently discovered on Capt. Wm. H. Litton's land, a mile north of Healdsburg.

The Globe Consolidated Mine.

The Gold Hill *News* ssys: This mine comprises the old locations of the Globe, Arizona and Utah mines, consolidated iuto one. It is sitnatsd on American Flst, at the hrow of the hill, immediatsly weet of the Baltimors Consolidated aud American Flst mines. The locations are among the oldest in that section, and rank among the most favorable on American Flat. A large amonnt of monsy hss heen expended at different times, in various ways on ths sevsral locations; some in running tunnels, some in sinking winzes, and some in sinking shafts that amomnted to little more than mers prospect holss. The first work of rsal permansnt valne undsrtaken on any of the claims, was that of running the old Globe tunnel, some five years ago; that, owing to its great length—having over 2,000 feet to run—tbe extreme hardnese of much of the rock to be penetratsd, and the limited means of the company, was several years in rsaching the vicinity of the ors vsin. About a year ago, howevsr, soms of the owners, posessing great faith in the nltimate development of a paying mine, erected

Hoisting Works,

And commenced the sinking of a three-compartment working ehaft, to more thoronghly prospect and ascertain the valne of thsir ledge. These works ars on the east hillside, 300 feet bslow the croppings of the ledge. The main hnildiug is 35x90 feet in sizs, with a boiler room 16x40 and a carpenter shop 26x30 fsst adjoining. The engine and other hoisting machinery is calculated to he of sufficient power to work the mine to a depth of 800 feet. The shaft has besn sunk to the depth of 400 feet. At the

Fourth Station,

Or 400-foot level, a main west drift has been drivsn in a distance of 450 feet from the shaft, most of ths way through rock of extrsme hardness. The rock in the face of the drift was at the time of our visit to the mine, yesterday morning, getting much softer, with evident indications of a nesr approach to the ledge, and the tapping of a strong flow of water. One hnndred feet above this ie the tbird station drift, which was rnn eastward to prospect the Arizona ledge. This drift struck some fine quartz, with epots of good ore, 110 feet from the ehaft, at whicb point a double-working incline winze was oommenced, and snnk to the depth of 100 feet, through very promising ledge matter. At the point where this ledge was etruok and also at the bottom of the winze, oroes drifts were rnn, expoeing some fine and extensive bodies of quartz, containing many epots of rich ore, mnch resembling in appearance the developments on the upper levels of the American Flat and Baltimore Consolidated mines. At the

Second Station,

Two hundred and fifty feet from the eurface, a drift has been run to connect with the old Globe tuunel, and following in a distance of 2,000 feet from its mouth is an incline raise-up 320 feet. At a distance of 100 feet from the bottom of thie raise a drift hae been run 70 feet to the northward, following the ore vein, which is here five to six feet in width, well defined and the ore of a good milling quality. At the head of the raise a drift has been run 200 feet, also following the ore vein, the face of which is still in fine ore, the vein evidently widening out and improving in both look and quality ae the work progreses. Ninety-five feet from the mouth of this drift a wiuze is now heing sunk on the ore vein. Tbis winze is down 45 feet. From the head of the incline another winzs extends a distance of 170 feet to the level of an old prospecting tunnel in the croppiugs of the ledge, run in early days. Along the sides of the lsst wiuze the ore has heen stoped out for some distance on either hand, yielding when crushed an average of $22 per ton. Extending upward from the head of the 320-foot inclins there are already many tons of good milling ore in sight; and extending dowu from that level the ledge is as yet comparatively unproepected, and hids fair to greatly improve when developed on the lower levels.

The Globe tunnel furnishes a steady living stream of 40 inches of water, at the mouth of whioh the grading is heing done for the erectiou of a fine 20-stamp

Mill,

The main huilding of which will be 52x70 feet in size, with a hoiler room adjoiuing, 24x30 feet. The eteam power for running the mill will he furniehed hy two 54-inch boilers 16 feet in length. The engine is to have a 20-iuch cylinder and 42-inch etroke, and the amalgamating department is to contain four nine-feet settlers and eight five-foot improved amalgamating paue. The situation of this mill heing such as to euabls them to dump their ores directly at the hatteries without a eecond handling, will ueoesearily make a vast saving in the cost of working, and enable the company to work with a profit mnch of the low grade ore that would not otherwise pay. The enperintendence of this mine is under the ahle management of Mr. Frank Thayer, a thoroughly practical and efficisnt miner, who will certainly leave nothing within his power undone to make it a dividend-payiug mine.

Gambetta says the French Assembly is a orpse, rendy for the grave-digger.

Pioche Mines.

The Pioche *Record* of the 12th says: Ysster-day we hsd the plssure of meetiug Captain Day, the Supsrintendsnt of ths Raymond & Ely, who returned a day or two since from San Francisco. He informs ns that the contrsct for supplying pumps and gsaring irons for the rods, engines and hoilsrs, and all other fittings for setting np the pumping machinery, has bsen taken by H. J. Booth & Co., of San Francisco, and that establishmsnt is now at work and is to complsts the contract in ninety days from the dats of signing. The machinery is to be of the most snbetantial character, and the sngine will be one of the vsry largsst that has heeu sst up in the Stats—only one other, that of the Savags, equalling it in sizs. The pump-rods has besn contracted for and will be supplied by a firm at Alta. The rods will bs made of red spruce, the toughest and most desirahle matsrial for such parposes on ths coast. In order to pnt the rods and pumps in place, the pumping compartment of the Lightner shaft will have to be enlarged, and the work will be commenced to-morrow. We cannot but exprsse our gratification that steps have bsen taken to procure machinsry to frse the shaft from water, so that the exploration of the vein bslow the water-level will he resumed. The grsat extent and continnity of the Raymond & Ely lsdgs, both in length and depth, has removed all doubts as to its being a trne fissure vein, and we feel ssrtain that the discovery of ore equalling, perhaps excssding the famons bonanza struck in ths Lightnsr shaft, is simply a question of time. The mine, as it stands at prssent, differs hut little from its appearance when we last visited it. The sonthwestsrn and eastern drifts on the 1,200-ft, and the drift on the 1,000-ft. levels, show the same as heretofore in their faces. The only altsration simply has been in their being opened to a greater extsnt. The mills are working on tailings, bnt ths yield has not heen so good as heretofore. The Magnet company are raising daily from 25 to 30 tons of ore, which on being worked yields reasonably well.

As regards the condition of the mine the foregoing remsrks would, to a great sxtent, aptly describe the Msadow Vallsy. The western drift of the 1,200-ft lsvel is176 feet in length; the east 69.

The Summit shaft is now 1,106 feet deep, and ie being pushed as rapidly as possible. If pumping machinery is set up by the company it will have to he placed in this shaft. Wa underetand also that there is but little doubt that machinery of thie character will be erected, for when once the water level is reached explorations below that will have to oease, nnlese the Raymond & Ely works will carry the whole accumulation of water on the vein, which is very problematical. In the other departmente the operations of the company are ae nsual.

The appearance of thiugs at the Pioche are more cheering than they have been for some time paet. The explorations of the new ground lying between the new ehaft aud the new works has revealed a coneiderable thicknese, carrying ore in large quantities. For a distance of over 400 feet the ledge has been opened, and is continuously ore-bearing, and from the regular nature of the formation in which it is imbedded, it may he expected to contiuue eo. One of the greatest diffioulties the minere in this region have to coutend with is the great number of faults caused by the intrusiou of dykes of harren rock, but the ground recently opened in the Pioche, under the euperintendence of T. R. Butler, apaears to be eingularly free from these nuwelcome visitors. For a length of 600 feet traversed by the drifts, the formation seems nnnsually even and free from breaks. A great number of assays have heen made from the ledge hy Mr. Bntler in person, and they all show a very large increass in the percentage of gold, mnch greater than has ordinarily been found in this neighborhood. Ore is already heing raised and preparations are being made to take it out in large quantities, if the deposit continues, of which there is every appearance at present.

At the American Flag the shaft has reached 1,000 feet in depth, and a station is being opened at that point. Other things are much the same. The mill is at work partly on tailings aud partly on ore. A shipment of bullion was made yesterday of something over $5,000.

The Newark miue ie progressing as nsual. The work on the new shaft contiuues without change. Ore ie heing taken from the old workings, which is reduced at the compsny's mill, from which source considerahle bullion is heing obtained.

New Mexican Mines.—The *Mining Life* says: Meesre. Black, Bullard and Yankie returned from a thirteen days' trip through the Fresco country on Wednesday. They report the gold diggere from Silver City as heing en ronte for the placer diggiugs, hut were unahle to learn in what exact locality they expect to find the diggings, and np to the tims of going to press uone of the various parties had retnrned, so that we have no data from which to judge of the prohahle succees of any of them. We hope they may be lncky enongh to find good surface diggings, hut the prospects are a little donhtful at present. Last Sunday'e coach took $3,975 in hullion; $2,530 of this was from the Tennessee mill, the halance from various sources. Ahout $400 in bullion was taken to Galleana by citizens of Chihuahua; making a total of $5,375 for the week, and leaving here about $1,200, the product of the Pope mill for last week.

Eureka Mines.

The Eureka *Sentinel* of the 12th inst. says: As a ruls, our leading minss are well established as reliahle ore prodncers, and special changs in their condition seldom transpires within the period of a week. All have magnificent bodies of ore, and the work of extracting and reducing the eame to hullion progresses steadily and satisfactorily. Taken all in all, the outlook is all that conld be desired, the leading mines of the district giving every evidence of richness and permanency. The

Ruby Hill Mines

Are now showing better on the lowsr levels than at any previons time in their history. At all points along the great ore bslt, dspth in the various shafts serves to demoustrate the extent of the deposit, and that it sxtends deep down into the bowels of the earth is no longer a matter of speculation.

The Richmond, Eureka Consolidated and K K

Ars each sending to the surface an nnnsually large amount of ore, and in most instances the ore is of a highsr grade than formerly obtained. These minee continue to employ the nsnal quota of men, and the amount of ore shipped to the furnaces is also abont the same as formerly given in these colmns.

The Furnaces

Are being driven to their fullest capacity, as is shown by the daily shipments of bullion. We are told that the coal rsceipts hsve not been qnite so largs the past wesk as formsrly, thongh we hays not the figures at hand to draw a comparison on this subject. No reason has been assigned for this falling off in the dsmand of fuel, and we can only account for it on the hypothssis that the smelting works had a sufficient supply on hand to ssrve them for a brief ssason. Matters in this lins msy, thsrefore, be expected to resume their wonted cheerfulness very speedily.

Prospect Mountain.

A grsat deal of wsll-directed mining and prospscting is bsing carried forward on the grand old mountain, which many bslieve will yet turn ont to bs the real backbone of the district. Work on the Dunderbsrg, Morris, Excelsior, Fourth of Jnly, Orangs, and perhaps some others is heing prosecoted with the utmost vigor, and the reenlts in all cases are of the most gratifying charecter. Further over in

Secret Canon District

The aspect of affairs is very cheering. Geddes & Bertraud have on their dump several hundred tons of excellent ore, and the mine itself never looked hetter than now. The ore body in tbe Calico incline, we are told, is immenee, and the other portions of the mine are as promising as ever. The owners of this celebrated property commenced shipping ore to Eureka the pset week, with the view of making another grand clean-up. It is predioted that they will net $50,000 on this trip.

The Page & Corwin

Is sgain coming into notoriety. In the early days it was oue of the best paying minee in this sectiou of the State, much of the ore going ae high as $1,000 per ton. The ledge was lost, however, and for a time the mine was allowed to remain idle. Lately it was leaeed by J. W. Sullivan, and doring the past week he mado a very important development, finding what appears to be a good hody of ore, assays of which have been obtained ranging ae high as $1,138 24. A considerable quantity of ore has been taken out and ehipped to the Hoosac furnace for smelting. It is said to make wonderfnlly high-grade bullion.

Bullion Stalistics.

Tbere were prodnced by the several farnaces during the week the following amounts of bullion: Richmond, 300,000 pounds; Eureka Consolidated, 232,000 pounds; Hoosac, 160,000 pounds; Ruby Consolidated, 70,000 pounds. Total, 762,000 ponnds. The furnacee made ehipmente dnring the same time ae follows: Richmond, 220,299 pounds; Consolidated, 273,211 pouuds; Ruhy, 13,000; Hoosac, 52,070 pounds—total, 675,582 ponnds. Snrplue on hand for the wsek awaiting ehipmeut, 96,418 ponnds.

California Mioroscopical Society.—The stated meeting of this eociety was held on the 10th inst., and in addition to the resident members present, Dr. J. H. Wythe and H. Edwards, honorary members, and Mr. W. R. Barber were present ae vieitors. The meeting was informal, yet those present found matter interesting enongh to detain them for several honrs. Mr. Edwards presented a parasitic hemipterons insect, found in ferns, and the peculiarities of its ova, yonng and fully developed epecies were noted for some time. Dr. Wythe exhibited several slides, monnted hy himself, ehowing miunte dissections of the caterpillar of the sphinx moth, including voluntary mnscles, tissue of stomach and urinary tubercles, stsined with carminate of ammonia. Several valnable donatione were made hy varions members, and an interesting paper on the insect infesting the engar plantations of the Sandwioh Islands, by Henry Edwarde, was laid over nntil the next regularmeeting of the society.

The Rhode Island Locomotive Works, Providence, have heen awarded a contract, amounting to $555,000, for the oonstruction of 50 first-clase engines for the Grand Trunk railway of Canada. The works will be placed on full working time, with a full complement of hands.

Sierra County Mines.

We condense the following items from the correspondence of the *Mountain Messenger*:

Chaparral hill, just above Oak ranch, whsre ten years sgo one hundrsd cabins were and 300 men, now boasts only four csbins and two men. The gravsl at Cooper'e prospects well, Two hundrsd fset square of gravel hss heen washed awsy this season at Kimball's hydrsulic diggings, at Eureks. Baird & Co. will clean np in a few days. Water is expected to last until August. Gsorge Parent is superintending Bliss' diggings, which promise to yield well this season. Folsom & Mnlholland are husy at their claim, and will continue to work throngh July. E. M. Parks is sluicing at Chaparral hill, and is said to be doing wsll.

The Galena claim, at Morristown, owned hy Csmpbell, Doherty & Perkins, is being worked day and night, and evsry indication shows that the rsturns will be large. Twelvs claims have besn washed away hy ths American company this season. This company has enough gravel to last 20 odd years. The hydranlic claims hsreabouts promise to yield wsll this year.

The Bunksr hill company, at Little Grizzly, two months ago pitohsd off east into a chansl of nice hlne gravel, and followed it 20 fest; and are now putting down an incline, whioh it will take ahout fonr weeks to complste.

The Comet company will wash seven claims during the season, and each claim will pay about $3,000. The Monitor claim, Chittenden & Co., have stripped a large amount of bedrock. Sears Union Co., at Granite Hill, havs swept the monntains away hy the wholesals, baring many acres of rock with their two monitors rnnning. From every indioation satisfactory rstnrns will undonbtedly he the result, nndsr the able and ensrgetio superintendent, F. A. Gonrlsy. They are now hottoming up, employing sevsnty-five men.

The Empire mining company, at Potosi, ars busily at work, and their claim is paying well. They have 2,000 fset of flume, 18 by 18 inchss, with iron riffles. Length of main tunnsl, 3,300 fest; using Manson's chilled wheels and revolving car axlss, which ars pronouncsd excellent; they have good apparatns for washing, and one of the best dumps in ths country; depth of air shaft 335 fest, of which 85 fsst was snnk from the top of the ridge, and 250 fe t raised from below. The outside works are well protected from fire, having 140 feet head alwaye ready to turn on in oase of an alarm. Fifty men are employed on day and night shifts. The prospects of this claim are promisiug. Its pay channel ie of immenee width, showing a field for many yeare' profitable labor. This mine is owned by San Francisco capitalists, who are represented by J. Denoon, euperintendent.

The Fashion and Sierra companies, Noe. 1 and 2, Cold cañon, will soon put on a large force of men. This company hae heen running their tunnel ahont a year.

Newhouse, Wolters, McDonald, Jackson and Fradett, residente of northern Sierra, are developing the Mt. Gravel claim, Onion valley, Plumas county, with good proepects. Their tnnuel is 1,200 feet in length, and all working machinery in good order.

Ruby Hill Water Works.

Among the most notahle of the different enterprisee now in enccessful operation on Rnby Hill, the new water works, owned by W. B. Harrnh, of Eureka, is most prominent. The amount of money necessarily expended in perfecting the arrangements, whereby the town might be supplied with a never failing supply of water, has heen considerable, and had it not heen for the energy displayed by Mr. Harrnh, the residents wonld still he euffering from the want of an adeqnate supply of good water. But thanks to the foresight and resolution of the ahove named gentleman, all cause of complaint in this direction is now ohviated. The supply of water now on hand far exceeds the demaud, and if necessary it could he more than douhled. The water for the use of the town is contained in five large tanks, three having a nnited capacity of 84,000 gallons, and two of 16,000 gallons eaoh, all of whioh are always kept full. Besides this the K K and Enreka Coneolidated Companiee' tanks, holding 16,000 gallons each, are kept filled. The Richmond company is erecting a tauk to hold 20,000 gallons, and another of the same size ae the latter is heing oonstructed for town purpoees, and when completed the amount daily kept on hand will exceed 150,000 gallons. The water ueed by the company is brought through pipes and ditches from eprings in New York cañon, where a large reservoir is alwaye kept filled. In addition to this supply, which is fully adeqnate to meet all demands, Mr. Harrnh has recently purchased the Way springs, situated in Secret cañon, and ie now having a ditch oonstrncted to this point. From thie eource alone enongh water cau he obtsined not only to supply the towu hut also furnieh a snfficient qnantity necessary to be used in a smelting fnrnace. It is thought hy some interested in the ersction of snch a furnace that an adequate amount cannot he obtained, bnt we have the assurance of those who know the requirements of such an undertaking that a plentiful eupply is obtainahle for euch a purpoee. W. H. Dickson, the snperintendent of the company, ie one who hae a thorongh understanding of the business, and nnder his management ite affairs are in a most prosperous condition.—*Eureka Sentinel.*

Scientific Progress.

Velocity of Nervous Impulses.

However slow the rate of nervous movement may be, as compared with the velocity of light or the still fleeter motion of electricity, it is nevertheless so rapid that until quite recently it was thought to be immeasurable, within the limited range in which our observation of it is possible. The most widely separated points in the course of any nerve allow but a few feet of difference at best for timing the periods of sensation or volition; and the nervous impulse travels so quickly that such small distances would seem to be wholly annihilated. To our consciousness a prick on the great toe is discovered as promptly as one on the cheek; and it is only by the intervention of the most delicate and ingenious of mechanical contrivances that the difference in time is made apparent.

In all the early experiments on motor nerves, the leg of a frog had been used. In 1867, Baxt and Helmholtz applied the test to man, using an improvement of the myographicon suggested by Dn Bois Raymond. The result gave the rate of conduction for the motor nerves of man, corresponding to that already obtained by Hirsch for the sensory nerves. A very careful series of experiments by the same observers, in the summer of 1869, showed a mean rapidity for the motor nerves in man very much greater, or about 254 feet a second.

The measurement of the rate at which the nervous impulse travels brainward necessarily involves a process very different from any employed in the study of motor nerves. The problem was first attacked by the Swiss astronomer, Dr. Hirsch, soon after Helmholtz took up the other branch of the investigation, and his solution of it was as ingenious as it was successful. It involved the measurement, with the delicate chronometric instruments employed by astronomers, of the difference in time between the appreciation of impressions made at a distance from the brain, say on the great toe, and others nearer, as on the cheek. Roughly described, the plan adopted was substantially this: The observer sat with his finger on a signal key, with which he announced the perception of an electric shock as soon as possible after feeling it, thus closing an electric circuit which had been broken by the shock. The minute interval between the breaking and closing of the circuit measured the time taken by the transmission of the shock to the brain, the time required for the perception of the sensation, time for willing the movement of the signal key, time for the transmission of this volition to the proper muscles, time for the contraction of the muscles, and finally the time lost in the physical process of signaling. Obviously all these parts, except the first, must be substantially the same in all experiments by the same person, using the same finger for making the signal. Any difference in the whole time must therefore be owing to the greater or smaller distance of the particular point of impression from the brain. This difference being measured with tolerable exactness, it is possible to calculate pretty closely the rate at which the nervous impulse is transmitted. The estimate first made by Dr. Hirsch was, as already noted, 111 feet a second. More recent determinations give averages ranging from 97 feet, by Dr. Sohleske, to 136 feet, Wittich's estimate for a nervous impulse excited by electricity. With a mechanical stimulus, he found an average velocity of 124 feet. These figures, of course, are to be taken relatively. The rate varies in different individuals, and, doubtless, in the same individual, with varying conditions of health, temperature, and so on, the general average being about that of a high wind, a race horse, or a locomotive. Light excels it about ten million times, and electricity more than fifteen million times.—*Scientific American.*

Photography at the Bottom of the Sea.—Nenmayer recently exhibited to the Berlin Geographical Society a photographic apparatus designed for the determination of the temperature and of the currents at great depths in the ocean. The invention is composed of a copper box, hermetically sealed and furnished with an exterior appendix, made like a rudder. In the interior is a mercury thermometer and a compass, each enclosed in a glass receptacle, in which are admitted traces of nitrogen gas. A small electric battery completes the apparatus. When the latter is allowed to descend, attached to a sounding line, the action of the current on its rudder causes it to assume a parallel direction, thus indicating the set of the flow by the relative position of the compass, needle and rudder. The thermometer, of course, shows the surrounding temperature. In order to fix these indications, a piece of photographic paper is suitably disposed near the glass cases containing the instruments. Then at the proper time a current of electricity is established through the gas in the receptacles, causing an intense violet light, capable of acting chemically upon the paper for a sufficient length of time to allow of the photography thereon of the shadows of the compass needle and of the mercury column. Within three minutes, it is said, the operation is complete, when the apparatus is hoisted and the paper removed.

Abbe Fiehol has recently constructed a new battery, using a Spanish mineral, which is probably a kind of pyrites. The battery is constant, and it has been found that, after 18 months' continuous use, it operates as well as when first employed.

Men of Science.

Mr. Francis Galton, F. R. S., delivered a lecture at the Royal Institution, from which we gather the following interesting remarks: The data for the subject were the information furnished in the replies to the schedules sent out by the lecturer to 180 of the leading scientific men of the day, which were taken in total at about 300. Of these half were in age between 50 and 65; three-quarters were English, and, as compared to the general population, the proportion was 1 in 6,000. The inquiry was then made into the causes which gave rise to these positions of eminence. Scientific discoveries were necessarily rare, and in some degree the course of individual mark was a race against time. Most remarkable, however, was the almost persistent combination of remarkable energy of body with remarkable energy of mind. The returns made to the lecturer were necessarily confidential, but he quoted extracts to show illustrations of each topic. Size of head was considered, and as a general rule was larger than of ordinary gentlemen. Still, remarkably many scientific men had small heads, and the small heads were remarkable for activity. Health, again, was a marked feature. Independence of spirit and tenacity of purpose were also most marked characteristics of men of science, and notably a large proportion were men of business as principals of large commercial or mercantile concerns.

There were ten medical men also in the highest ranks of their profession, and 18 others in high posts not being professorships. The great incentive to science seemed to the author to be innate taste, and in character he regarded the scientific mind as anti-feminine. As to hereditary qualities, that of health seemed most essentially due to parentage; and on the parental side the influence of qualities was apparently on the father's side. The author appeared to consider that a combination of all essential qualities was necessary to the production of a man of mark, and that the laws of chances and alternatives came in to give activity to the results. In regard to education, the general condition seemed to be that they were not tied down in their studies to particular subjects, but were given to the investigation of many; and that they had been in contact with persons of many ranks of society. There was a regret expressed of the time spent on classics in numerous instances and a general appreciation of, or desire for, a knowledge of mathematics; and admission in many cases of the value and influence of home teachings. Finally, the lecturer advocated a national enlargement of moderate means of livelihood for those who desired to follow science, and the formation of a sort of scientific priesthood, with a view to the utilization of science to the general good..

Temperature of the Earth.—In this country the earth's temperature is constant at a depth of about 50 feet, where the temperature is about 50° Fah. The rate of increase of temperature is in our coal mines generally 1° Fah. for every 60 feet of depth. It is questionable, however, whether after a great depth the rate of increase does not prove more rapid than before. At the deepest coal pit in England, namely, that at Rosebridge, near Wigan, where the shaft is now 2,376 feet deep, and is still descending, there is a ratio of heat increase agreed with the ordinary rate down to a depth of 1,800 feet, after which it became considerably more rapid. At the lowest point of the sinking the thermometer indicated 92° Fah.—*The Engineer.*

Detection of Phosphorus.—In testing bodies supposed to have been poisoned by phosporns, the fatty matters present are an inconvenience. By Van Bastelaar's method the liquid is rapidly shaken up with ether; the ethereal extract is evaporated, under protection from dust. At the end of the operation a few drops of distilled water are added to hinder the action of the air upon the phosphorus. Under the water is deposited a liquid globule composed of phosporns and fat. This is placed in a small tube, and agitated with strong ammonia at 21°; the ammonia is removed by washing, first with very dilute sulphuric acid, and then with water. The phosphorus then remains, with all its physical and chemical properties.

Evolution of Gases from Molten Cast-Iron.—Ledebur thinks the evolution of gases is due to the three following causes: First, to those gases which have been absorbed by the molten metal within the furnace, and which are again evolved when the metal is cast, owing either to diminished pressure, to a greater motion of the iron, or to the iron again solidifying. Second, to a formation of gases produced by chemical reactions taking place when the molten metal comes in contact with the air. Third, to a formation of gases produced by chemical process in consequence of the contact of the molten iron with the molds.

Delicate galvanometers should never be kept in the field of permanent magnets, unless, as in the case of the mariner's compass, they are free to move in the direction of the lines of forces of the magnetic field in which they lie, otherwise they will quickly lose their magnetism.

Thallium in minerals may be detected by the spectroscope, when present in the proportion of 1 to 500,000.

Proofs are given that ozone is soluble to a slight extent.

Mechanical Progress.

Watches.

Nalthropp, in his "Treatise on Watch-work," laments that even educated men know but little of the handy machines they carry in their pockets. Most people know a watch when they see it—this they cannot fail to do; but as to distinguishing between a lever and a horizontal, still less a "verge," they are profoundly ignorant. Even in the matter of identifying a "compensation" balance, the average bearer of a watch is deficient, as is proved by the number of imitations abroad, which to the cursory observer present all the appearance of the genuine article. Mr. Nalthropp says truly that the owner of a watch ought not to be satisfied unless he knows enough about its working and construction to intelligently appreciate the really scientific workman—if he finds him—into whose hands he commits his little machine for repair. Further than this, there are many minor things about watches that ought to be known by ordinary people, which will enable them to care for their timekeepers in an intelligent manner. For instance, more watches are spoilt by hasty and irregular winding-up than by most other causes, and a thoughtful man ought to discover for himself that our author's advice on the subject is sound. A watch, he says, is much like a child, requiring uniform treatment, "that is to say plainly, not over-indulged to-day, neglected to-morrow." Winding-up should be performed regularly, with a steady and uniform motion, not moving both hands, and nearly as possible at the same hour daily. A watch should always be kept at the same temperature as nearly as possible. Left overnight on a stone mantelpiece, it is sure to gain, or if the oil gets thickened, it may stop, to be started again by the warmth of the pocket. The regulator is too often viewed as an appendage more to be looked at with wonder than to be used, while the persons who can explain the theory of its action are few in the extreme. Yet the task of learning enough about a watch to become capable of talking intelligently about it, and exercising the control over a "jobber" which that knowledge is certain to give, is but slight, and it ought to be reckoned as blameworthy to be ignorant about one's watch as to know nothing of the merits of one's boots or clothing. Mr. Nalthropp gives to the uninitiated a few hints as to the purchase of a watch which are worth reproducing. The case, be it gold or silver, should be correctly made and of fair thickness; the hinges close and smooth; the glass well fitted; the dial of clear, bright enamel; the seconds sunk, and the whole of good weight when held in the hand. When the dome is opened—for it is better that a watch-case should be so made, though more expensive—the brass-work should look well-finished, the edges smoothed off, the steel of a diamond-like polish, the jewels pale in color, but of a fine, clear luster; the action of the spiral spring should be even, when the watch is set going.

The N. Y. *Herald's* new press has attracted much attention among printers and engineers. The dimensions of this machine are as follows: Length, 11 feet; width, 7 feet; length of cylinders, six feet; diameter of main cylinder, five feet; weight, 15 tons. It is furnished with four flys, which enable it to dispose of the sheets as fast as the press can print them. The main feature of this machine is that the roll of paper is taken from the top of the cylinder and fixed on uprights at the back of the press, connected with the cylinder by means of a roller; the cutting of the paper is done *after* instead of *before* printing, the cutting cylinder being in the rear instead of the front of the machine, doing away with cams, grippers and tapes for carrying the cut sheets from one cylinder to another, and by this means obtaining a higher rate of speed. Compared with the Hoe ten-cylinder, the labor-saving is immense, when we consider that it takes 15 men to work it effectively, while the Bullock—the new press—requires the attendance of but three, and the saving in expense of running is averaged at $18,000 a year—almost the cost of the Bullock press.

New Mechanical Cutter-Out.—A firm of Glasgow ready-made clothiers have just introduced a new machine for cutting out garments which will be the means of saving much labor. The "band machine," generally in use for cutting out shirts and other articles is ill adapted for cutting out heavy garments, some more expeditious tool being needed. In the Warth machine the scissors action is substituted for the revolving blade. A piece of steel about an inch and a-half long descends upon a slot, and thus cuts its way when propelled by steam at the rate of 700 "snips" a minute, covering at the same time over two yards of material.

Paper from Jute.—The Dundee *Advertiser* has been printed on paper made entirely from Calcutta jute cuttings. The *Advertiser's* opinion of the paper is as follows: "It is an excellent paper, but not quite so bright in color as we could have wished, more resembling the color of paper supplied to print second-class books. We intend trying again to have a parcel of paper made of a good, bright color. The paper we have made is, however, very tough, splendid in every particular for the newspaper trade."

Testing Armor Plates.

In England, before the plates are sent to the dockyard, one or more are chosen at random by a government official to be tested. The plates are fastened to a target erected at one end of the ship, and shots are fired at them from guns of prescribed caliber, in a battery at the other end, the men being protected from the splinters of the shot by a casement. If the plate does not stand the test satisfactorily, the lot from which it was selected is rejected. This system of tests seems as good an article as it is possible to make. During the first few years of the manufacture it was found that the plates were often split and cracked by the shot, in the neighborhood of the holes which had to be bored through them for the screws or bolts by which they are attached to the targets. It was thus assumed that these holes were necessarily a source of great weakness, and many schemes were proposed for connecting plates with the ship's side in ways by which this important defect might be avoided. One was that an iron frame should be attached to the ship and the plate dropped into it, the edges of the frame being afterward beaten over to secure the plate in its place. The necessity for anything of this kind has been obviated by the great improvements which have been effected in the quality of the armor; the metal now used is so tenacious that it is scarcely any weaker in the neighborhood of a bolt hole than in any other place. The superiority of the armor of the present day over that made 10 years ago was fully exemplified in the recent experiments on the turret of the "Glatton." A hole was punched through one of her 14-inch plates by the shot, but there was no other damage done to the plate than the mere penetration. Under similar circumstances in the case of plates experimented upon some years ago, there would be seen large cracks radiating from the shot hole, producing a complete separation of the plate as far as the nearest bolt holes, and in many cases the armor plate would have been broken in two or three pieces.

A Compound Locomotive.

An ingenious member of the Manchester Scientific and Mechanical Society proposes to apply the compound principle to locomotives. This is how he sets about it, says the *English Mechanic:* He would use steam of 250 lbs. on the square inch to work the small cylinder, and expand this steam into a supplementary boiler bearing a pressure of 60 or 65 lbs. to the square inch, so as to have a surface of effective pressure of 180 lbs. or 190 lbs. in the small cylinder, or about 60 or 65 lbs. in the larger one. The principal alterations proposed are in the boiler. In adapting his plan to a locomotive of the medium size, he would make the boiler two feet longer than at present, and divide it into two distinct parts, the part containing the furnace or fire box to be two feet shorter than at present, so as to have the supplementary boiler four feet longer, both being equal in diameter, and equal in number, size and position of tubes, the two parts of the boiler being firmly bolted together, and so arranged that the tubes of one are in a line with the other, so the hot air and flame may pass freely through from one to the other. An important advantage claimed by the plan is that the driver of the locomotive will be enabled to start his engine with the full power of steam in both cylinders at once, which he could not do, if compounded in the usual way. Although this plan will require extra outlay, there will be a considerable saving in fuel, which, with other advantages, it is claimed, will more than compensate for the extra cost. We are not surprised to hear that discussion followed the reading of the paper, in which the feasibility of the plan was generally condemned. Ultimately, however, the discussion was adjourned, in order that the inventor might give further information on the subject.

Liquefying Gases.—M. Mellens saturates charcoal with an amount of chlorine whose weight will be equal to that of the charcoal, places it in one limb of a V-shaped tube, sealing both extremities thereof, and applies boiling water to this limb, causing the volatilized chlorine to rise in the other limb, when, under the pressure produced, it may be liquefied by dipping the latter limb in a freezing mixture. He liquefies ammonia, sulphurous, hydro-sulphuric and hydro-bromic acids, chloride of ethyl and cyanogen in the same manner.

Hollow Bars for Furnaces.—The chief features of novelty in this invention are: Forming the hollow bars of cast iron having two or more longitudinal water passages; providing the ends of the passages with removable screw-plugs or other stoppers to facilitate cleaning; double-chambered hearing-pieces to supply water to bars; placing the double-chambered bearing-piece in the middle of long bars; supplying the feed-water in some cases from a surface condenser.

Improved Fish-Grappling Spear.—The spear barbs are jointed together and provided with springs, which are bent when the hooks are opened, and held by the toggle joint until the latter is sprung, and then close them with sufficient force to secure the fish.

The Preece block system of electric railway signalizing is working on the principle that the trains are to be kept a certain unvarying distance apart. No train can advance until the signal is given that the line for the specific distance ahead is absolutely clear.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, July 22, 1874.

NAME OF COMPANY.	SHARES IN MINE.	FEET IN MINE.	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo						
Alpha Con	300	6000	12½TH	11T		1
Alta	3600					
American Flat		30000	7½TH	6¼W		¼
Bacon M. & M	65	24000	4W	3¾T		
Baltimore Con		24000	9TH	7T		
Belcher	1040	104000	74½TH	62T		10½
Best & Belcher	224	22400	24S	23W		½
Bowers	20	5000	4T	4T		
Buckeye		16000				
Bullion	2500	25000	8¼F	8F		
Caledonia	5000	20000	17½TH	15W		1
California			39¾M	38TH	2	
Chollar-Potosi	2800	28000	62TH	49¼T		6
Confidence	120	24000	11½TH	10W		½
Con. Gold Hill Quartz	34½	2000	2½T	2½T		¾
Con. Virginia	1160	108000	82¾M	78TH		1½
Cook & Geyer	1600	24000				
Crown Point	600	150000	73TH	66T		4
Daney	2000	20000	2T	2T		¼
Dardanelles	1200	24000	9¼W	7½F		
Dayton			5½M	5W		¼
Eclipse	20	25000	6¾W	5¾T		
Empire M. & M	75	50000	7½TH	5¼T		¼
Excelsior	400	30000	64TH	59W		1
Exchequer			2T	2T		
Fairmount		20000	2¼M	1¾F		¼
Flowery	3000	12000				
Franklin			2T	2T		½
Globe		48000	19½TH	18W		¼
Gould & Curry	1200	48000	19½TH	18W		1½
Hale & Norcross	400	16000	50TH	43¾T		1½
Imperial	184	100000	8¾TH	6¼T		½
Indus						
Insurance	2000	30000				
Jacob Little			3F	2¼W		½
Julia	2000	30000	3F	2¼W		½
Justice	3000	21000	8F	6¾S		
Kentuck	95	30000	14½TH	12T		½
Knickerbocker	1200	24000	4F	2¼M		1
Kossuth			2S	2¼F		
Lady Bryan						
McMeans	3600	36000				
Mint	1600	50000				
Nevada	3000	40000				
New York Con	3690	36000	3F	1¾T		
Occidental	800	10000	3¼T	3T		½
Ophir	1400	16300	17½TH	15¾F		½
Overman	1200	37400	33½TH	25T		½
Phil. Sheridan	1200	24000	4F	3¾F		
Pictou	2000	30000	35CTH	35CTH		5c
Rock Island		24000	2¾S	2T		
Savage	800	16000	10½TH	7¾T		10½
Seg. Belcher	160	6400	74S	68T		17½
Seg. Caledonia		10000				
Seg. Rock Island			7¾TH	7¾TH		½
Seutor		24000	2¾M	2¾TH		1
Sierra Nevada		20000	6¾a	4¾M		1
Silver Hill		54000				
South Comstock						
South Overman		24000	13¼TH	11¾W		½
Succor M. & M	7600	22800	2T	1¾TH		½
Sutro		24000	6W	4T		2
Trench	20	24000	1S	7⁄8T		
Tyler	2200	33000				
Union Con	803	20000	3T	2½S		½
Utah		20000	3¾M	3W		¼
Woodville	1400	28000	81½TH	72T		
Yellow Jacket	1200	24000				
NEVADA.						
Adams Hill		50000				
Alps	800	30000				
Amador Tunnel			3W	2¼W		
American Flag M. & M						
Arkansas	300	30000				
Belmont			4¾F	3⅞W		⅛
Bowery		30000	7¼TH	7¼TH		
Chapman M. & M		30000	2¾W	2¾W		
Charter Oak	1000	30000	¼W	¼W		
Chief of the Hill		30000				
Chief East Extension		36000				
Columbus M. & M	10000	50000				
Condor		25000				
El Dorado South			3¼TH	2¼W		¼
Eureka Con		50000	13⅜	12¼W		4
Excelsior		12000				
Harper		30000				
Hayes						
Hermes	1000	30000				
Home Ticket						
Hunn & Hunt	3600	30000				
Ingomar	1000	40000				
Ivanhoe		30000				
Jackson		50000				
Josephine						
Juniata Con	5000	50000				
K. K. Con			35½TH	35½TH		
Kentucky	1000	30000				
Kinston	1000	30000				
Lehigh	1000	30000				
Lillian Hall	1000	15000				
Louise	2400	30000				
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24023	60000	7⅞S	6¾W		¾
Mocking-Bird	1200	30000				
Monitor-Belmont			2TH	1¾M		¼
Murphy	2000	60000				
Newark	800	32000	1¾W	1½W		
Pacific Tunnel						
Page & Panaca	2400	40000	2½W	1⅝W		
Peavine	1000	30000				
Phœnix		50000				
Pioche	1000	20000	6½TH	5¾W		¼
Pioche West Ex		35000				
Pioche-Phœnix		40000				
Portland						
Raymond & Ely	5000	30000	16¼M	15¾F		3
Rye Patch			1½W	1¼F		⅛
Silverado		30000				
Silver West Con						
Standard M. & M						
Star Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mount		25000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole	200	30000	1¾S	1½T		
Watson			5T	5T		
Yellowstone						
CALIFORNIA.						
Alpine	1200	12000				
Bellevue	8000	20000	2TH	1½W		⅛
Calaveras	3200	20000				
Cedarberg		24000	2¼W	2W		
Chariot Mill			8¼T	7¾F		⅜
Con. Amador						
Cottonwood Creek		20000				
Dunderberg M. & M						
El Dorado						
Eureka	1680	20000	6TH	5M		1½
Gillis		20000				
Independent	1800	24000				
Keystone		25000				
Mt. Jefferson	1500	10000				
Oakville		25000				
St. Lawrence M. & M						
St. Patrick	1800	20000				
Tecumseh	3000	30000				
Yuba Gravel	400	10000				
IDAHO.						
Empire		25000	4¼TH	1¾T		1¾
Golden Chariot	750	20000	9¾TH	7¾W		1¼
Ida Elmore	1300	10000	2¼F	1W		¼
Mahogany	720	10000	4F	3W		¼
Red Jacket						
South Chariot	680	20000	12¼F	11¾W		
War Eagle	1000	10000	3M	2½T		
WHITE PINE.						
General Lee	1000	20000				
Mammoth	1800	36000	15CTH	15CTH		2c
Noonday	1000	20000				
Orig. Hidden Treas.	800	21333				
Silver Wave						
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No. Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business
Adams Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	E Landers	501 Montgomery st
Arizona & Utah	Washoe	9	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Baltimore Cons M Co	Washoe	8	1 00	May 23	July 2	July 25	D T Bagley	419 California st
Belmont M Co	Nye Co Nevada	3	1 00	July 17	Aug 22	Sept 12	C H Bogart	402 Montgomery st
Best & Belcher M Co	Washoe	9	50	July 13	Aug 17	Sept 12	W Willis	419 California st
Buckeye G & S M Co	Washoe	11	50	July 21	Aug 28	Sept 16	O A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	8	3 00	July 15	Aug 22	Sept 11	R Wegener	414 California st
Caroline M Co	Ely District	5	25	June 30	Aug 8	Aug 31	R H Brown	402 Montgomery st
Chief East Extension M Co	Ely District	3	10	July 7	Aug 13	Sept 9	R Wegener	414 California st
Europa M Co	Washoe	2	25	July 14	Aug 18	Sept 10	F G J Margetson	418 California st
Eureka M & Smelting Co	Eureka Nev	4	25	July 14	Aug 18	Sept 7	T P Healy	424 Montgomery st
Europa M Co	Nevada	2	25	June 9	July 15	Aug 7	F G J Margetson	418 California st
Globe Cons M Co	Washoe	2	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Globe M Co	Washoe	7	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Golden Chariot M Co	Idaho	10	3 00	July 3	Aug 7	Aug 27	L Kaplan	Merchants' Ex
Hale & Norcross S M Co	Washoe	43	5 00	June 9	July 14	August 4	J F Lichtner	438 California st
Hayes G & S M Co	Cal	6	51	June 4	July 13	August 10	Geo R Spinney	320 California st
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 19	W Willis	419 California st
Imperial S M Co	Washoe	19	1 00	June 5	July 8	July 30	W E Dean	419 California st
Independent G M Co	Washoe	4	50	June 4	July 9	July 31	G T Gomes	230 Montgomery st
Josephine Cons S M Co	Nye Co Nevada	1	15	July 20	Aug 22	Sept 12	C H Bogart	402 Montgomery st
Justice M Co	Washoe	10	2 50	June 13	July 14	August 3	Frank Swift	419 California st
Kossuth M Co	Washoe	1	25	June 29	July 31	Aug 18	E F Stone	419 California st
Lady Washington M Co	Washoe	1	50	July 1	Aug 3	Aug 31	H O Kibbe	419 California st
Leo M Co	Washoe	3	50	July 16	Aug 14	Aug 31	O J Eaton	Express Building
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	C B Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	July 13	Aug 17	Sept 15	D A Jennings	401 California st
Mint M Co	Washoe		10	June 30	Aug 5	Aug 27	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	July 7	Aug 13	Sept 7	W W Hopkins	411½ California st
Overman S M Co	Washoe	29	3 00	June 9	July 13	July 31	W W Stetson	414 California st
Pauper M Co	Idaho	2	25	June 16	July 25	Aug 17	D Wilder	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	C S Neal	419 California st
Rock Island M Co	Washoe	4	1 00	July 17	Aug 21	Sept 9	J W Clark	418 California st
Rye Patch Cons M & M Co	Nevada	14	25	June 13	July 21	Sept 12	W H Sedgeual	406 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	July 27	Aug 27	A C Ryce	308 California st
Senator S M Co	Washoe	10	50	June 3	July 11	July 31	H Boyle	Stevenson's Building
Silver Cord M Co	Idaho	4	50	July 3	Aug 6	Aug 31	F Swift	419 California st
Silver Hill M Co	Washoe	3	2 50	June 25	July 29	Aug 20	W E Dean	419 California st
Spring Mountain Tunnel Co	Ely Dist	9	10	May 22	July 3	July 25	J M Buffington	Merchants' Ex
St Laurence M & M Co	Placer Co Cal	7	1 00	June 25	July 27	Aug 13	R B Noyes	411½ California st
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Table Mt Alpha M Co	Cal	4	25	June 13	July 28	Aug 18	T F Cronise	438 California st
Tyler M Co	Washoe	6	30	June 4	July 9	July 29	G Shebrow	Merchants' Ex
Union Cons S M Co	Washoe	6	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
War Eagle M Co	Idaho	6	50	June 19	July 23	Aug 12	L Kaplan	Merchants' Ex
Yule Gravel M Co	Cal	4	15	June 10	July 15	Aug 6	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
El Dorado Water & Gravel M Co	Cal	4	5 00	June 19	July 20	Aug 5	H Elias	416 Montgomery st
Electric M Co	Cal		10	June 10	July 15	August 5	A B Paul	318 California st
Emma Hill Cons M Co	Utah	1	50	June 3	July 13	August 10	L C Fowler	302 Montgomery st
Enterprise G & S M Co	Nevada		10	June 22	July 22	Aug 25	E E Rice	411½ California st
Equitable Tunnel M Co		7	25	June 12	July 12	Aug 4	C S Healy	Merchants' Ex
Glasgow G M Co	Yuba Co Cal	3	25	June 16	July 29	Aug 7	D L Thomas	419 California st
Hartford M Co	Washoe	2	20	July 13	Aug 13	Sept 1	E F Stone	419 California st
Heckerdorn G & S M Co	Cal	13	25	July 7	Aug 10	Aug 29	F J Roberts	520 Washington st
Independence G M Co	Cal	6	50	June 4	July 9	July 31	Geo T Grimes	240 Montgomery st
Keystone Con & M Co	Arizona	5	50	June 17	July 18	Aug 3	W R Townsend	419 California st
Knickerbocker M Co	Nevada	9	1 50	June 23	July 25	Aug 14	H Boyle	Stevenson's Building
Magenta G M Co	Grass Valley Cal	1	50	June 27	July 30	Aug 13	L Kaplan	Merchants' Ex
North Bloomfield G M Co	Cal	32	1 00	June 18	July 20	August 10	Thomas Derby	327 Sansome st
North Fork M Co	Cal	4	1 00	June 1	July 1	July 25	A Manning	520 Washington st
Phœnix Cons M & M Co	Utah	5	20	June 12	July 12	Aug 4	C S Healy	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	C S Neal	419 California st
Sanderson G M Co	Cal	11	20	June 11	July 13	July 30	W Stuart	113 Leidesdorff st
San Marcial S M Co	Mexico	14	1 00	June 18	July 28	Aug 17	C F Schulze	426 Montgomery st
South Fork S M Co	Placer Co Cal		5	May 30	July 6	July 27	P B Blake	306 Montgomery st
Stanislaus River M Co	Cal	3	15	July 20	Aug 19	Sept 5	W Stuart	113 Leidesdorff st
Starr King S M Co	Nevada	6	25	June 11	July 14	Aug 3	L Kaplan	Merchants' Ex
Umpire Tunnel & M Co	Utah	3	5	June 29	Aug 3	Aug 24	P A Eakins	230 Kearny st
Valley Copper M Co	Nevada		10	June 15	July 15	August 1	Wm H Martin	534 California st
Verona G & S M Co	Cal	1	3 00	June 8	July 13	August 8	S Pattee	328 California st
Wonder G M Co	Cal	2	10	July 18	Aug 18	Sept 7	David Buck	331 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Alhambra M Co	Cal	Called by Trustees	210 Front st	Special	Aug 3
American Flat M Co	Washoe	G W R King	434 California st	Annual	Aug 5
Cascade Blue Gravel Co	Cal.	J M Buffington	Merchants' Ex.	Annual	Aug 6
Cons Gold Hill Quartz M Co	Washoe	R Wegener	414 California st	Annual	Aug 3
Dayton G & S M Co	Washoe	W E Dean	419 California st	Annual	July 30
Eastport Coos Bay Coal M Co	Oregon	I L Pool		Annual	July 29
Esta Suena Cons M Co		A Noel	419 California st	Annual	July 29
Genesso Valley M Co		Frank Swift	419 California st	Annual	Aug 8
Ida Elmore M Co	Idaho	W Willis	419 California st	Annual	July 29
Mammoth Blue Gravel M Co		J M Buffington	Merchants' Ex	Annual	Aug 6
McMeans G & S M Co	Washoe	W H Watson	302 Montgomery st	Annual	July 21
New York Hill G M Co		D A Jennings	401 California st	Annual	July 29
New York Cons M Co	Washoe	H C Kibbe	419 California st	Annual	July 27
Phil Sheridan G & S M Co	Washoe	R B Holmes	419 California st	Annual	July 27
Prospect G & S M Co	Lassen Co Cal	W H Knight	331 Montgomery st	Annual	Aug 3
"63" G & S M Co		H Knapp	306 Montgomery st	Adjourned	Aug 3
South Comstock M Co	Washoe	J M Buffington	Merchants' Ex	Annual	Aug 17
Sutro M Co	Washoe	G W R King	434 California st	Annual	Aug 3
South Overman G M Co	Washoe	David Wilder	Merchants' Ex	Annual	July 25
Tolman & Miller M Co		J L Trask	306 Montgomery st	Annual	Aug 10
Tyler M Co	Washoe	A K Durhrow	Merchants' Ex	Annual	July 27
Virginia & Gold Hill Water Co		W E Dean	419 California st	Annual	July 31
William Shakespeare G M Co	Washoe	W R Townsend	10 Webb st	Annual	July 23
Woodville G & S M Co	Washoe	A Noel	419 California st	Annual	Aug 6
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Special	Aug 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	5 00.	July 10
Cedarberg G. M. Co.	California.	D. M. Bokee.	420 Montgomery st.	50.	Feb. 9
Con. Caledon. M. Co.	Cal.	F. E. Latham.	402 Montgomery st.	50	April 15
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 00	July 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	July 11
Diana M Co.		N. C. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 3
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	S. B. Minor.		50	Dec 5
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

Most of the prominent mining stocks show a decline in prices this week, the stock market having been rather dull. Idaho stocks have gone down very low, indeed. Chariot Mill is the only one of the California stocks that shows any strength.

Prices have varied as follows: Alpha Cons. ran between $11 and $12.50; American Flat, $6.50 and $7.50; Baltimore Cons., $7 and $8; Belcher, $62 and $74.50; Best & Belcher, $23 and $24; Caledonia, $15 and $17.50; California, $36 and $39.50; Chollar, $49.50 and $62; Confidence, $10 and $11.50; Cons. Virginia, $78 and $82.50; Crown Point, $66 and $78; Dardanelles, $7.50 and $9.50; Exchequer, $59 and $64; Gould & Curry, $18 and $19.50; Hale & Norcross, $43.75 and $50; Imperial, $6.75 and $8.12; Julia, $2.25 and $3; Justice, $6.75 and $8; Kentuck, $12 and $14.50; Knickerbocker, $2.25 and $4; New York Cons., $1.75 and $3; Ophir, $16.50 and $17.50; Overman, $25 and $33.50; Savage, $72.50 and $79.50; Seg. Belcher, $68 and $74; Sierra Nevada, $20 and $23.50; Trench, $4 and $6; Utah, $2.50 and $4; Yellow Jacket, $72 and $81.50; Eureka Cons., $12.50 and $13.50; Meadow Valley, $6.50 and $7.50; Pioche, $5.50 and $6.50; Raymond & Ely, $15.50 and $16.50.

Prominent declines from highest prices of last week were as follows: Alpha Cons., $1; Belcher, $10.50; Best & Belcher, 50c.; Caledonia, $1; Chollar, $6; Confidence, 50c.; Cons. Gold Hill Quartz, 75c.; Crown Point, $4; Exchequer, $1; Franklin, 50c.; Gould & Curry, $1.50; Hale & Norcross, $1.50; Julia, 50c.; Kentuck, 50c.; Knickerbocker, $1; Ophir, 50c.; Rock Island, 75c.; Savage, $10.50; Seg. Belcher, $7.50; Sierra Nevada, $1; Silver Hill, $1; Succor, 50c.; Sutro, 50c.; Trench, $2; Utah, 50c.; Yellow Jacket, $7.

The Dayton mining company last week shipped a single ton of hullion from Virginia City, valued at $12,815.

The Wide West mine, in Idaho, was sold last week to Warren Hussey, President of the First National Bank, at Salt Lake City.

A Chinese company are engaged in brick-making at Nevada City.

Patents for Mining Claims.

Patents have recently been issued for the following mining claims:

California: El Dorado county, Joseph French, Yellow Jacket lode; Jacob Spickert and others, placer; Nevada county, Horace Kilham, placer; Jas. K. Byrne, Union Hill quartz mine; Tuolumne county, Confidence mining company, Confidence quartz mine and mill.

Colorado: Gilpin county, Chicago gold company, Buckeye, Monroe and Kansas lodes; Clear Creek county, J. Warren Brown, Fingal lode; Robt. O. Old, R. O. Old, lode and mill site; Marshal county, Silvester mining company, tunnel lodes Nos. 5 and 6; Lewis Wolfley Bell, tunnel lode No. 1; Park county, James Moynahan and others, placer; Summit county, Henry M. Teller, Chataqua lode.

Montana: Deer Lodge county, John O'Ronrke and others, two placers; Lewis and Clarke counties, John Behing and others, placer; Thos. A Ray and others, placer; Wm. H. Stymeet, placer; Meagher county, Joe. Eball, placer.

Nevada: Nye county, H. G. Ayere, State Line lode; West gold and silver mining company, Silver Moon lode; Northern Star gold and silver mining company, North Star lode; Esmeralda county, Wm. Sharon, Juniata lode; A. L. Greeley and others, Last Chance lode; Lyon county, Thomas Brooke and others, South Comstock lode.

Utah: Salt Lake county, John McDonald, Flora Temple lode; John McDonald and others, Jacob Aetor lode; C. G. Hussey and others, Pioneer mine; Toole City, Joseph E. Clayton, Trafalgar lode.

Arizona: Yavapai county, Levi Bashford and others, Tiger lode.

Quicksilver.—The *Commercial Herald* gives the following as the exports of quicksilver by sea from January 1st, 1874, to July 1st, 1874:

To	Flasks.	Value.
New York	26	$3,000
Mexico	1,632	159,998
Chili	404	39,888
New Zealand	31	3,050
Bolivia	134	13,805
China	100	9,663
Japan	56	5,717
Central America	9	850
British Columbia	2	207
Totals first six months, 1874	2,453	$236,073
Totals first six months, 1873	2,585	173,973
Totals first six months, 1872	5,728	372,430
Totals first six months, 1871	8,360	489,784

Overland shipments for the first six months of 1873, 230,040 lbs. gross; first five months of 1874, 201,528 lbs. gross.

The schooner building by the Vallejo shipwrights on the co-operative principle will be ready for launching in about two months.

The First National Bank, at Helena, Montana, purchased 2,000 ounces in gold dust during the first week in July.

MINING SUMMARY.

The following is mostly condensed from journals published in the interior in proximity to the mines mentioned:

California.

ALPINE COUNTY.

Silver Glance.—*Chronicle*, July 11: On Tuesday last, essayer Hunter assayed ore taken from the bottom of the shaft, and the result was: Gold $45.21; silver, $193.37; total, $238.58.

AMADOR COUNTY.

From Middle Bar.—Cor. *Dispatch*, July 18: Messrs. Stewart & McKenny have just struck the richest thing out. They struck the main lead about ten feet from the surface, and the rock is immensely rich. Several tons of this rich ore have been taken out and laid aside, in which gold is plainly visible to the naked eye. Several other companies are at work on their claims, and we may soon expect to hear of similar strikes being made in this vicinity. On the same vein where the strikes above mentioned have just been made, and further north toward Murphy's ridge, similar strikes were made several years ago, where the gold-bearing rock could be found near the surface; but no attempt has yet been made to follow the vein down to any considerable depth, as water has always been a great obstacle in the way of deep sinking.

BUTTE COUNTY.

The Out-look.—*Northern Enterprise*, July 18: The mineral wealth of the county does not diminish, but is rather increasing. Cherokee, Bull creek, Centerville, Butte creek, Forbestown, Morris ravine, etc., are all camps of great energy and large yield, and each year, from improved facilities, add to the supply of gold

CALAVERAS COUNTY.

Mining Items.—*Chronicle*, July 18: Quartz mining is brisk. Last week the new shaft of the Enterprise Consolidated, on Mina Rica lode, entered the vein at the depth of 90 feet. The splendid walls, with soft gouge on each, denote a true fissure vein. The ore measures 4½ ft. in width. One-third of this, on the east wall, will mill not less than $50 per ton; the balance is low grade. The Zacatero mill is completed. Large quantities of fine-looking ore have accumulated on the dumps; crushing will begin Monday. The new Crocker mill of the Ohio commenced work last Wednesday. Numbers of millmen and miners are visiting the mill, watching its action with considerable interest. Miller & Co.'s mine continues to

yield rich, heavy sulphuretted ore. The company intend to put up reduction-works at an early day. Quite a number of profitable discoveries have been made lately above the junction of the North and South Forks.

THE QUAKER CITY MINE.—Messrs. McGarr, Driscoll and Cohan, contractors, are engaged in piping away some 60 feet of earth, which must be removed to make room for a hurdy gurdy wheel. The shaft on this claim is down to a depth of 160 feet and shows a vein some four feet wide, which prospects well. Work continues on John Lahey's gravel claim, near the same, with encouraging prospects. Duryea's celebrated gravel claim, near the "Hill," is being worked on an extensive scale, and continues to pay well.

EL DORADO COUNTY.

MINING NOTES.—*Republican*, July 16: The Blue Ledge Quartz Mining Co. is showing some splendid milling ore. No gold can be seen in the rock, but it prospects about $40 to the ton. The mine's location is Spanish Flat. They have a tunnel in 200 feet, and are now sinking on the chimney.

THE force upon the ditch is being daily increased, and numbers now about 1,000 men. The company certainly mean business, and by another year we shall have the benefit of all the waste water of the American river and its tributaries above Cedar Rock, the point where the ditch strikes the river. This is what we have all waited for for years. It remains to be seen whether we shall be entirely happy when the work is completed.

KERN COUNTY.

SAN EMIDIO MINE.—*Southern Californian*, July 16: About a year ago a mine was discovered in the San Emidio cañon, about forty miles from this place, which proved upon assay to be very rich in base metals. No attempt, however, has been made to work the mine yet, on account of its distance from market, and the difficulty of transportation. The owners, upon the completion of the road to this place, design commencing operations on the mine. It is their purpose to send the ore to San Francisco, where it can be reduced. If the ores will pay, of which there seems to be little or no doubt, the enterprise will develop into a vast and lucrative business, perhaps not second to the Cerro Gordo mines, which are of the same character. We learn that the railroad company, with a laudable desire to encourage such enterprises, and thereby increase its own business, has made liberal arrangements for transportation with the mining company, and the latter is now purchasing mule teams and wagons for hauling the ore to this place for shipment.

LAKE COUNTY.

A PROMISING MINE.—We were shown at Lower Lake some handsome specimens from a mine in this county called the Chief of the Hill. It is on the south west side of Big Sulphur, half a mile below Eagle rock. The owners are Robert Bucknell, C. C. Rice, W. J. Rice, Geo. Bucknell, L. Garnett, D. V. Thompson and Geo. Herndon, all of Lower Lake.

MARIPOSA COUNTY.

HORNITOS ITEMS.—Correspondence *Gazette*, July 18: The lower level of the Campodonico mine is 110 feet below the surface, on an incline of about 45 degrees, following the regular dip of the ledge easterly, the general strike of the vein being north and south. The main shaft is now about 95 feet below the 110-ft. level, and shows a vein at the bottom about eight feet wide, only a small portion of which, however, is pay ore. The mine is at present being worked almost entirely by Chinamen, and the ore hoisted by hand. About one mile northeast of Campodonico's mine is the old No. 9 mine, owned by Major Hardwick & Son. Many thousand tons of rock from this mine have been worked at various times, some of which have paid at a pretty high figure; but recently it has ranged from six to nine dollars per ton. About 2,000 tons crushed at the Gaines mill, a little over a year ago, yielded $7 37½ per ton, on an average, but as the cost of crushing was $4, and hauling $1 50, it did not pay over expenses, as the cost of breaking and raising the rock to the surface was also from $1 50 to $2 per ton. But as this vein is very large, and has not been worked more than thirty or forty feet perpendicular, below the surface, and is therefore capable of yielding an enormous quantity of the above grade, the Major has wisely concluded to put down the expense to correspond with the situation.

NAPA COUNTY.

CALISTOGA SILVER MINES.—*Free Press*, July 18: Three car-loads of machinery, including the boiler and engine, and the mortars for the mill, in all about thirty tons, arrived here on Thursday last, to be forwarded to this mine. Two more car-loads of machinery and other requisites for this mill arrived yesterday. About forty men are now employed at the mine and mill, and the assay office is in full blast. The rock from the pay streak in the end of the tunnel assays $573, and the entire ledge at a depth of 150 feet averages over $100 by assay. About 700 tons of the rock is now ready for milling. It is expected that the mill will be in running order by the 10th of August.

NEVADA COUNTY.

MOORE'S FLAT ITEMS.—Cor. *Transcript*, July 18: We have one of the liveliest camps in the county. The Milton company have made this their headquarters for their men who are clearing off the line of ditch. There are about thirty men employed now, and more are coming. If the ditch is not dug by contract, but by the company hiring men, there will be nearly 200 men employed.

THE mines at Moore's are running from daylight to dark, and gold in chunks is being taken out. One specimen worth $2,500 was picked up in the Illinois mine recently, and a $90 chunk was found in the Blue Bank company a day or two ago. A $60 nugget was also found in the Orleans Flat claims, which had been carelessly thrown on one side. Lots of dust is being taken out the bed-rock claims of Shively and Joseph.

DEADMAN'S FLAT.—The Seven Thirty mine is located on Deadman's Flat. Within the last two weeks three men have taken out over $2,000 in specimens. Deadman's Flat is a place that has been prospected but little. There are a large number of ledges in sight, and all of them carry gold. There is considerable prospecting being done in that neighborhood now.

STRIKE IN THE NEW YORK HILL MINE.—*Union*, July 17: We understand that a splendid strike was made yesterday in the New York Hill mine. The quartz in the end of the tunnel shows well with free gold, and the rock is also charged heavily with gold-bearing sulphurets.

BLUE GRAVEL.—*Tidings*, July 18: This tunnel, near Mooney Flat, is now in 800 feet, and they have 1,400 more to make before reaching pay dirt. It takes grit and backbone to open up these diggings, but they pay.

IDAHO.—At the Idaho mine in this place every thing is running briskly. The machine drills are proving a decided success, and so much rock is broken up that it keeps the hoisting machinery busy to get it to surface. No. 2 giant powder is being introduced in parts of the mine, and miners are not feeling in the best of humor about it. The old shaft is being put in condition for the reception of a large new pump for the freeing of the mine from water, when the capacity of the present pumps is reached.

PLACER COUNTY.

MINING NEWS.—*Herald*, July 18: Work on the Bellevue is progressing finely, and the openings show well. Ten stamps of the St. Patrick mill are pounding away steadily on Bellevue ore, and by the last of the month a big clean-up is reasonably expected. We also learn that the company have commenced re-opening the old St. Patrick mine proper. Also, the old Doig mine is being re-opened by the St. Patrick company.

ORLEANS MINE.—A clean-up from this mine last week, gave $4,500; a good return, when we consider that a considerable portion of the rock was not equal in quality to what is now being taken out.

ST. PATRICK.—Superintendent Crossman reports favorable progress in the Crater mine. The shaft is being sunk for the 500-ft level and the rock is improving.

SAN LUIS OBISPO

MINING ITEMS.—*Tribune*, July 18: Dr. Cochrane, in behalf of the company he represents, paid the first installment of $2,000 on the Oceanic quicksilver mine last week. Work has commenced on this mine in earnest now, and we look for good results.

THE Todos Santos still looms up. Men are at work prospecting on the claim with excellent indications. They are taking out rich rock.

SIERRA COUNTY.

THE MINES.—*Mountain Messenger*, July 18: Everything seems favorable for a good water season. By this time, most years, there is no more than enough water to clean up with; but this year there will, probably, be water till along in August.

GOOD PROSPECTS.—The York boys have run a drifting tunnel some 80 ft. in their claim, and find good pay all the way.

SOLD.—The Johnson quartz ledge on Little Rock creek has been sold to Clough & Jillson. The rock shows plenty of free gold. The ledge will be developed now.

SISKIYOU COUNTY.

LEDGE STRUCK IN THE LODI.—Yreka *Union*, July 18: We have heretofore announced that the company owning the Lodi quartz claim, near Cottonwood, had resumed work on it this summer. Before the suspension of work some two or three years ago, a tunnel had been commenced, intended to strike the ledge at a much lower level than has yet been reached. At the resumption of work this summer, men were placed in this tunnel to push it forward till the ledge should be reached. The report now is that the ledge has been struck, that it is from 2 to 2½ ft. thick, and that the rock looks and prospects well. We sincerely hope it may turn out equal to the most sanguine anticipations of its owners.

THE JOHNSON QUARTZ CLAIM.—A. M. Johnson & Co. continue working on their quartz claim in the ridge, between Oro Fino and Mugginsville. They have sunk a shaft on the ledge to the depth of 100 ft. Several small lots of rock have been crushed with very satisfactory results.

TRINITY COUNTY.

FROM TRINITY CENTER.—Cor. *Journal*, July 18: Our miners still continue busy, making the most of the water while it lasts. Allison & Co. have men employed now, night and day, in their claim. Their Little Giant has been at work for some time and seems to give satisfaction. The Shoo Fly Hill Co. are making preparations for another blast on their bank. Their main drift is to be 30 ft. long, with two branch drifts, the whole forming an undergound T—one of these branches to be also 30 feet, and the other yet to be determined by the lay of the bank.

THE Cinnabar mine is turning out lots of ore, we hear, and Mr. Lytle is on the lookout for laborers, both whites and Chinamen. The crude apparatus which he has hitherto had has not warranted him in smelting much of the precious sulphuret, but such as has been produced is pronounced to be superior in quality, of which there are several pounds on exhibition at this place. The old saw mill is no more, and another is soon to go up in its place. At present the work goes rather slowly, but it is being done thoroughly, and all the machinery and appointments of the new establishment will be first-class, from what we have seen.

PAIN WELL.—James A. Johnson & Co., on Indian Creek, last week cleaned up 346 ounces from a run of two months. During the season Johnson & Co. have stripped 25,000 feet of bed rock, and the sum total of their clean-up from this amount of work has been over 500 ounces.

TUOLUMNE COUNTY.

ACCIDENT.—*Independent*, July 18: The overshot wheel at the Consuella mill has broken to smithereens; and to expedite the prospecting of the mine a new one will have to be put in. The rock prospects well, although as yet no regular chute has been found.

Nevada.

WASHOE DISTRICT.

CONSOLIDATED VIRGINIA.—Gold Hill *News*, July 16: Daily yield, 300 tons of ore, keeping the dumps full and the Co's mills all running up to their full working capacity. The ore breasts on the 1,200, 1,300 and 1,400-ft. levels are all looking splendidly, and promise a big yield of ore for many months to come. The necessary preperatory work for the erection of the new mill is making all the headway possible, about 100 men being now employed in completing the preparations.

HALE AND NORCROSS.—Sinking the main incline, which had been delayed for a few days by the putting in of a water tank 50 ft. below the 2,000-ft. level, has been resumed and is again making fine headway. The north drift on the 2,000-ft. level is still pushed vigorously forward to connect with the south drift on the same level from the Savage, following a very promising seam of ore lying next to the east wall with excellent indications of finding paying bodies whenever cross-cutting the ledge shall have been commenced. Daily yield, 40 tons of ore from the old upper workings.

IMPERIAL-EMPIRE.—The station timbers are being put in to-day for opening a drift at the 2,000-ft. level. The east drift, on the 1,850-ft. level, has been again started up, and three days ago cut a rich stratum of ore two feet in thickness, crossing the face of the drift diagonally, and assaying from $743 to $1,110 per ton. This ore still continues at the bottom of the drift, the assay of which gives $120 per ton. The main south drift on this level has passed out of the ore body previously reported, being run directly to intercept and connect with the winze from the 1,700-ft. level for air purposes. The ore was penetrated by this drift for a distance of 45 feet, and where it leaves the face of the drift assayed $69 per ton. The indications are excellent, not only for the development of a fine body of ore on this level, but for finding an extensive body lying between the 1,700 and 1,850-ft. levels.

BELCHER.—The mine was shut down on Saturday last for the purpose of putting in a new hoisting cable, laying a new iron track in the main incline, putting in a new fly and spur wheel for the hoisting engine, and making other necessary repairs. The ore breasts on the 1,000, 1,200 and 1,300-ft. levels are all looking well and yielding finely.

GLOBE CONSOLIDATED.—The ore breasts are looking finely, and yielding about 20 tons of ore daily. The ore in the west drift, from the bottom of the north winze, at the third station level, has greatly improved in both quantity and quality during the past two days. A slight leakage of water from the face of the drift has set in, and there seems but little doubt but that the ledge is in close proximity.

LADY WASHINGTON.—The new pumping machinery has arrived and is being put in position for use.

WOONVILLE.—Daily yield twenty tons of ore, keeping the mill steadily running. The ore-stopes on the 300-ft. level are showing a decided improvement. The ore in the north drift, on the 400-ft. level is also opening out stronger and of an improved quality.

CHOLLA-POTOSI.—Daily yield of ore, 100 tons, the assay value of which is $30 per ton. The ore breasts on the upper levels show little or no change during the week. The main south drift at the fifth station level is still pushed vigorously ahead, occasionally cutting small streaks of ore, but finding nothing of permanent value.

SAVAGE.—Sinking the main incline below the 2,000-ft. level is making good headway, the rock in the bottom working finely. The main south drift on the 2,000-ft. level, has been enlarged, timbered and put in good working condition, and cross-cutting, for the purpose of determining the value of the ledge on that level has been commenced.

GOULD & CURRY.—The prospecting operations on the 1,500-ft. level show no change worthy of mention. Drifting and cross-cutting on the fourth station level is still vigorously prosecuted, with no ore developments of value to report.

OPHIR.—Daily yield, 50 tons of ore, which is being extracted from the ore breasts on the 1,300-ft. level and in opening the ore stopes on the 1,465-ft. level. The ore breasts on both of those levels are opening up well, and promise a goodly yield for the future.

JULIA.—Almost the entire work in this mine is being concentrated on the enlargement of the shaft and the foundations for the new machinery.

AMERICAN FLAT.—A station has been opened at the 750-ft. level of the Baltimore Consolidated shaft, and a drift just started to prospect the ledge on that level. The ore prospects on the level above were excellent, and there seems but little doubt that paying ore bodies will be found on this level.

OVERMAN.—The north drift at the 200-ft. station, in the winze from the 1,000-ft. level has developed a streak of quartz about four feet in width.

YELLOW JACKET.—The 1,700-ft. station is completed and ready to commence drifting for the ledge on that level. Sinking the east winze, from the 1,610-ft. level, is making good headway.

TYLER.—East drift, at the second station level, has penetrated the ore vein a distance of 10 ft., and is not yet through it. The ore is of a low grade, and the ledge is not very promising.

BALTIMORE CONSOLIDATED.—Sinking the shaft is making fair progress. The flow of water continues slight, but not enough to at all impede the progress of the work.

JUSTICE.—The extraction of ore from the Waller Defeat section of the mine still continues, with a slight improvement in the quality.

CALEDONIA.—Sinking the main shaft below the 800-ft. level is making good progress, although the rock in the bottom is somewhat harder than at our last report.

LEO.—The ore vein in the face of the main drift is now about 15 inches wide and improves somewhat in quality as the drift progresses. The general indications are very favorable.

NEW YORK.—The 600-ft. station, on both the east and west sides of the shaft, is opened out ready for starting drifts both east and west.

PHIL. SHERIDAN.—New shaft down 108 feet to-day, with the bottom in good sinking ground and occasional stringers of quartz coming in. The new steam hoisting machinery is being put in place.

KOSSUTH.—The foundations for the new machinery are about complete, and the whole will soon be in running order, when sinking the main shaft and prospecting the first station level will be resumed.

NEVADA.—The new tunnel for another level in the ledge, 100 feet below the present ore workings, is progressing finely. It will open up a large extent of pay ore.

FLORIDA.—New shaft down 157 feet. Ground works well, and water does not impede progress.

SIERRA NEVADA.—Daily yield, 60 tons of ore, keeping the mill steadily running. The hydraulic works are doing excellent execution. Work on the new machinery is progressing as fast as it is possible to crowd it, every man being employed for whom a place can be found to work. It is expected that everything will be completed, ready to start up these works, by the first of next month, and when fully completed, they will have no superior in the State.

CROWN POINT.—Daily yield, 550 tons of ore, which is mostly taken from the 1,000, 1,300 and 1,400-ft. levels. The mine is looking splendidly throughout, and promises a rich yield for many months to come. The 1,400-ft. level is looking much better than was at first expected, and the prospects of the 1,500-ft. level are growing more favorable every day.

DAYTON.—The third compartment of the shaft is about completed to the water level. On Monday last the hoisting of water from the shaft was commenced; and, contrary to the general expectation, has already been lowered a distance of 50 feet, so there is now strong hopes of soon again having the mine drained, and the resumption of work on the lower levels.

LADY BRYAN.—The shaft has passed through a belt of hard rock, and the west side is entering a body of clay considerably mixed with quartz of a much softer nature than the material heretofore penetrated, affording strong indications of a near approach to the ledge.

KNICKERBOCKER.—The shaft is down 200 ft. below the 400-ft. level, and preparations are being made to open a new station at that level.

UTAH.—The flow of water from the bottom of the shaft still continues; it is, however, gradually slacking off.

SUTRO.—The main west tunnel is still driven vigorously ahead, the rock in the face working finely.

SILVER HILL.—The main south drift on the third station level is still pushed ahead, running through promising vein matter.

SUCCOR.—The erection of the new machinery is about completed.

SENATOR.—Sinking the new shaft is making good progress. It is now down 80 ft. below the 400-ft. level.

DANEY.—The main west drift on the 400-ft. level is in 160 ft., the rock in the face being somewhat softer.

PICTOU.—No water interferes and the work is being driven ahead vigoronsly.

CALIFORNIA.—Both the north drifts on the 1,400 and 1,500-ft. levels are making good progress without change of interest to report.

ALAMO.—Sinking the shaft is making good progress, the bottom still in good ore.

OCCIDENTAL.—Sinking the double winze from the tunnel level is still making good headway, the bottom still in ore.

DARDANELLES.—Sinking the new shaft is making fair headway, the rock in the bottom blasting quite hard.

MINT.—Sinking the shaft is making good headway; the rock in the bottom is quite soft.

Resources of Nevada.

The first decade of our existence ae a State ie passing away. As greet changee hava taken place during the past 12 or 15 yaare, on the eastern elope of the Sierres, and betwaan them and Great Selt Lake, it might be well for us to inquire: What are the resonrcee of Nevada? Evente crowd npon the march of tima, and possibilities long dorment are being revaaled among tha probable, soon to anter the ranke of the positive and assume a placa among tha actualitiee of life, to constitnta tha facts of history. Little dreamed the emigrant who wandad hie way ecroee the plains and desarts of the Great Besin in 1849 and 1850, beholding only the general outlinee of the conntry through which he passed, noting perhape the ciaggy hight of mountaina grand, thair granite peaks, volcanic cones upheaved and fissured, hille rent and ecorched by volcanic force and fires, that thesa grease-wood, saga and eandy wastes, so arid and desolate than, would ever be anything better; or that the rock-ribbed hills, eo ecattered, and monntaine bald, wera girt with belts of ora, or bound in zonas of argentina. Only a few yeare have passed, and the miner who than took up hie march scaled untrodden hights to view the desert waetes of ealt, sand and alkali, cen now look from those eummits and behold the city, town or mining camp—perhape may eee the emoka from mills and hear the hum and olang of thair movemant and power. Where ha went forth without a guide or trail to tha fer interior, and his white face, was first gazad upon by the Indians, now teams with deeert echoonars and trail wegons, laden with merchandise and minere' supplies.

Peopla in some countries can scercely form an idea of what nsed to be known as the Great Basin, where towering mountaine stand forth alone, or range iaolated from range, eurroundad or separated by milee of harren waete, and the eummits of the separated mountains 20, 30, perhaps 50 miles apart. Rivars and streams flow from many of these, yet some of them are deetitute of water and unclad with soil or trea. Some streame have green vallays, rich with alluvial deposits. Theee monntains, streams and lakes; these valleye, salt marshee and borax deposits, constitnta the depoeitorias of Navada'a resonrces. The principle of adaptation, the law of substitution and adjuatment, aided by tha natural elements, must he brought into requisition, and he bound to the car of progresa, that what does exist may yield and contribute to man'e good. These mountaine contain gold, eilver, copper, laad and iron. Soma of the marahes contain aalt, borate of lime, borate of eoda, saltpeter, magnesia, atc. Some streams and lakae ahound with fish; othar streame hava none. In aome of the valleye grass is ahundant; a portion of tha plains produces white saga brush, bnnch graes, etc., enitable for flocks and herde; and with planty of water, most of tha sage hrueh land in valleys would produce good grain. In eome places fruit would douhtlees do wall. Now the inquiry arises: What oan he dona to oombina the elemente, the agancies and forces at command, and by the utilization of common things, compel nature to yiald her productione so prolifically as to increasa tha resources of Nevada beyond tha largeet precedant of the past?—*Borax Miner.*

Straw-Burning Engines.

Editors Preee:—I notice an article in your velnable paper of the 4th inetant, headed "Straw-bnrning Enginee." I heg leave to annonnce through your columns that I hold letters patent on two etraw-burning devicee. The patente I ohtained through your agency, one being dated February 11th, 1873, and the other May 20th, 1873. These devices can not be excelled for eimplicity and efficiency, when applied to the return flue boiler patented hy H. W. Rice, of Haywood, Alameda county, which patent wae also obtained through your agency. My straw-hurner consists of a aimple attachment to the aperture of the furnace door, to prevent the cold draft of air from passing into the furnace, as the etraw fuel ie introduced. Thie device requirea no belt to run it, and no one to turn it by crank when the engine ia not running, in order to get up steam. A twelve-year-old boy oan fire with perfect ease any return flue, ateam threshing engine with dry atraw, hay or weede of any desoription, inetead of usiug machinery to place thie fuel in the furnace. I uae an ordinary hay fork. One ton of straw will thresh one thonsand sacks of grain. These devices can now be seen at work in the valleye of San Joaquin, Livermore, Alameda, Santa Clara, Santa Maria, and many other places. Mesere. Treadwell & Co., corner Market and Fremont atreets, San Francisco, are the eole agents for the Pacific Coast.

D. Morey.

Watsonville, Cal., July 12th, 1874.

Tybo Distarct.—We are pleased to record the evidences of success ahown by the company operating, under the direction of John B. McGee, at Tybo. There are now about 100 men in camp, moetly employed by the company. The machinery for the oonstruction of a 40-ton furnace ie already on the ground, and the furnace itself will shortly be erected and in operation. We hope the new enterprise may he a auocese, and the energetic owners reap a subetantial benefit. Dr. Gally has well merited hie good fortune in selling the property, having etuck to it many years.—*White Pine News.*

How About Silk Culture?

All human enterprises have apparently as many etages of existenca, and play about as meny perts es man himself. The eelf-accueing spirit of the Amarican people prompte them to confess a euperlative degrea of guilt in aome rather ordinary crimes. They acknowledge themeelvee to ha particularly addicted to "running thinga into the ground;" to making costly idole ona day and tearing them to pieces tha next; teking up eome new enterpriea in a hasty manner, concentrating thair hopee and energies upon them, and leaving them "in disgnet" juet at the time when they ought to have stuck to them. Our foreign neighbors and adopted citizens ara ever ready to yield an unqualified aseent toall these eelf-accusatione of ours; and eomahow managa to thns escapa eimilar chargee, which might be as juetly laid at their doore. Of those eins, or rather weaknesee, which we acknowledga as national cheractaristice, but are really mera failiuge, posessed by the whola hnman family, the dispoeition to be etill baginning and nevar ending is conepicuone. And among tha thinge which we have rushed into wildly, and backed out of hurriedly, eilk culture stande forth ae a recent and conepicuone example.

The extravagant hopes foundad on tha prospective silk bneinass, and the injudicious managament of its incipient etages, are too fresh in the memorisa of our readers to render a recital of them nacessary; but we hava faith that this, with other incipient enterprisee of this country, will yet rica from their graves, and that the day of reeurrection for tha eilk businece, especially, is not far off. The expected profits of the anterprisa ware poeeibly overaetimatad, and impatienca undoubtedly mieled reaeon in looking after immediata reeults; but the abandonment of the undertaking was brought about by more realistic causes. The misdiracted State patronaga whioh induced the planting of myriads of a worthleee clasa of mulberry treea, auhmitting the matter to the control of a corrupt ring, oreated a deapeeated diegust in the public mind which ie really unjust, and is detrimantal to the publio interesta. It ie now asserted that certain foreign elemants, operating in our midst, were actively and effioiently employed in blighting our silk intarests to eave those of their own countrias.

But the errors and folliee alluded to abova will admit of speedy oorrection upon a revival of the active interest in the matter; and it only neede a conviction of tha inimical influencee having been axerted against them, to aronaa and nnita the energiea of our peopla. The natural advantagea whioh soma portions of California, aapecially that in the vioinity of San Francisco, poeeess for eilk onltura were probably never ovarrated. They remain the same and can bide their time; and even another failure on our part would not precluda the next generation from placing thie among the important indnetriee of the country.

Close etudants and patient axparimenters in this intareating art are now, and have continued from tha first, evolving new theoriea, and reducing old ones to practice; and when they predict, as they do, that within ten yeara every family in and ahout San Francisoo, who ara diaposed eo to do, can make two or three hundrad dollars per annum hy feeding eilk worms, we ara hardly disposed to treat their theory aa vieionary. While the hasty popular verdict announces that silk culture in this country is "played out," new varieties of eilk worms are being introduced here, and new methods of treatment aro being practiced.

We would not decignedly do anything that would have a tendency to revive the former excitement on this enhject; but we fear that in onr haste to diepose of buaineee enterpriees, and even still loftier undertakinge, which are declared to have "had their day," there have heen some cases of "buried alive;" and we do not desire to see human efforts, any more than tha human hody, put nnder ground before life is extinct.

Plucky but Prudent.—A contributor to the *Weekly Sutter Banner* congratulatee the citizene of Levee District No. 1, of Sutter county, on the succees which has crowned their efforts to protect themaelvea from the melting of the vast accumulation of enow in the mountains. The residents of that locality realize that they have received aubstantial rewarde for the labor and expense hestowed upon their levee; for they can at preeent show hundreds of thouaands of acres of as fine wheat and barley as can anywhere be seen, while they have reason to helieve that without the protection of their land the water would have ewept away this with all the rest of their posseeeions. But the writer, who evidently represents the spirit of the neighoorhood, is not diaposed to eettle down into supposed safety. After meting out the full complement of praise and congratulations to hie fellow citizens, for the work performed end the rewarde secured, he closes as follows: Now, we by our earthworke, have been able to keep the threatening waters at bay, hut we must not remain idle in the future; because, while the enemy has heen eurging at our gatee, it has been busy bringing down material from the mountaina, and building counter-works on our front, from which, in the future, it can more euccessfully assail ue; and, unless we are more vigilant, we may be yet overcome, and our fall will only be the more terrible the louger it shall be delayed.

The Rattlesnake Quicksilver Mine.

This mine ie fiva milee northwest of Pina Flat, which wae sold abont the middle of March, to Lightnar, Parrott & Co., by the original proprietors, Snow, Mackay and Sleeper, and hee made a large progrees in tha work of development. From tha firet tnnnel, at a point 40 feet from the entrance from the open cut, a shaft two and a helf by threa feet was sunk, to reach the eecond level of the second tunnel since eunk. On Wednasday last, a' blaet wae pnt in hy H. R. Brown, foreman, at the bottom of the shaft, which opaned the connection and displayed a fina body of ore, hetter, indead, than any previously seen. Tha company will continua to eink on the lina of this ehaft into tha tunnel below, which will be 275 feet from the eecond leval.

Mr. Leonard, of San José, is putting up a kiln of 100,000 bricke, which will be hurnt the coming week, aud ready for the construction of a 20-ton furnace. The caetings and other iron work ara daily expected. Tha furnaca will he of the Lnokhardt patent. The company hee already a boarding housa completed, 16x40, and lodging house of the same dimensione. They hava a forca of men now engaged in laying iron 1-inch pipe to eupply the boarding house, adohe yard, stable, etc. The size of the furnaca building is 45x90 feet, axclusiva of ore ehed and other minor erections. The timber road running from the mine to tha timber, a dietanca of two milee, under tha supervieion of Mr. D. Nicholson, will be complated within a week. Mr. Richard Wood hae charge of getting out the required timber. He is an old gentleman who has epacial faith in tha "lightning saw," and can, all alone, do a vast amount of work with it. Sixteen whita man and abont 60 Chinamen are now amployed—and a larger force will be put on Tuesday. Carpentere ara on the spot, eupplied with the neceesary lumber to erect an offica for tha Superintendent. The lumber was furniehed by Heald & Guerne, of Healdeburg, and Hudson & Ward of the aame place. The company have already completed their wagon road from Pina Flat, passing the Sonoma mina to tha Rattleanake, witb the expectation of tha Missouri company contiuuing on to connect with the Healdahurg and Geyaer road, which will be a main thoronghfare to tha Kantuck, Lost Ledga, Emma, Geyser and Cloverdale mines.

The original locatore of the Rattleenaka mine, Forbes & Sleeper, are working tha Cedar, New York and Pacifio, with a good proepect. Mr. Forbea has found the proepect eo favorable that he has removed his family from Lakeport to Pine Flat, and is a atirring and intalligent worker. R. Opie, Superintendant of the Chinamen, running the lower level of the Rattlesnake, is doing bett r with them thera than any force that haa thua far been amployed.—*Napa Reporter.*

Wild Coffee.

We entreat our farmere in tha foot-hills not to lose sight of the plant which is now called wild coffee. From information derived from intelligant persons familiar with coffee plantations, we undaretand that it ia a apecies of the coffee tree. In their wild state neither the tea plant nor the coffee maka an acceptable heverage. It ia by selection and cultivation that such plants, like our fruite, become adapted to our tastae.

Doubtless it will be fonnd that there are many varieties, among which may he eome of euperior qnality, which may furnish grafts for others that may be better for standards. We may find it best to import cultivated etock and graft on our acclimated trees.

The buckeye which cumbere our wilderness is a apeciea of horee chestnut, which it ie equally nnwiae to overlook. Herr Schmitt, who made efforte to raise the tea plant on a large ecale in El Dorado county, had alao young chestnut trees from Japan. He engrafted several cnttings on buckeye trees with succese. The grafte found a congenial home with the new foeter mother. An unexpected calamity destroyed the tea plants, and the enterpriaing Prnssian ahandoned the place. Prohably the engrafted cheetnute met the fate of all youug shoots when exposed to roving cattle.

But if the fine chestnnt of Japan givee euch a record, we may hope that the coffee tree of Guatemala will do equally well when grafted on our wild mountain coffee.

Smeltino Operatione.—A vieit to the old Mattison worke, now being put in order for running, sbows us that the projeotora of the scheme mean buainees and are determined to succeed in their enterprise. The middle etack or furnace is heing torn to pieces internally to allow new lining to be placed therein, and the varions adjuncts about the worke are in a decidedly forward etate of preparation. Coal and ore are being hauled to the place, and, when all is ready, sufficient will be on hand to gnarautee the fact of a long run. We place great reliance and faith on the auccessful working of this furnace enterpriae, and are satisfied that much benefit will acorue to the county generally from its working. Of couree it is not the object of the projectore to continue running the furnaces at the present location, the purpose being to demonstrate positively the fact that no difficulty exists in reducing our ores, when other and permanent operatione will be commenced. To the raault of this experiment we aball look forward with much anxiety, feeling aatisfied that on its success depends much of our future wealth and proeperity.—*White Pine News.*

Mine Draining Apparatus.

Meeers. Tangye Brothers, of Soho, are introducing new apparatue for draining minae, which ie rapidly euperceding all others in the Newcastle collieriee. It conaists of a steem pnmp placed at the bottom of the pit, and often far away in the workinge directly over the source of tha water which ie, by its operation, forced np a pipa to the pit mouth; tha hight to which the water may be raised being limited only by the etrength of the apparatus, and the eteam force eupplied hy the hoilar. The construction of Massrs. Tangye's eteam pump ie simplicity itself. The steam cylinder ie placed horizontally on a base plata in direct lina with the pump, and tha eame piston rod goee into both steam and pumping cylinders; thne, no fly-whael, crank or extraneous gaar of any kind is required, and the only moving part which can he seen is the piston-rod, as it paesee to and fro from one cylinder to the other. Each etroke of the pump has the affect at ona end of sucking water into tha apparatue, and at the other of foroing water, alraedy drawn np, into the discharge pipe, an air veesel being conveniantly situated so as to pravent concussion. The pair of pumps just completed, are of largar than nsual dimenaione. Tha eteam cylinders are of 32 inchae diamater, the pumping cylindere of seven inches diemeter, with a stroke of six feet, and the air vaesel is 18 feet high, with an internal diameter of 24 inchee. The pumps are hrase-lined, and hava four eaparata valves, fitted with multiple valvee, and the whola apparatus ie mountad upon maesive base platee. It ie intended to place theee pumps at the bottom of a pit 1,068 feet deap, and with 35 pounds prassure of eteam they will force to the surface 18,000 gallone of water par hour, in ona direct lift. The anginee ara so arranged that they can be both worked together, if their full capacity is required; or if the eupply of water ie at any time lees, eithar engine or pump can be easily ahut off, and tha othar only need ba worked. With regard to tha supply of steam power, the boiler can, if epace permit, ba placed in the working, close to tha pumping apparatus; but, if this should be found inconvenient, staam can be convayed by a pipe down the shaft, from the boiler at tha top.

Cortez and Bullion Distriots.—Tha Elko *Independent* has the following concerning a couple of the outlying districts of Eureka county: Tha Wenban mill of ten atamps at Cortez has just been pnt in thorough running order, the engine and boilera have been readjueted, and the roaating faoilitiee improved by tha conetruction of four new reverberatory furnacee. Tha camp is naw, and has baen for eoma tima past one of the moat prosperous in the State. The ora ohtained is of high grade, and plenty of it—the greater portion of which is coming from the Garrieon mine—and worka from $300 to $500 par ton. About 200 tons of this ore ara now at the mill, 200 tons lying at the dump, and plenty of the same eort in eight at the mine. Our old friend, Jamaa Laraway, still retains his poaition of Superintendent of the mill and minee, and dischargee tha dutiaa of the poeition with his ueual effectiveness. Wa have underatood that Jim hae soma good mines of hie own in that vicinity. We hopa he has, and that in good time he may reap the raward of patient induatry, as he daserves. At Bullion district, eome twenty milee west of Cortez, Campball, Yonng & Co. ara takiug from their minee large quantitiee of good ore, which they are sending to Cortez for reduction; but, as they have enough rock of their own to furniah the mill at that place, negotiations are pending between Campbell, Youug & Co. aud the Mineral Hill Co. for one of the mills at the latter place to be removed to Bullion. Lockwood, better known aa Lockte, of Mineral Hill, obtained a lease of one of the minee of Campbell & Co., and we underetand ie making it pay well. If the above company ie successful in its efforte to get a mill in operation at Bullion, this season, that district will eoon achieve a wide-spread notoriety.

Gold in Chunke.—In the Illinois gravel claims, at Moore's Flat, the workmen on Friday came acroes a howlder which had to be broken up before it could be run down the flume. One of the men partly completed the job before dinner. Wheu he went back to work he again commenced breaking up the rock, and diecovered it contained gold. The rock was finally hroken, and about 125 lbs. waa taken to the banking-houae of Marks & Co., where it was burned, and it ia eetimated that at least $2,500 in gold will be saved. Such bowldera aro frequently found in the mines of that vicinity. Two years ago three were found in succession, one of which had $678. One was found in Orleans Flat in 1859, which had $8,700 in it. One was found at Moore'a Flat eome time in 1860 which had $5,500. There was one found at Moore'e Flat last summer which had over $700 in it.—*Nevada City Transcript, July 15th.*

A. Big Cistern.—The foundation ie now being laid at the new Palace Hotel for the biggeet cietern in the world. There are upwards of a hundred men engaged laying the brick—more than a million in number. The foundation is laid in cement, and the engineer in charge says it will be one of the fineat pieces of engineering on thia continent. Its capacity is said to be eix million gallons.

A Venturesome Trip.—A Colorado man purposes to eoon attempt the trip from Puehlo to New Orleans, down the Arkansas and Mississippi, in a light canoe.

Good Health.

The Human Frame.

No. 7—The Brain.

In taking up this subject we enter upon a field wherein science has made but little progress. The brain, being undoubtedly the special organ and throne of the mind, will never be entirely understood until that mysterious link which binds the finite to the infinite shall have become acquainted with itself; and so, whenever the mind endeavors to analyze its own origin, powers or manner of action, it draws back awe-struck and dazed at the glimpses of that infinity which lies so thinly veiled and bewildering just beyond its limited horizon. It has been the subject of deep and searching investigation; and, apart from its connection with the mind, no organ is better understood. Taken from the skull of the human body, it presents a mass of a fatty structure so frail and delicate of organization that we almost wonder how it is preserved from injury or destruction, even among the ordinary occurrences of our every-day life; and well illustrates the steps by which matter becomes more and more refined as its connection with mind assumes a higher and closer relation. It is composed, as is well known, of a gray and a white substance, that are formed into a series of convolutions, the shape of which is familiar to all. Of these two, the gray is supposed to be the actual communicating link between the mind and its servant, the brain, while the white connects this with the coarser tissues. This gray matter is made up of tiny cells, which vary from one three-hundredth to one four-thousandth of an inch in diameter. The white substance, which forms by far the greater part, is composed of delicate filaments which are from one two-thousandth to one ten-thousandth of an inch in diameter. In the brain, the gray substance is spread mostly on the surface; its disposition in the nerves will be given when we take up that subject.

It would be interesting, did space permit, to trace the evolution of the brain from the lower forms of animal life up to that of man, but we can only give the shadow of an outline. It begins as a simple ganglion of nervous matter, and is situated near where it is needed, regardless of any "head." In the five-rayed star-fish, for instance, there is a ganglion at the base of each limb, so that this familiar little fish has the advantage over mankind of possessing five distinct brains. A step higher, and one of these ganglia begins to assume a greater size than the others, and the animal begins to show signs of a centralization of intellect, or in other words a head is added to its organization. This step is illustrated by some of the molluscs and articulata, as the *Aplysia* and centipede. Higher yet, and this centralization begins to develop different convolutions, having different offices; and it is from a hair-splitting, unscientific application of this principle that the so-called "science" of Phrenology sprung, which now so delights the souls of ignorant quacks and pretended "delinentors of character!" This step is illustrated in the vertebrata, and culminates in man; where matter has progressed so far that it is capable of union with intelligent, reasoning mind.

As a general rule, the size of the brain is in proportion to the intellect of the individual. In the male the average weight is about 49¼ ounces, in the female 44 ounces. Cuvier's brain weighed rather more than 64 ounces, that of Dr. Abercrombie 63 ounces, and that of Dupuytren 62½ ounces. On the other hand, the brain of an idiot seldom weighs over 23 ounces. The human brain is heavier than that of all the lower animals, except the elephant and whale. The brain of the former weighs from 8 to 10 lbs., and that of the whale, in a specimen 75 feet long, weighed rather more than five pounds.

It can sustain severe inflammations and injuries to its substance; some of the most remarkable recoveries from injuries in the annals of surgery being those of the brain. Of these, the most famous occurred several years since, in this State. It is that of the miner who, by a premature discharge of a blast, had a "tamping iron" over two feet long and an inch in diameter driven entirely through his skull from below upwards, and who, strange to say, recovered and lived several years after the accident. His skull is now in a museum at Boston where it is kept as a curiosity to show the fearful apertures made through it by the iron as it entered and made its exit.

Poisoning by Carbolic Acid.—A patient in a hospital, through mistake of the attendent, took a tablespoonful of a solution of one part of carbolic acid and six parts of water, instead of an infusion of senna. A burning sensation in the throat, vomiting, and contraction of the pupils of the eyes ensued. As soon as medical aid was at hand, the stomach was cleansed three times with water, by the aid of the pump. Still the patient suffered severe pain, and became insensible to light. The pulse became rapid. A cold, clammy sweat, deep sleep, and finally death ensued. A post-mortem examination of the contents of the stomach, of the liver, the heart and venous blood, and of the urine was made. No carbolic acid was detected except in the stomach, from which it was inferred, either that the acid had not been diffused through the system, or that it had been diffused in so small quantity as to escape detection.—*Amer. Chemist.*

Cheese as Food.

The *Live Stock Journal* has some interesting analyses of this article of food, with deductions founded thereon, from which we obtain the following abstract: It will be seen if we compare lean beef, or lean mutton, or lean poultry, with skim-milk cheese, that one pound of this cheese is equal in supplying muscular force to one and three-fourths pounds of beef or mutton, and one and a half pounds of poultry; is superior in fat or heat-producing power, and has more than double the nutriment per pound. And a comparison of whole-milk cheese with fat beef, mutton, or pork, shows it more than twice as rich in muscular force, and not inferior, except to pork, in heat or fat-producing qualities. It is more than twice as valuable per weight as eggs.

Comparing it with the farinaceous grains, cheese is seen to contain two and a half times as much muscle-forming food as either wheat flour, rye meal, Indian meal, barley meal, oatmeal, rice or potatoes. But when we compare the carbonaceous matter of these grains (starch, sugar and fat) with cheese, they may appear to have the advantage. But one pound of fat is reckoned by physiologists equal to two and one-half pounds of starch or sugar as food; and thus the fat in cheese, instead of being represented by 27.50, would be represented by 68.75, making it equal to the starch in wheat flour. And here the dietetic philosopher will perceive the true use of animal and concentrated food. There is no source from which we may derive the carbonaceous elements of human food as cheaply as from the farinaceous grains. Many of these are relatively deficient in the nitrogenous elements—giving muscular force and power. They are also less easily digested than animal food and produce their results more slowly; but when properly mingled with more nitrogenous food, such as milk, cheese, beef, mutton, fish and other flesh, they form a diet leaving nothing to be desired in respect to health or agreement with taste. A small quantity of cheese taken with farinaceous food would make a proper balance of constituents to build and sustain all parts of the system. Less than half as much cheese would be required as beef, or mutton or eggs.

Cheese, therefore, among the foods easily obtained, appears, chemically, to be the most energetic in sustaining the vital force of the human system.

Liebig well says: "There is a law of nature which regulates these things, and it is the elevated mission of science to bring this law home to our minds; it is her duty to show why man and animals require such admixture in the constituents of their food for the support of the vital functions, and what the influences are which determine, in accordance with natural law, changes in the admixture. The young animal receives in the form of casein (cheese) the chief constituent of the mother's blood. To convert casein into blood, no foreign substance is required; and in the conversion of the mother's blood into casein, no elements of the constituents of blood have been separated. When chemically examined, casein is found to contain a much larger proportion of the earth of bones than does blood, and that in a very soluble form, capable of reaching every part of the body. Thus even in the earliest period of life, the development of the organs in which vitality is, in the carnivorous animal, depends on the supply of a substance identical in organic composition with the chief constituent of its blood."

Training of Boat Rowers.—An exchange says: "At some of the colleges the training of the racing crews is about as follows: In the morning an easy walk of an hour's length, at noon a quicker walk of half an hour, and in the afternoon a pull of seven or eight miles, after which comes a bath and a good rubbing down. The system of diet is rather one of proscription than prescription. Certain articles well known to be unwholesome are proscribed. Other things may be eaten. Pastry, tobacco, coffee, pork, and all stimulants are ruled out. The crew pulls a plain forward and back stroke, with no special attention to style or scientific points, making generally 32 strokes to the minute." To this we may add, that a crew trained in the manner described would have small chance of winning a race, at least against a crew in perfect condition. The rowing is now nearly always divided into two parts, morning and afternoon, and made so light as never to tire the men—a most important point, according to new-school theory and practice. The diet is but little restricted. But a crew which pulls a "plain forward and back stroke, with no special pretension to style," is always at a disadvantage when pitted against those who know how to make the best use of their strength. There is a prevailing impression that "style," as it is termed, is merely for show; the truth is that a well-trained crew does not waste an inch of movement nor a particle of muscle, but simply rows in the manner which experience has taught is the most effective. Sheer strength may sometimes win a single scull race; but a truly successful crew is one which rows with precision.

"Preventive medicine," says Dr. Henry Bowditch, in an admirable and exhaustive paper on the subject, "is the natural outgrowth of modern thought and resources, stimulated by centuries of suffering and by the sacrifice of multitudes of human beings."

Useful Information.

Spontaneous Combustion.

In a paper on the "Ignition of Cotton by Saturation with Fatty Oils," Mr. Galletly communicates some information confirmatory of the generally received popular opinion regarding the spontaneous kindling of cotton and other open combustible substances which may happen to have imbibed animal or vegetable fatty oils. The apparatus employed consisted simply of a box, in which the cotton saturated with the oily substances was placed, and the temperature then gradually raised in some cases to 130 deg. Fah., the temperature which a body acquires by lying exposed to the vertical rays of the sun; and in others to 170 deg. Fah., about the heat attained in the neighborhood of a steam-pipe, a heated flue, or in front of an open fire. With boiled linseed oil the author found that shortly after the material had reached the temperature of his warm chamber, 170 deg., the thermometer began to rise—from 5 deg. to 10 deg. every few minutes—so that in 75 minutes from the time the box was placed in the chamber, the heat indicated was 350 deg. Fah. At this point, smoke issuing from the box indicated that the cotton was in a state of active combustion; and on returning it to the free access of the air, it burst into flames. In another similar experiment, the temperature rose more slowly, but reached 280 deg. Fah. in 105 minutes, when, from the appearance of smoke, it was plain that the cotton was burning; and the whole mass was soon in a flame on being placed in a current of air. Raw linseed oil was found not to cause ignition of cotton so readily as the boiled oil, but under conditions similar to those of the above described experiments, active combustion was going on in one case in four, and in another five hours. With rape oil under the conditions of the first experiment, the result was that the box and contents were found in ashes in ten hours—the box being put up at night, the result was only observed in the morning. Olive oil caused active combustion within five or six hours. With castor oil the contents only charred on the second day of the experiment. Lard oil, specific gravity .916, produced rapid combustion in four hours. Seal oil, specific gravity .928, the same result in 100 minutes. Sperm oil gave negative results. The author, as the result of his work, advances the opinion, from a comparison of raw linseed with lard and seal oils, that the statement is not altogether correct that "drying oils are more liable to spontaneous combustion than non-drying oils; and that the rate at which oxidation takes place does not depend chiefly on the presence of small quantities of putrifiable matters, but rather upon the particular olein or liquid fat they contain." The results of the experimental trials are stated to have been remarkably uniform. The author states that the ignition of cotton can be calculated on for any oil with the same certainty as the point at which sulphur or other combustible matter inflames in air. The heavy oils from coal and shale were found to effectually check the phenomenon above described; for when mixed with the oils above named they gave no indications of heating whatever at 170 deg. Fah.

Preservation of Timber.—Various recipes for this purpose have at different times been given, such as saturating the wood with metallic salts, coating with linseed oil and charcoal, charring, etc. When carefully applied to timber that has previously been properly prepared, these plans answer very well; but in the hands of ordinary builders, farmers and householders, they fail in nine cases out of ten, the objects to which they are chiefly applied being posts sunk in the ground. To such objects the old system of charring is frequently applied, but does not always prove effective, especially where the wood is saturated with sap. It has been found, however, that if posts be slightly charred on the surface, and then coated with hot coal-tar, they will not decay for many years. The tar must be hot, and applied to the freshly charred hot timber, otherwise it will not penetrate the pores, and failure will be the result. Merely charring a stick of wood, or painting it with coal-tar, will not preserve it; but when the two are combined, as we have directed, posts seem to last indefinitely.—*Industrial Monthly.*

The *Cultivator* gives the following recipe for making fire and water-proof paint: Slack stone lime by putting into a tub, covered to keep in the steam; when slacked, pass the powder through a fine sieve, and to every six quarts add a quart of rock salt and a gallon of water; then boil and skim clear; to every five gallons of the liquid add pulverized alum one pound, pulverized copperas half pound, and stir slowly; add powdered potash, three-quarters of a pound, then very fine sand or hickory ashes, four pounds; then use any coloring matter desired, and apply with a brush. It looks better than any ordinary paint, and is durable as slate; will stop small leaks in roofs, prevent moss for growing thereon, make it incombustible and render brick impervious to water.

Starch.—Correspondents ask what is put in starch to give the shirt bosoms a gloss. A piece of paraffin or white wax, about the size of a hickory nut, in each bowl of starch. The managers of one large shirt factory, however, assure us that they produce the polish by the skillful use of the sad iron only.—*Sci. Am.*

Zincing Iron.

The following is an excellent and cheap method for protecting from rust iron articles exposed to the atmosphere: They are to be first cleansed by placing them in open wooden vessels, in water containing three-fourths to one per cent. of common sulphuric acid, and allowed to remain in it until the surface appears clean, or may be rendered so by scouring with a rag or wet sand. According to the amount of acid, this may require from six to twenty-four hours. Fresh acid must be added according to the extent of use and of the liquid; when this is saturated with sulphate of iron, it must be renewed. After removal from this bath, the articles are rinsed in fresh water, and scoured until they acquire a clean metallic surface, and then kept in water in which a little slaked lime has been stirred, until the next operation. When thus freed from rust, they are to be coated with a thin film of zinc, while cold, by means of chloride of zinc, which may be made by filling a glazed earthen vessel, of about two-thirds gallons capacity, three-fourths full of muriatic acid, and adding zinc clippings until effervescence ceases. The liquid is then to be turned off from the undissolved zinc, and preserved in a glass vessel. For use, it is poured into a sheet-zinc vessel, of suitable size and shape for the objects, and about 1.30 per cent. of its weight of finely-powdered sal ammoniac added. The articles are then immersed in it, a scum of fine bubbles forming on the surface in from one to two minutes, indicative of the completion of the operation. The articles are next drained, so that the excess may flow back into the vessel. The iron articles thus coated with a fine film of zinc are placed on clean sheet-iron, heated from beneath, and perfectly dried, and then dipped piece by piece, by means of tongs, into very hot (though not glowing) molten zinc, for a short time, until they acquire the temperature of the zinc. They are then removed and beaten, to cause the excess of zinc to fall off. —*Technologist.*

Water-proofing Leather.—Two recipes are given in the *Artisan*: 1. Melt together beef tallow four ounces, rosin one ounce, and beeswax one ounce, and when nearly cooled solid add as much neat's-foot oil as the above mixture measures. It is to be applied with a soft rag to both soles and uppers. The leather should be warmed meanwhile before a fire, and the application well rubbed in. It requires two applications to make the leather thoroughly water-proof. 2. Dissolve three-quarters of an ounce of paraffine in a pint of lard oil. The best quality of oil should be used. It will be necessary to heat the oil in order to dissolve the paraffine. This solution may be rubbed on boots once a month, and it is said to render them perfectly water-tight, at the same time that it does not interfere with the blacking. If the solution is found to make the leather too stiff the amount of paraffine in proportion to the oil should be reduced.

To Polish Brass.—Rub the metal with rotten-stone and sweet oil, then rub off with a piece of cotton flannel, and polish with soft leather. A solution of oxalic acid rubbed over tarnished brass soon removes the tarnish, rendering the metal bright. The acid must be washed off with water, and the brass rubbed with whiting and soft leather. A mixture of muriatic acid and alum dissolved in water imparts a golden color to brass articles that are steeped in it for a few seconds.—*Jour. of Chemistry.*

The following composition is highly recommended as a varnish for wicker-work: One part of good linseed oil is boiled down to a syrupy consistence, and mixed with 20 parts of copal, or some other rich lac. This mass is then diluted with oil of turpentine to the proper thickness. The varnish dries easily, and remains sufficiently elastic to stand, without cracking, the bending of the baskets, etc.

Wax for Floors.—Heat 5 ounces of pearl-ash, 25 ounces of wax, and 20 ounces of water together, stirring it frequently until a thick mass results, from which water does not separate on standing a short time. Then add from a pint to a pint and a half of boiling water, with constant stirring. This may be colored if desired. It may be applied with a woolen rag, and thoroughly rubbed in.

A fibrous bark of the sugar'palm proves to be a good substitute for bristles and animal and human hair. The treatment is simple. The bark is first immersed in water and boiled for some time in an alkaline solution; the fibers are then soaked in an emulsion of fat, alkali and water for about twelve hours, after which time they are sufficiently hard and elastic for the above-named use.

Coloring Veneers.—Raw veneers become soft and leathery after soaking for half an hour in a ten per cent. solution of caustic soda, and thorough washing; the color is then applied, and penetrates throughout the whole. After the staining is completed, the veneers must be dried between paste-boards.

Carbolic acid will arrest mouldiness and decomposition in hides, tanning liquors, etc. When applied to leather, not only is no injury done, but even improvement in the quality results, the leather becoming more soft and supple.

MINING AND SCIENTIFIC PRESS.

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STICKEEN MINES.—The steamer *California* arrived at Portland from Sitka on Sunday evening. She brought eighty miners from Wrangel, and two hundred more were expected there daily, on their way home. They bring discouraging news. The rush has been too great for the small number of paying claims discovered. A correspondent writing from there to the *Call* states that many men are leaving every day, while others are constantly arriving. Those going out have been forced to do so, by reason of a lack of means to procure provisions until the season opens, and will naturally tell hard stories about these mines; but many with whom he has conversed say they intend coming back in about a month, if they can procure provisions at the landing. The country has been very much overrated, and unless other diggings are struck this season, will not be of a capacity for more than two thousand men.

ORE SHIPMENTS.—According to the *Bulletin's* half yearly commercial statistics the following ores were shipped by sea from this city for the six months ending June 30th: To New York (copper) 214 tons, worth $12,840; to New York (various) 174 tons, worth $6,170; to Great Britain (copper) 74 tons, worth $7,966; silver 32 tons, worth $4,000; and 614 tons of manganese, worth $9,539. To other countries we shipped one ton of copper ore worth $400 and two tons of silver ore worth $1,200. This makes a total shipment of 1,111 tons, valued at $42,115.

DR. SHREWSBURY and party, of Santa Barbara, last week discovered a very rich lode of cinnabar on Canada los Osos, in the Santa Inez mountains, about twenty-five miles by road from Santa Barbara.

TYBO.—It is rumored that a party of prospectors have recently struck rich mines in the neighborhood of Tybo. The exact location is kept secret until the discoverers have taken up the ground they want.

THE Arizona papers are filled with accounts of rich strikes in new and old mines, and of gold, silver and copper bullion received at Yuma and Tucson.

THE two Riotte and Luckhardt furnaces, being put up on the Borax company's property, are of 40 tons capacity.

Beach Mining along our Gold Coast.

Beach mining, after an active period, occurring some twenty years ago, when the cream of these deposits was rudely skimmed off by those in the field, has been sensibly revived within the past year owing to the favorable results obtained through the use of improved processes and machinery. It was generally supposed until within a few years ago, that the greater portion of the gold contained in these beach sands was saved by the sluices, copper plates, etc., then in use. But thousands of assays and other tests have since proved that in most cases fully four-fifths of this gold is invisible to the naked eye and was lost in all former workings. When this fact became established, interested parties set to work to

Solve the Problem,

How to separate these infinitesimal particles of gold from the heavy black sand with which they are associated. And it proved to be one of the most difficult things to accomplish that has yet puzzled the brains of scientific men or honest miners. The extreme lightness of the minute particles of gold and the great weight of the grains of black sand rendered any process of concentration or amalgamation, based upon their relative specific gravity, impracticable; and another serious obstacle was encountered in the existence of a coating or oxidation upon the surface of these tiny, microscopic specks of gold, which prevented amalgamation. Many thousands of dollars were spent in making tests and experiments to obtain an economical method of working. Chlorination and other chemical modes of treatment were found to be too expensive, but they confirmed the assays, showing

The Extraordinary Richness of the Sands.

And stimulated those interested to further efforts to overcome all obstacles. A vast amount of this sand was proven to contain from $10 to $30 per ton, and results were frequently obtained showing several times these values. The most extensive of these deposits yet developed are located at Randolph, Coos Co., Oregon, where the claims of Messrs. Lockhart & Lane are known to contain several millions of tons of black sand worth from $5 to $100 per ton, or an average say of $15 to $20 per ton, leaving enormous profits for working by a process not costing more than $3 per ton. The cost of mining the sand is merely nominal in most cases. Plenty of similar deposits, though of less extent, exist at various localities along the coast from Humboldt bay to the Columbia river, and in fact

Extending North to Alaska.

The most extensive deposits are those of the ancient ocean beaches, formed before the late upheavals of the coast line, and lying back of and above the present ocean beach. But there are immense quantities of rich sand upon the present beach also, that will be worked at great profit, as they are more accessible and easier mined. Indeed, the quantity of black sand in these beach deposits, ancient and modern, carrying from five dollars to ten dollars per ton, may be considered almost inexhaustible. But these placers have lain for many years almost unnoticed and unworked for want of a process and machinery that would save this fine, flour gold. So many have had their wits at work upon the problem within the last two years that

Perseverance has at Length been Rewarded by Success,

And a new branch of mining industry developed which is of far greater magnitude and importance than the public or even the mining portion of the community are aware of. This microscopic or "flour" gold exists in large quantities in all our gravel and placer diggings, as well as in the tailings of our quartz mills, and is lost to a great extent as mining operations are now conducted. The successful treatment of the black sand of the ocean beach is much more difficult than of any other class of auriferous deposits, and hence the process which overcomes such obstacles will easily conquer those involved in ordinary placer mining, and millions of dollars, now lost annually, will hereafter be saved by the new treatment. The great difficulty experienced in saving these infinitesimal particles of gold arises from the fact that they are so light that the current of water employed in ordinary mining operations carries them off; their gravity not being sufficient to overcome the force of the current. This has been obviated by effecting amalgamation before subjecting the sands or pulp to a stream of water, which result is secured by

Evaporating the Quicksilver Under Water.

Heating the sand or pulp containing a proper quantity of quicksilver with plenty of water, up to the boiling point, causes the mercury to expand and diffuse itself all through the mass in minute globules which unite with the fine particles of gold, provided the latter are in a proper condition to amalgamate. The heating aids to remove the coating upon the gold, but to effect a thorough preparation for amalgamation the sand is first subjected for some hours to a chemical preparation which is not expensive, though very powerful. The next and final difficulty to be overcome, is to collect the fine particles of amalgam (some of which are still too fine to be visible to the naked eye) together, after the boiling, without too great a loss. The loss of quicksilver by the mills in Washoe averages about one and a-half pounds per ton of ore, while a loss of as many ounces in working black sand would leave little or no profit to the miner; because, being amalgam, the loss *in gold* would be too great.

The Perseverance Black Sand Mining Co., Recently incorporated in this city, has succeeded, after spending more than a year's time and several thousand dollars, in perfecting a machine for separating these fine particles of quicksilver or amalgam from the heavy black sand without material loss, and at a trifling expense. This company is about to commence operations on a large scale with the new process and machinery upon their claims near the mouth of Rogue river, where they have secured extensive deposits of these sands, as rich as any on the coast. Through the aid of this improvement it is thought a new era will be introduced into mining, by saving at least ninety per cent. of the microscopic gold hitherto lost through the imperfect processes and machinery in use. The ordinary black sands, as stated above, contain from $5 to $15 per ton; and many deposits, containing thousands of tons, run up to twice and even three times these figures. The cost of working by the new method will be from $2 to $3 per ton, including mining, which in most cases is merely nominal.

Operations similar to those of the Perseverance company are soon to be started on the Lockhart claim, near Randolph, by Mr. John Bray, who has been experimenting on the sand with flattering success. The owner of that claim it now in this city making preparations for the necessary machinery, which is to be forwarded to the mine and set to work as soon as possible.

As a field for mining, this northern gold coast presents some

Peculiar Advantages for Men of Small Means.

In the first place, it is easily and cheaply accessible; then, no great amount of capital is required for out-fitting purposes; while again, there is not much trouble in securing claims for working, the chances of taking up ground or buying from former locators being good at most points along the coast.

At one time there was an effort made to take up the strip of ocean beach between the line of high and low water, under the law of Congress granting to the State all swamp and overflowed lands between its borders. But the Surveyor-General, acting under advice from the Commissioner of the General Land Office, decided that ocean beach did not come within the purview of that law, which was designed to cover only the overflowed grounds along our bays and other inland waters. This places these modern sea beaches, wherever found to be auriferous, among other mineral lands belonging to the public domain. Hence they are open to location by the miners, who may occupy and hold them under such local regulations as they may themselves see fit to adopt, so long as these conform to the statutes enacted by the general and State governments.

Why We Should Exhibit.

None but a very few lukewarm citizens have probably asked themselves this question, and probably the only reason any of them have done so is because they thought the outlay would amount to more than they could afford. Fairs and exhibitions of all kinds are, however, the very best means of advertising, and the expense attendant on preparing a suitable display is very small compared with the benefits derived. It should be recollected also that the prosperity of the city and State may be very well measured by the character and extent of the proposed exhibition of the Mechanics' Institute. If visitors see a meager and ill-conditioned display they naturally connect it with want of prosperity among the manufacturers and artisans; and as this class of citizens are generally dependent on the prosperity of the State, they should make every effort to demonstrate the fact that our affairs are prosperous.

If one firm displays a certain class of goods or merchandise, and there are no others of that class in the Fair, the public naturally supposes that this firm does the largest business in that class of goods or merchandise, and afterwards if they are mentioned it will be remembered that such a display was made by such a firm, and no one could compete with them. If there are several firms which display articles of a similar character, the public visiting the Fair will take the opportunity to inform itself of the comparative merits of the articles, and in this will be influenced, to a great extent by the taste with which the articles are exhibited.

No business man could desire a better advertisement than will be afforded him at the approaching Fair. He shows articles in his line in a place where more people will see them in one day than would see them in a year in the store. He shows them in an attractive form before the very people to whom he desires to sell, and they examine them at a time when they have more leisure than they have during business hours. This is an opportunity which no business can afford to lose. The Mechanics' Institute afford a fine building and space free to all, and what is more, provide an audience daily and nightly for a month in succession, such as would be brought together in this city by no other means. These are only a few reasons "why we should exhibit?" but looking at the Exhibition from a business point of view, they are cogent ones.

Shoes and Dies from the California Magnetites.

It has been said that a nation's advancement in civilization is in ratio to the quantity of iron consumed. Notwithstanding the enormous quantity used, the demand is increasing, particularly on this coast. The estimated cost of the yearly consumption of iron here is $9,000,000, all imported. This is a very important item against us on the balance sheet of trade. There are plenty of valuable deposits of iron ore in this State, but want of proper fuel, flux, etc., has prevented them from being worked; nevertheless, there are certain of these deposits which ought be made available if our capitalists would interest themselves in the matter. In this connection we may introduce the following letter, received by us from J. S. S., of Railroad Flat, Calaveras county, California:

"The iron deposits of Calaveras county alone are sufficient to supply the nation for generations to come. In this vicinity there is a vein of magnetic iron ore, varying from five to thirty feet in width, that assays from fifty to seventy-two per cent. in pure iron; in a locality where timber, limestone and soapstone are abundant; also, excellent water-power privileges; in fact, every facility for the manufacture of iron.

"It is false economy to continue the importation of iron, and export our precious metals in exchange. To illustrate the absurdity of this state of things.—A quartz mill is being built in this vicinity within a few rods of an immense deposit of iron ore, almost pure enough for the shoes and dies, for the batteries of the mill; yet imported iron is used in the construction at a cost of five to nine cents per pound.

"If a portion of the money that is being spent in remote localities, by our capitalists, in developing uncertain prospects for gold and silver, was directed toward developing the iron mines at home, they would undoubtedly receive better returns on their investments. But 'distance lends enchantment to the view,' consequently the periodical begiss of miners to the frozen regions of the north, and to the hot deserts of the south, in search of new El Dorados, where fortunes are often lost but seldom won, will continue."

There is a difference of opinion as to whether these iron deposits could be worked with profit on a large scale. Be that as it may, our attention was called by the above letter to a matter of some importance to our mining population, and which may, at the same time, add another industry to our home manufactures. That is, that shoes, dies, picks and other mining tools ought to be made from the California magnetites. From inquiries we have made, we are sure that small establishments with a small capital will be profitable, and will have a certainty of success. We will enter more into the details of this subject in our next issue.

The Exhibit of Machinery at the Fair.

The iron foundries of this city will probably make as fine a display at the Mechanics' Institute Fair as that of any other branch of industry in our midst. People generally take a great interest in machinery in this country, and the machinery department, though not a favorite place with the ladies, proves the center of attraction for the more intelligent of the male part of the community. As power is furnished free, all sorts of machinery can be shown in working order, and our foundrymen will, no doubt, take advantage of this free opportunity of displaying the results of their skill.

The machinery is to be run by a fine engine, made in this city for the Palace Hotel, now in course of construction. The firm that manufactures this engine propose displaying seventeen engines of different sizes and classes, all made in this city. The large engine to drive the machinery is a powerful one, as it needs to be to drive even the pumps alone, if the Exhibition in that line bears proportion to previous years. It is very handsomely finished, and is quite ornamental as well as useful.

The foundrymen of this city supply our whole coast with all classes of machinery, and are accustomed to receive orders for everything in their line, from a key-bolt up to a 60-stamp mill or a compound engine. The class of work is, therefore, not restricted, and the display ought to be both varied and large in case they choose to exert themselves. In mining machinery, in particular, they excel all other parts of the world, and it is to be hoped that some one of them, at least, will show the city public a quartz mill, engine, battery, and all complete. When visitors show signs of being too aesthetic in their tastes they can be drawn from the art gallery and the music to consideration of matters of more utility, by simply starting up the stamps, which will most effectually drown sounds of the band, and even that of the everlasting piano themselves.

CHINESE MINERS.—Some five or six wagons, loaded with Chinamen and their traps, have left the Dalles during the last ten days, bound for the interior gold mines. One load was taken up the Columbia river to the month of the John Day, where they intend mining on a bar near that locality.

WORK on the Brownlie quicksilver mine, near Vallejo, is progressing favorably. About fifteen or twenty men are employed, and one tunnel is now in two hundred feet.

The Shaker Sash Balance.

The importance of well ventilated rooms is recognized by every family and individnal, who believe pure fresh air indispensable to good health. In modern-built honses the means of ventilation are principally fonnd in the doors and windows, msinly the latter. The method of adjasting windows by side weights is costly and inconvenient, especially when old-fashioned wiadows are replaced by the new. In that case the wholo casement must be torn away and rearranged to give space for cords and weights. Moreover, when the cords wear out and need changing, it is necessary to remove part of the casement in order to get at the weight, pulley and cord. Mr. J. S. Russell, of South Union, Ky., has invented a device to do away with the objectionable features of the old style arrangement, a cut of which is shown on this page.

A cord, Fig. 1, is attached to tho center of the npper sash by passing it, from beaeath, upwards through a hole bored to fit, and making it fast by a wedge driven in from on top, and then over a pulley adjusted as represented in the upper part of the window frame. The cnds extend down throngh the apparatus, *A*, which, shown in detail in Fig. 2, forms the essential portion of the device. It consists simply in two eccntrics, *B*, aecured in a suitably ornamented metal caso, and fastened to the npper part of the lower sash. It needs no explanation to show that one sash counterpoises the other, so that by a mere tonch of the finger each may be rnised or lowered to any given diatance. If, however, it be desired to move but one, nnd that the top sash, the operation is rendily accomplished by drawing the cord to the right or left, which relieves the grip of the eccentrics. On straightening the line, the latter immediately resnme their claep and hold the sash in any position. To raise the lower sash, it is only necessary to hold the cord firmly and lift the sash with the hand, when it will remain as placed.

This device does away with the use of the nsual cords and pulleys on windows, by making one sash balance the other. It is cheap, readily applied, and will afford all the means for ventilating that side weights do. The sash is easily adjnsted by drawing the cord to right or left, which relieves the grip on the cord. You then have entire control of the sash. To adjust either top or bottom sneh at will strnighten the cord and the eccentrics immediately clesp and hold the sash. The fixtures are easily detached for washing windows, painting, atc. W. J. McGowan, South Union, Kentucky, may be addressed for fnrther information on this snbject.

Sonorous Sand.

A speciman of this cnrious substance, taken from a hank ou the island of Kauni, of the Hawaiian gronp, was presented by W. R. Frink, of Honolulu, to the Cahfornia Acadeiny of Sciences at the lnst meeting. The following interesting description of its peculisrity was contaiaed in a letter from the donor: The baak, which is composed of this sand, commences at a perpendicular bluff at the soatbwest end of the islnnd, and extends one and a half miles slmost due south, parallel with the beach, which is about 100 yards distant from the base of the aand-bank. Thia sand-drift ia about 60 feet high, and nt the axtreme aouth end the angle preaerved ia as steep as tha natnre of the aand will permit. The bank is constantly extending to the south. It is said by the natives that at the bluff and along the middle of the bank tho sand is not sonorous. But nt the extreme sonth end and for half a milé north if you slap two handfala together there is a sound prodnced lika the low hooting of an owl—more or less sharp, according as the motion is quick or slow. Sit down npon tha sand and give one hand a qnick circnlar motion, and the sound is like the heavy basa of a melodeon. Kneel npon the steep incline, extend the two hnnds and clasp aa mnch sand as possible, slide rapidly down, carrying all tha aand you can, and the aound accumulates as you descend until it ia liko diatant thunder. In this experiment tbe sound was aufficient to frighten onr horses, fastened a short distance from the base of the drift.

But the greatest sound we produced was by having one native lie npon his belly and another taking him by the feet and dragging him rapidly down the incline, carrying as much sand ae possible with them. With this experiment the aound was terrific, and conld have been heard many hundred yarda distant. With all the experiments that were made, it seemed the aonnd was in proportion to the nmount of sand pnt in motion with a proportionate velocity. Another consideration seems requisite—that is, its perfect dryness. The dry sand wonld sound on the anrface, where six inches beneath it waa wet; bnt if any of the wet saud beoame mingled with the dry, ita property of aoanding ceased at once. The sand appears to the eye like ordinary beach aand, bnt ordinary beach aand will not prodnce the sounds. It hna been said that it lost its aonorons propertiea when taken away from the bank. But I can discover no diminishing of ita sonorous qnnlities, even with the bottle uncorked, and we have had rain frequently, and an atmoaphere more than ordinarily moist for thia tima of year. Perhaps if exposed to a very damp atmosphere it might absorb moiature enough to prevent its aonnding.

Academy of Sciences.

The regnlar semi-monthly meetiag of the California Academy of Sciences was held on Monday evening last, Professor Davidson presiding. Mr. E. Stevens was elected n resident member. Amoag the donations to the museum were the following: From J. S. Lawson of the Coast Survey, specimens of *Verillia Blakei*, preserved in glycerine in a heavy glass tnbe, the gift of Professor Davidson.

From John Williamson, Secretary of the Acclimatization Society, a collection of fish, embracing eight speciea, from Lake Tahoe. There are ten varieties of fish found in the lake.

From E. Stevens, fonr specimens of iron ore and one of fossil earth, from the Snblotte mines, Del Norte county, ten miles northeast of Crescent City. The fossil earth occnrs in great beds, at about 2,000 feet altitude.

From W. R. Frink, a bottle of sonorous sand from tho island of Kauai, accompanied with a letter describing its cnrious qnalities—referred to in another column.

From Eugene Gillespie, of Cape St. Lucas, through Mr. Dameron, a hox of the leaves and berries of a plant said to be poisonous. Accompanying the specimen was a letter describing the plant and the symptoms exhibited by a child whose death was caused by contact with or eating the berries of the shrnb.

The Alaska Commercial Co. presented a skeleton of a large Alaska seal.

The additions to the library were qnite extensive, including a large case of books from the Smithaonian Institute and 100 volumes from Senator Cole.

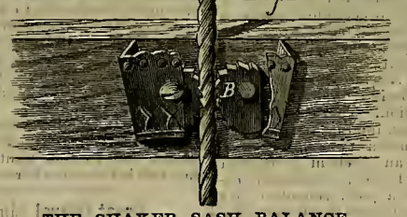
The Pacific Cable.

Professor Davidson communicated to tha Academy the general results of the recent survey made by Commander Belknap, of the United States steamer *Tuscarora*, on the proposed aouthern route for the telegraph cable from thia coast to Japan. The Professor's remarks were illnstrated with elaborate charts and drawings, bearing records and computations that repreaented an immense amonnt of labor. In the sonndinga from San Francisco to San Diego a great many off-shore linea were run Ninety miles off Point San Lnis the depth increaaed to 2,000 fathoms, with gray, greenish ooze at the bottom, and a temperature of n little over 32 degroes. Off Cape Mendocino a platean waa fonnd, with a depth of 2,500 fathoms. Off San Nicolas, at the distance of 33 or 44 miles, the depth was 2,000 fathoms. Down the Californin coast the ooze became greenish nntil San Diego waa approached, and on the platean off there a greeniah, yellowish ooze was obtained. Thence across to Honolulu the ooze was yellowish, then yellowish brown, nnd finally brown near Honolulu. In all casea the signs of former life brought up were those obtained on the Northern Pacific Coast.

To Honolulu the distauce is 2,200 miles. The bottom averages 2,565 fathoma in depth, or 15,510 feet, and the average temperatnre is 33 6-10 deg. Mnch more than one-half of this water along the ocean-bed has a temperature of 35 degs. only; above this came a stratnm of water heated to 40 degs., and above this again, water heated to 50 degs. Upon a calcnlation of the volume of water between this coast and Honolulu, along the line of sonndinga, he estimated the qnantity at 1,858,000 cnbic miles. Of this 1,046,000 cubic miles range in temperature from 33.6 to 35. Between the temperatnre of 35 and 40 there are 582,000 cubic miles; from 40 to 50 degs., 180,000 cubic miles; and from 50 degs. to the highest temperatnre, which is found over at Honolulu, 73¼ degs., the volnme is 100,000 cubic miles. In other words, the film of snrface-water ranging from 59 to 73 6-10 is only one-tenth of the mass of water below it. Apparently the grade is very steep at Honolalu, and off San Diego, bnt in reality it never exceeds one foot in twenty-six; no greater impediment to cable-laying is encountered from Honolulu to Bonin island, where there is the greatest depth of the ronte, 3,262 fathoms, nor thence to Japan. In sonnding to Bonin several snbmarine mountains were discovered, and the lead came np twice in a battered state, as if it had struck rock. The total distances along the route are: From Honoluln to San Diego, 2,240 miles; from Honolulu to Peel island, 3,273; and from Peel island to the coast of Japan, 480 miles; being 5,993 nautical miles, or 6,950 atatnte miles. This does not allow for any slacks in laying the cable.

Fig. 1

Fig. 2



THE SHAKER SASH BALANCE.

Miscellaneous Communications.

Dr. Blaka presented specimens of mica (containing potash, lithium and chrominm), with which gold was associated in considerable qnantity, found at Granite creek, near Coloma—the only specimens, he believed, in whioh gold had been obtained in any other vein of mineral than quartz. The apecimens did not occur continuously, bnt in patches, and occurred in an altered porphyritio rock. They were a very beantiful microscopio study, and the formation indicated that the gold mnat have been deposited by aqneons solution between the thin flakes of mica.

The President read a paper by H. Edwards, on the Pncifio coast Lepidoptera, being the sixth of the series.

The New Constitution.

Professor Davidson reported that the trnstees had held a nnmber of meetings with regard to framing a new constitntion, and had called in to their aid Jndge Cnrry, R. C. Harrison nnd Samnel Wilson. They hoped to present to the Academy at the next meeting such amendments to the constitution as were required to guard against mistakes in the management of their property.

The Amador canal has been completed. This importnut work has cost nearly $300,000. The main canal is 46 miles long. The capacity of the canal is about 5,000 inches for 12 hours in each 24. The canal runs throngh extensive placer and hydraulic claims, which have heretofore remained nnworked, owing to the impossibility of obtaining water.

Commencement at Oakland.

The annnal commencement exercises of the University of California were held at the First Congregational church, Oakland, on Wednesday last. The church was neatly trimmed and the sceae was brilliant and effective.

The salutatory was pronounced by Thomas Francis Barry of San Francisco; the valedictory by John Maxon Stillman, also of this city. "The True Scientific Spirit" was his theme. Mr. Barry was eqnal in rank with Mr. Stillman, and it was determined by lot to which of the two the salutatory should be assigned.

Samuel Benedict Christy, who was down on the programme for an oration on "The New Science," was nnable to be present on account of severe illness.

Isaac Freud, of San Francisco, the next speaker, chose for his snbject "What Constitutes a Prosperous and Progressive Nation?"

Daniel Griffiths, of Grass Valley, delivered an orstion on "The Career of the Civil Engineer" Mr. G. graduates from the college of engineering.

Edward Allen Parker, of Grass Valley, spoke of "The College World."

Abraham Weadell Jackson delivered an oration on "The Influence of Pnre Science on Materisl Progress."

Joseph Cummings Rowell, of San Francisco, appeared as the poet of the class. His snbject, "The Voice of the Heart," came next.

John Randolph Farrell, of San Francisco, chose for his subject "Nathaniel Hawthorne," It was the tribute of an enthneisstic admirer of the author of "Twica Told Tales."

The speakers each and all acquitted themselves in a most commendable manner. President Gilman then addressed the class, congratulating its members on the succesful resnlts of their four years' labor in the fields of science and literatnre, after which the Bachelor Degree was conferred upon fourteen young gentlemen and one young lady.

The degree of Master of Arts was conferred upon Everett Benedict Pomeroy and Clinton Day, both grndnates of the university.

The university prize to the most distinguished gradnate of the year was awarded to Thomas F. Barry of San Francisco.

The Associated Alumni

Held their annnal gathering at the College of Letters at Berkeley, where a fine collation was spread and discussed by all, after which there was the usnal brilliant season of "flow of soul," over which Dr. A. L. Stone presided in a most admirable manner. Prof. Watson, of the University of Michigan, and Prof. Young, of Dartmouth, were present, during all the exercises of the day, and delivered brief addresses at the meeting of the Alumni.

The James Lick Mining Co.—We notice with pleasnre the incorporation of another mine, formerly known as Keltz mine, and now called the James Lick Gold Mining Co., located on the south side of the sonth fork of the Stanislaus river, Tnolumne mining district, Tnolumne county, California, distsnt about 12 miles northeasterly from the town of Sonora. It is on the great mother lode, and in close proximity to some of the very best mines now being worked in the State. Among the number may be mentioned the Riverside or Telegraph, now sufficiently developed to insure a permanent lode of rich ore; after a slumber of nearly 10 years, this mine is almost inestimable in valne. The James Lick is similarly situated, being elevated fully 1,700 feet. Two shafts have been sunk 40 and 70 feet, respectively, with tunnels to intersect tho lode, showing average width of lode three feet. Several tons of ore taken ont gave over $17 per ton. It is tha intention of the anperintendent to run a tnnnel to strike the ledge 1,700 feet from the summit or out-crop, extracting at the sama time the ore, nnd thna make the mine self-sustaining. The company's capital is $1,000,000—in 40,000 shares of $25 each. H. C. Blake is the secretary, 333 Montgomery street, San Francisco.

The San Francisco Bridge Co. have commenced the Watsonville and Santa Cruz Railroad bridge over Aptos creek, and have all the material at hand to finish it. The Soquel bridge is progressing as fast as the supplies of timber arrive. The Valencia creek bridge, near Ben Nichols' place, will be erected before November, when the laying of the track will be commenced.

The Gwin mine, Calaveras county, is progressing favorably. The mills are kept in constant operation, the stopes from the 800-foot level furnishing the quartz. Rock enough can be obtained from that source to keep the atampa in motion for a couple of months longer, by which time the 900-foot level will be run.

A party of prospectors, hunting for quicksilver in Sonoma, lost their tent and its contents by fire last week. One man lost $250 in gold notes, a $325 gold watch and a $100 rifle. That man had more personal property than prospectors generally are possessed of.

A narrow gauge railroad project between San José and Alviso, Santa Clara county, is on foot.

A clean-up at the Orleans mine, Placer county, last week, yielded $4,500.

Montana Silver Mines.

A correspondent of the Helena *Herald*, writing from Bozemsn, Montena, says: There are vast districts in eastern Montena hopelesely sterile, and bleak enough for an Esquimaux; but there are aleo vsst stretches of country between this point and the Nebraeka and Dakota lines of matchless fertility end genial winters, which are destined et no distant dey to he the centers of proeperons and industriove communities.

The Black Hills and Omaha.

The probable result of Gen. Cnstar's expedition to the Black Hille will be to give "bsck bone" to Omaha in the ehape of a northwestern tributary trade, the magnitnde of which your capitalists have do sdequate idee, as yet. I mey have more to ssy on this heed in fntnre letters.

The Silver Mines of Montana.

I think it well to direct the attention of your readers generelly, to the rich and extensive silver veins in this section, for I know no good reaeon why Omaha ehonld not hecome, in the near fnture, famous for the reduction of oree. Your correspondent knows whst a eilver mine ie. I spent the greater part of last summer examining the veine of Nevada and Uteh, aad had before wide experience in this field. And yon are assured that some of the most extensive and productive silver mines on the continent will be deve!oped in eastern Montana. Some are within a day'e hauling of the hanks of the Yellowetone river, which hundreds have descended to your city, and points lower down, on mackinaws—the trip being safe, pleeeent and expeditions. Lumber is ahundant in the Upper Yellowstone valley, and the coet of a good, snbstential flat-boat is bat little more than the time required to put it together. I believe theee ores can end will be laid down on your levees at $5 and $10 per ton; but suppose the transportation shonld amount to five times that, they ere rich enongh to justify the transportation. A brief description of one of these veins may be interesting to suoh of your citizens es hsve had experience, and such as wish to be informed in regerd to eilver mines. I will single out as one of the most prominent, the "Homestake," owned by Jacob H. Yum—one of our snbstantial live etock men, who knows nothing of mining operatione. It is sitnated 40 miles northeast of Bozemen, and is within 20 miles of the Yellowstone river by a down-hill roed. The surface formation is lime and slete—which may he said of the most productive silver mines of North and Sonth Americe. I made a peresnal inspection of the "Homestske" the other day; and believe it would rank smong the first of the silver mines if it were in Utah or Nevada, but here, isoleted and cnt off from the finsncial centers as we are, it has a mere nominal value. The discovery shaft is only down twenty-five feet, but the ledge may be treced its entire length by bold croppings. The vein proper is seven feet wide in the bottom of discovery shaft, and the walls are covered with "slicken sides" and are the most regular I ever examined.

Two Classes of Ore.

The ore expressed is of two clesses—both milling and emelting. The Galena or smelting ore, onr locsl assayers report to run from $90 to $200 in silver, per ton, besides yielding a fair percentage of gold; end some of the milling ore, being of the chloride claes, ia fahnlouely rich, yielding high up in the thousande. I told the proprietor that if some men I knew of owned the property, and could command the necessary capitel, es he can, they would not sleep until they had tons of the precious ore en ronte for reduction works. He indifferently replied that when "he got thronph haying and gathering his lost cetile up, he might take out a few tone and ship it, if it didn't cost too mnch." That mine would readily sell, if in Utah or Nevade, for a million dollere, and "selting" would not he required either.

Other Veins.

This was the only mine I exemined, bnt I wea oredibly informed that there were others as rich. Why do not yonr enterprising speculatore turn their attention hither, not to purchase, but to secure to Omaha the control of the reduction of Montana ores?

Omaha Interest in Montena Silver.

I feel confident that the oree from the mine described conld he laid down on your levee, hy ehipping in flat-boats, at $10 a ton, at the most; and I helieve the "Homestake" alone, thoronghly opened, would give employment to hundreds of men, and keep one large emelting eetablishment in constant operetion. It seems to me this enterprise might he fostered into one of your most important industries.

Original Gold Hill Quartz Mining Company.—Yesterdey and the day before the donkey engine end hoisting apparatus lately used at the new shaft of the Sierre Nevade mining company were removed to the mine of the company named ahove. The company heve a shaft back or west of the old Confidence mine, Gold Hill, where the machinery will at once he set np. Their shaft contains three compertments of the nsual size, and is down 340 feet. The shaft ie well and suhstentially timbered, end work can be resumed in it withont eny delay for repaire. It is seid that ore can at once he taken ont of the mine that will pay well et the present oost of milling, though in the esrly days the milling left nothing for the owners of the ore. The new machinery will he in running order within the next fifteen or twenty days. J. C. Corey will have charge of the work as Superintendent.—*Enterprise.*

Machinists in the Navy.

The following interesting items we take from the *American Artizan*, end further informetion on the snbject will be given to partiee inquiring at room 3 Government Buildiag, in thie city:

By a recent order of the Navy Department, the pay of mschiniste hae been increaeed to $76.50 per month; thie, with the connected ration, makes $84 per month. Thie alterstion in the stetne of machinists will tend to eecure a hetter claes of men than heretofore. As there is conciderable misunderstanding about this grade, a few worde of explanation will be of benefit to those desiring to epply for it. A "machiniet" is an appointed petty officer of snperior grade; and, on board ship, hes, with the appointed officers, a separete mess, which ie supported by its mese as they mey see fit. He mey have permission to go on shore when his services are not required, provided his deportment and attention to duty have been setisfactory. The duty imposed is to take charge of the engine and fire-room hatches, under the general direction of the engineer officers. The qualifications are, to have some experience in ranning condensing engines of ocean, lake end river eteamers. The candidate may enter the service by applyiag to the commandant of any navy-yerd, for examination, or he may be exsmined by the chief-engineer of any vessel going into commeicion; aad, if accepted, appointed hy the commsnding officer; in either case, the poeition and dutiee on hoard will he the ssme. The candidate need not necesserily be a mechinist by trade. He must over twenty and under forty years of age. He must pase the usual medical examination ae to his fitnees to enter the navy. He must write and spell correctly, and calculate in the first four rulee of arithmetic, to enable him to write his steam log, and calculate the coal eccount and register of revolutione. He must he able to name the parts of a marine engine, and their uses. Valvee and cocks on a merine hoiler, and their uses. How to raise steam, start, regulate and stop a marine engine. To guard ageinst the water in the boiler becoming salted. Foaming and checking it; firing, cleaning fires, and guarding against casaulties that may occur. The uniform is a navy cep, blue cloth jacket, or sack cost, with brass bntons, and embroidered device on cuffs, cloth nevy vest and pantaloons. The general impression is thst this grade is similar to oiler or water-tender, and that when steam is not nsed, the machinist is required to do deck dnty; this is a mistake. They have a table to eat from, and a cook to prepare and serve their food; and, if well managed, they can live es nicely as at their own table at home. They can leave their families half pay, $37.50 per month, payment at the nearest naval paymaster's office. Thie is en excellent opportunity for intelligent men of experience to travel, save money, end have many opportunitiea to improve themselves in theoreticsl steam engineering; for, however ambitious our merchsnt engineers are to acquire a proficiency in the theory of their busiiness, they have no inclination to study or receive instruction efter a six hours' watch on a coasting steamer, or a hard day's work in e shop. The pay is equal to e fair workman's wages, and is more certain, and he would be treated with as much consideration as he gets at our lerge shops. Besides this, he has excellent medical attention. There are in our cities many good, sober, intelligent men, who held acting appointments during the war, who would find this an excellent permanent position. To those of not very extensive experience, it would be a good school to give them in time first-class papers in our merchant service. There ie nothing degrading in it, and they are not put on a level with the class of men who are driven into the neval service hy intemperence, improvidence, and a desire to escape work.

The Oil Regions of Los Angeles.

The following is from the Los Angeles *Herald* of Monday last: The works on the Temple claim are now completed, end boring will he commenced in a few days. The cleim is sitnated five miles west of Lyon's etetion, in a rocky cañon of the San Fernendo range, end is surronnded by towering mounteins a thousand feet high. The oil flows from meny eprings, and is et present lost, there heing no tanks to receive it. They will hore at the rate of 10 feet per day, and the indications are that they will get e flowing well within 400 feet. The show of oil upon the surface is very greet, and without any work having been doue to develop the springs. The oil refined at Lyon's station shows that it is of e superior quality, and non-explosive. The well sunk on the Wiley claim some years ago, although only 100 feet deep, flowa a continnons stream of oil, which is now loet, however, there being nothing to save it in. The Moore spring and the Pico spring are now being developed, and show flattering prospects. The line of the Southern Pacific railroad passes within three miles of the oil springe, and it will he easy to trensport the oil to market. The history of the Hughes claim ie a singular one. In 1865 Mr. Hughes, the owner of the famous Hughes cleim, heing about to bore for oil, and being a strong Spiritualist, applied to a medium to indicate the spot where he would probably find oil. A certain spot was indicated, and, after horing 150 feet, a flowing well wes struck, the oil heing of the finest quality; but, unfortunately, at the moment of success, the boring tools got fest and it was impossible to extricate them. Several efforts have since been made to extricete them, but hsve failed. Wood and water are abnndant in the immediate vicinity. It wonld he e delightful reeort for touriets—among the forest-clad mountains and romantic cañons. Game is abundant, and this is truly the home of the honey bee. A bee cave was discovered here a few days ago, in which there can be seen 24 layere of honoy. The femons ceve discovered some years ego, which ie supposed to contain a ton of honey, is truly an object worth seeing, the swarm of hese constantly peseing in and out of the cave being immense. A beeutiful waterfall, 100 feet high, hes been found here among the pine mountaine. It is surronnded hy pine trees 100 feet high. Petrified wood and many natnral curiosities abound in this region.

The Pine Belt Quicksilver Mines.

A correepondent of the *Post* gives the following reesons for the emsll production of the Pine Flat minee: As the question ie frequently asked why the Pine Flat, or rether the Cinnabar, district does not send iato market more flesks of quicksilver, I will respectfully answer. As early ae 1860 cinnshar was known to exiet in the chain of mountains lying east of thie place, extending from Squaw creek in the northwest, to St. Helena mountain in the southeast. Locations were made at thet time, and still later in 1864 extensive prospecting was done in the varions pleces on the line of the metallic belt. The imperfect knowledge in the practice and science of "rock" mining in those days, together with the nominal value of quicksilver, made the enterprise unprofitable, hence the totsl abandonment of all the locations. The demand for quicksilver heving increaeed so very much of late years, induced many men to locate, prospect and develop this metallic belt, as some of the locations were developing extremely rich. The ring, not being in a condition to hny, determined to stop their yield. They had Congress psss thet rascally mining Act setting the limitation at Jnne 10, 1874, for all previous locatione of *whatever date* to have conformed to law. Fearing their object might not be eccomplished they had the time extended to Jsnuary 1, 1875. The gate being thrown wide open, as yon may suppose, individuals entered end claimed a priority of location, hence the developed mines ere lying dormant under the ban of litigation, or are worked elowly nnder injunction. This stete of things may continue for yeers. Other locstions in favorable localities are owned or managed by greenhoras. Deep and expensive ehafts are snnk off the leed, and on the wrong side of the dip. Tunnels are being run from a long way off the lead to strike it at a good depth on its broadside, when tunnels could be run end on from the same depth. Some mines sre developing slowly under the muscle and intelligence of the children of the flowery land, intelligent and skilled white labor declining to work nnder their menagement. There are other evile existing having the same tendency. I have been in many mining dietricts or rock camps, but have never known one to have so many impediments to its developments and prosperity as this of Pine Flat. Thet rich and extensive deposits of cinnahar exist in this belt nohody doubts who sees tho tons of rich float that are now being, and have been, picked up in the vicinity of this place. The precise lead or place in the belt from whence it came remains to he fonnd. If gold and silver miner of California and Nevada want cheap quicksilver they had better come here and own the minee.

Great Gravel Mining Field.

Lowell hill is situated abont six or eight milee from the town of Little York. The Swamp Angel company have a mine et this place. They have procured a patent to the ground claimed by them, and have been engaged in working the same during the preeent spring. Fonr men during the last four weeks took ont $1,180. All the modern appliences are nsed in the mine. It is owned by J. B. Frick end Albert A. Nutter. Adjoining Swamp Angel ie the Golden Bull cleime, owned hy Jes. Hill. In these claims a six hnndred foot tunnel hes been run and is now completed, and fine gravel was strnck as soon as the tnnnel wee in. They employ five men, and oleen up once e month with eatisfactory returns. Adjoining Swamp Angel on the south ere the Wild Cet claims. The compeny has let e contrect to run a tunnel a thousand feet, end they expect to strike the pay channel before that distence is reached. The Excelsior hill compeny are doing first-rate. Coarse gold ebounde in the grevel, and large piecee are frequently found. One nugget wes found last week which is worth $45. Wicke brothers have recently pnrchased a claim in the vicinity, end have dug a ditch to the South Yuba canal company's ditch, so as to oht in water, and will soon commence washing. They have a good claim, and it only needs opening and plenty of water. Remington hill is in full hlast. Three companies are working a full force of men, and the clean-nps are firet rate. Little York is one of the best mining townships in the county, and it is scarcely prospected. There are milee of grevel which has never been touched. Between the towns of Little York and Lowell hill the road leads over one continuous bed of gravel, and if water was brought to it and an outlet obtained, there is no possibility of its failing to pay. The whole region affords a splendid field for prospecting and the inveetment of capitel.—*Transcript.*

Coal Mining in China.

Some information is given upon this snbject in the officiel report upon the trade of Tamsny, including Kelang, where coel beds abound in great quantities. The eystem of working theee minee—ae indeed Chinese mines generelly—ie exceedingly primitive and imperfect. Places where the mineral ie observed cropping out of the hill-sides are selected, and sn opening 5 ft. high or more by 2 ft. wide is driven horizontally for a dietance of some forty yarde, terminating in a central chsmber, from which workinge 100 yerds or more in length rsdiete in e direction which usually inclines elightly upwards. In these workinge, which in many cases can only be entered on all fours, the miners carry on the work of excavation, squatting in mud and water, and breathing a most foul atmosphere. One mine usually employe ehout twelve or fifteen miners, who earn wages equivalent to 1e. 6d. a men per diem, which ie an extremely high rate in Chine. The usual length of a day's work ie about eleven hours. The miner is ermed with a pick shaped like a eledge-hemmer, with one head pointed, and weighing ahout six pounds. The length of the iron head is about 8 inchee, and of the wooden shaft sbout 2½ ft. The miner's lamp is a saucer of oil with a rneh wick laid into it. The coel is drawn along the pit floor to the month in e baeket about 3 ft. iong, fastened on a bosrd with a rattan cord attached hy which to haul. Occasionelly the boerd ie fastened on rollers, and travels on planke laid down for the purpoee of formiag e rudimentary tramway. In consequence of the imperfect tools employed great waste occnrs through so great a quantity of coal being reduced to a powder.

The ventilation of the mine is left to itself, and it is stated that no system of pumping out the water is employed. The water rnns out at the mouth of the mine, and in ceses where the galleries take a downward direction, the only reeource left is to abandon the working when the water excessively accumulates. Firedamp is unknown, but accidents often happen in consequence of the side or roof falling in, which from the insnfficient wey in which they are secured is almost inevitable. Generally speaking, it may be assumed that the coal-working et Kelnag is little more than a scratching of the surface, and that the real coal-beds mey be considered to be practicslly untonched. The Chineee Government rsther pnts drawhscks in the way of these mines than offer facilities for their working. The owner of land which contains coal is not permitted to open a mine without previously obtaining the sanction of the authoritiee, which involves great delay and expense, and is after all uenally refused. As to the introduction of machinery for the better working of the mines, the proprietors have not sufficient capital to purchaee anoh machinery, nor do they wieh to do so. Supposing, however, that they were both able and willing, it is stated that euch an innovation, accompanied ae it would be by the employment of foreigners, would be the immediate signal for the closing of the mines by the mandarins, and the not improbeble loss of the proprietor's head. The quality of this coal has been favorably reported upon by competent engineers, and it is stated, in fact, on good authority, that for houeehold pnrposes Keluag cool has no superior.

Panamint.

The prospect of a great future for this camp seem to be as well assnred as it is poesible for ledges of monstrous size end wonderful richnees to insure euch a result; it is only e question of time, and very brief at that, unless some unforseen or unusnel difficulties should be encountered when it comea to reducing the ores on a scele commensurate with the size and nnmber of the ledges now exposed. But the beet informed and those most interested have no fears whatever on this head; the ores are of the samo charecter as those of Benton, which by mill process, are being worked all the time with splendid results. Qnantitiee of those from Panamint ere being packed to Cerro Gordo and put thronph the furnaces, yielding magnificently by thet process. The mechinery for the Jacobs' mill is now at Los Angeles, and will be in camp in a few days. By the time this is ready to steem np, another of four times ite capacity is well under way. The latter belongs to the Panamint Mining Co., in which Senetor J. P. Jones is largely interested. These a snccess and scores will follow, becenee the ores are there to supply them, and there is an ebnndance of fuel and water and trees suitable for mining timbers.

But paseing the minee and mills for the present, we will refer to other matters of interest to travelers. The grade acrose Slate renge is now completed; it was for this that Mr. Kennedy asked and received Loe Angeles aid. The toll road is aleo finished; Mr Reddy, just returned, took the first buggy, and the eecond vehicle of any kind over it. There ere no hotels, saloone, stores or stables, or similar accommodations for men or heaet, except for the latter an abnndance of bunch grase, and six miles distant a horse ranch; for the former a big tent known as the Hotel de Bum, heving a good cook, plenty of grub and welcome for the stranger, no charges or known owner, unless it is E. P. Rains, now aheent; plenty of materiel for stockade nonses, hut no lumber obteinable except imported, costing abont $120 per M.; heef market well supplied; popnlation rapidly increasing—something over a hundred there now.—*Inyo Independent.*

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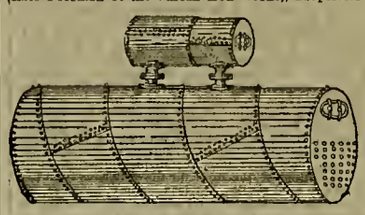

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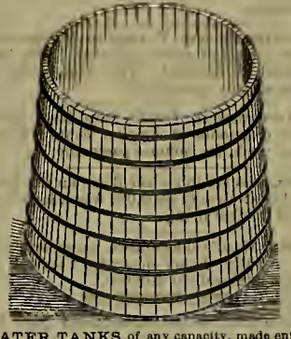

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Invention and Progress.

The world is fast learning how it can moat easily earn its daily bread—how labor can be made most productive for the supply of physical wanta. Scarcely a day pasaes but we hear of aome new inventiou which ia designed to aid toiling humanity in its atruggles to overcome certain obstacles. Though many of these fail to accomplish the object for which they are deaigned, a large proportion are of real benefit to the world at large. Even thoae inventiona which are partial or total failures are, in a degree, productive of good, since that very fact incitea the genina of the iuventor to renewed exertions. Moreover, half a dozen inventiona, deaigued to accomplish the same object, may all be failnres, and yet some lucky individual may combine the ideaa of all and perfect the mechanism to a degree not dreamed of by any one of the original inventors.

Thus we see onr machinery, processes, etc., which may be founded on a general principlo and work acceasfully, so improved in detail by new inventors as to be almost entirely changed. The great public scarcely appreciate what a load of toil invention has lifted from their shoulders. The tools, machinery and appliances of modern life are accepted as things that are, with acarce a thonght of the miracles of art and human ingenuity they present.

That many of onr moat cunning devicea will be old-fashioned in another century we must admit; notwithstanding that onr present appliances appear almost marvelous as compared with those of a few generations past. Yet the germs of art have not reached their full fnition in our age, nor ia it likely that the future will plagiarize the present or repeat the past.

Chariot Mill.—The following letter from the anperintendent of the Chariot mill and miuing company, the new California mine located at Banner Diatrict, San Diego county, gives a flattering account of the prospecta: We commenced to hoist from the new shaft yesterday. The work of sinking will now go on with iucreased speed. There is more and richer rock in the shaft than in the lower level. The best rock I have seen come from the mine ia from the shaft to-day. The north stope is turning out very good rock, and the amaller of the two ledges is as rich as ever. The work going ahead in the cross-cnt opposite the south ahaft has cut considerable water, and indicates that the lode is not far diatant. The mill worka well, and it looks as though we wonld have our usnal clean-up. A diapatch from the mine dated the 17th says: The mine looks well. The croas-cnt is making good headway. The clean-up amounts to $9,500 for twelve days' run with our 10 stampa.

Yakima Mines.—A letter from the Yakima mines, dated June 24th, says: The miners on the Pishastin and a tribntary of it, called Nigger creek, are making fair wages—from $3 to $6 per day. The minea on this side of the range on the Smock and Yakima are variable. A good deal of mining outside of discovery has ceaaed, the men have become discouraged and have gone prospecting in other quartera, while the discovery boya are sometimes doing remarkably well. Week before last they (six men) took out $500. One piece weighed $184.67, another $33, and from that down to $6. It was nearly all coarse gold. Then the week following they did not make to exceed a dollar per day to the hand. Old minera are aorely pnzzled as to where that pay streak extends.

Claim Rejected.—The claim of the Pennsylvania mining company for a patent for the Pennsylvania gold-quartz mine in the Maryaville (California) land district has been rejected by the General Laud Office for the reason that their notice was not published for the proper length of time, and the application was not aworn to. The Jefferson mining company was the adverse claimant in the case.

Strike at Calistoga.—A dispatch of the 22d from Calistoga says: A rich discovery was made in the California silver mine yesterday. A large body of ore, aasaying over $500 per ton, waa struck at a depth of 200 feet. A great many visitors went up to the mine yesterday, and there was a general rejoicing at the favorable proapects.

Work on the California Borax company'a mine, at Sulphur Banks, Lake county, is being vigorously pushed forward in the way of running open cuts, excavating for and putting up new buildings. The company is having the buildings and machinery at Borax lake removed to the mine.

The new hoisting works of the Sierra Nevada mining company have beeu entirely roofed in. Pipes nre being laid up the aide of Cedar hill, to the flume of the water company, to furnish a anpply to the new establishment. One large wooden reaervoir has been completed, and nnother will be ready in a few daya.

Prospecting the fourth station level of the Chollar Potosi mine has been abandoned for the present, there being no enconraging indicationa of the development of any paying ore in that level.

Dr. Gally, better known to readers as "Singleline," the Nevada poet, haa atruck it. He and a partner recently sold a claim for $75,000.

General News Items.

That Big Roof.—The shingling of the vast roof of the Mechanics' Institute Pavilion is nearly completed. Fifteen men are at work at this job alone, putting on shinglea at the rate of about 80,000 per day. It ia estimated that 1,500,000 shingles will be nsed in completing the job.

The graaahoppers made a clean sweep in Sheridan valley, Montana, this year. The valley ia uaually one of the most fertile and prolific in the Territory, bnt the peata have eaten "every green thing" thia season.

"Aspirations and Realizationa."—This is the title of a story iu verse, written for children by George G. W. Morgan, and printed by Winterburn & Co. of this city. It is a wholeaome little poem.

Indian War.—The Indian war, so long feared, appears to have actually broken out near the Cheyenne Agency. Quite a number of settlera have been slain, and the Agency itself threatened.

The *Union* is reaponsible for the atatement that the Sacramentans are now obliged to carry six-shooters to protect themselves from the mosquitoes.

The Grasshopper Plague in Minnesota is still the aubject of mnch comment. Very little abatement is reported. The damage to the orops ia already quite large.

A large nnmber of cattle have been driven into the monntains of Amador conuty, during the past week, for summer pasturage.

Steel raila are to be laid down on the Panama railroad: already $500,000 worth have been shipped for that point.

Robert Watt's aheep ranch overseer, in the lower conntry, lately decamped, leaving hia accounts minus abont $10,000.

Jake White, of the Virginia and Gold Hill omnibus line, has eleven horses laid up with the new epizootic.

The Burleigh drills are working successfnlly in the Idaho mine, Grass Vnlley. They not only work the mines cheaply, but open them np so rapidly that a larger force of men will have to be employed.

The mining region of the Stickeen is conceded to be rich, but the shortneaa of the aeason and the small number of claims makea it a poor place for more than a few men.

The Carson river ia piled full of wood at Dayton, and a large number of teama are engaged in hanling it to Gold Hill, Sntro aud Silver City.

The tnnnel at the Blue Gravel mine, near Mooney Flat, is now in 800 feet. They will probably have to proceed 1,400 feet more before reachiug pay dirt.

The Winnemncca *Register* says that rich placer mines have just been discovered on Bartlett creek, sixty milea northwest of Winnemucca.

A new giraffe haa been put in the Belcher incline, which hoists seven tons of rock at a load. A back-action is added to this, greatly increasing the load.

Thirty thouaand dollara was the nice little clean-up for the Manzanita mine, near Nevada City, a few days since.

The new machinery ordered for the Juatice mine will be among the moat powerful in nse on the Comstock Lode.

It is stated that the famons Tiger mine, Arizona, will soon pasa into the hands of a London company.

A 20-stamp mill will soon be built in Cedar diatrict, Mohave county, Arizona, by Colonel Buell.

A company has been formed in Nevada county on the co-operative principle, with the object of taking up and developing mines.

For the two days ending July 13th, a total of 200,000 pounds of bullion was shipped from Enreka.

From seven to eight thousand pounds of bullion are being smelted daily at the Trnckee smelting works.

Borax.—San Francisco shipped 10,110 packngea of borax dnring the half year ending Jnne 30th, 1874, valued at $153,721.

The value of the lead shipped from this port by sea during the past half year was $268,808.

Adolph Sutro delivered hia lecture on "Mines and Miuing" in this city three timea thia week.

The Cloverdale quicksilver miuea are being steadily developed.

John C. Smyles haa been re-elected Mining Recorder for Peavine dietrict.

The Lincoln coal, it is said, has been found to be a success for smelting pnrposea.

Rich rock has been strnck in the tunnel run in the San Benito mine, in Mosquito creek.

The Consolidated Virginia mine shipped $147,000 last week.

The Golden Chariot sent down $15,500 last Saturday.

The Eureka (Graas Valley) mine cleaned np 450 ounces of amalgam laat week.

The Sonth Chariot mine cleaned up $9,500 in the firet two weeks of July.

Mr. A. Caldwell has been appointed snperintendent of the Woodville mine.

Meetings and Elections.

Savage Mining Co.—July 16. Trustees: J. A. Pritchard (President), J. D. Fry, J. C. Flood, R. F. Morrow and George S. Dodge. Secretary, A. C. Hamilton; Snperintendent, E. B. Hamilton. For the first time in years there was not a ponnd of ore raised or worked. The receipts embraced $400,000 in assessments from stockholders.

Pauper M. Co.—July 16. Directors: J. H. H. Williams (President), Ieham Case, J. Olem Uhler, Thomas B. Phelny (Superintendent), David Wilder (Secretary).

Eclipse, Winters and Plato Gold Hill Consolidated M. Co.—July 20. There were 20,182 shares represented ont of 25,000 sharee, the capital stock. G. W. Beaver, J. H. Rohinson, H. H. Flagg, Joseph Sharon and Edward F. Stone were elected trustees. H. H. Flagg was elected President and Joseph Marks, Secretary.

Washington and Creole M. Co.—July 20.—Trustees: Georga W. Crandall (President), W. E. Hale, S. W. Levy, P. Cleary and Martin Tarpey. The last named gentleman was re-elected Superintendent and Frank D. Cleary was chosen Secretary. The claim is in the Ely District; contains 1,520 feet, and has levied 11 assessmente of $217,500; but has never paid a dividend.

Yellow Jacket.—At the annual meeting of the stockholders of the Yellow Jacket mining company, held in Gold Hill, on the 20th inst., the following named gentlamen were elected Trustees: Thomss G. Taylor, F. A. Trytle, D. L. Bliss, G. W. Hazleton and T. B. Storer. The following is a liet of officere elect: President, Thos. G. Taylor; Vice-President, G. W. Hazleton; Treasurer, William Sharon; Secretary, George W. Hopkins; Superintendent, Thos. G. Taylor. Thus it will he seen the result was a re-election of the old officers throughout.

Chollar-Potosi M. Co.—July 16. A. K. P. Harmon (Pres.), J. D. Fry, Alphens Bull, Wm. Norris, H. C. Kibbe, James Freeborn and James H. Dobinson, Trustees; W. E. Dean, Secretary; Isaac L. Requa, Superintendent. The operations of the mine for the year have been harren of any good results. Strict economy, however, has enabled the trustee to avoid assesements. There were 32,900 tons of ore extracted during the year, and 35,340 tons reduced, leaving 1,424 tona on hand June 1et. The quantity of ore raised during the previcus year was 48,200 tons against, 33,000 tons the year before. Tha cost of extracting the ore, including repairs, etc., was $6.84, snd the cost of redncticn was $12.44, making a total of $19.28. The gross yield of the ore worked was only $17.47. There waa a nett loss of 1.81 per ton on the quantity produced. The Superintendent epitomizes the financial results for the year in four lines, as follows:

Expenses by all sonrces		$634,023
Received from bullion	$517,391	
Received from other sources	2,539	619,930
Nett loes for the year		$64,093

The Secretary's report is as follows:

Receipts.

Proceeds of bullion eold	$617,270
Last year's balance from Superintendent	1,500
Cash on hand per last statement	133,393
Total	$762,163

Disbursements.

Working ores for the year	$434,762
Labor at mine	174,757
Timber and Lumber	29,238
Wood	9,223
Hardware	7,586
Water	8,255
Taxes	5,358
Discount on bullion and drafts	19,772
Office arpenses	8,854
Machinery and materiale	8,257
Miscallaneous	18,017
Total disbursements	$722,089
Cash on hand to balance	30,074
Total	$752,163

The mine has paid its stockholders $3,080,000 and collected $602,000 in assessments. The cost of working ores last year was $1.85 more than in 1872.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

Tolman & Miller Mill and M. Co.—July 16. Location: Sandy guloh, Calaveras county. Directors: D. A. Miller, R. M. Griffin, George B. Tolman, Austin Smith, A. Craig and James L. Trask. Capital, $900,000.

Lincoln S. M. Co.—July 16. Location: Napa county. Directors: Coll Deane, Archy Borland, Thos. R. Hayes, Alexander Badlam and August Hemme. Capital, $8,000,000.

Florence M. Co.—Jnly 17. Location: California, Nevada, Arizona and Utah. Directors: Michael Hawkins, Jos. Daly, Thomas H. Blythe, Jas. H. Daly and William Phillips. Capital, $2,000,000.

California Oil-cloth Manufacturing Co.—July 17. Object: To manufacture and deal in oil-cloths in this city: Directors: A. C. Corbett, Jnlius C. Reis, Horace S. Ridley, Christian Reis and Hugh L. Carpenter. Capital, $100,000.

Hite's Cove Gold Quartz M. Co.—July 20. Location: State of California: Directors: M. G. Kennedy, B. A. Bedlack, C. I. Kader, J. M. Gove and William Small. Capital, $2,500,000.

Nevada Gold Quartz M. and M. Co.—Jnly 22. Location: Deer Creek, Nevada county. Trustees: I. S. Van Winkle, August Hemme, Jonathan Kittredge, A. Borland and W. L. Palmer.

Increase of Capital Stock.—A certificate of increase of capital stock of the Sierra Nevada Mining Company from $4,000,000, in 20,000 shares, to $10,000,000, in 100,000 shsres, wss filed in the Conuty Clerk's office. The certificate stetes that the whole amonnt of the capitel stock of the corporation was fully paid in, hecauee the capital stock is repreeented by tho mine and worke belonging to the company, which have been fully paid for. The liabilities of the company are put down at $61,000, besides the ordinary current floating accounts.

New Volume.—Tbat valuable mining journal, the Scientific Press of San Francisco, entered on a new volume on the 4th inst. We wish it success, and hope it may increase in size and usefulnesa esch succeeding year.—*White Pine News.*

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., July 21st, 1874.

For Week Ending July 7th, 1874."

Mechanism for Moving Grain in the Sack.—Eliaha P. Kenyon, James J. M. Clebben aud John H. Ollrich, Milton, Cal.

Box for Propagating Plants.—Obed D. Mills, Watsonville, Cal.

Hay and Grain Elevator.—David Morey, Watsonville, Cal.

Stencil Plate.—Geo. M. Wood, S. F., Cal.

Medical Compound or Salve.—John P. Dyer, Pueblo, Colorado Ter.

Medical Compound or Liniment.—Hiram F. Slone and Launcelot Gilroy, Kingston, Cal.

*The patents are not ready for delivery by the Patent Office until soma 14 days after the date of issue.

Note.—Copies of U. S. and Forsign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at tha lowast rates. All pstent hnsiness for Pacifio coast inventors transacted with perfect seonrity and in the shortest time poesible.

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L. P. McCARTY, Business Manager

DEWEY & CO.,

Publishers and Patent Agents.

Office of the Mining and Scientific Press and Pacific Rural Press, No. 224 Sansome, Cor. of California Street. July 15, 1874.

hptf

METALS.

WEDNESDAY M., July 22, 1874.

There is no doubt of the fact that Lead is heavy. The Iron men also find Pig hard to move.

American Pig Iron, ₱ ton	—	@	40 00
Scotch Pig Iron, ₱ ton	—	@	40 00
White Pig, ₱ ton	—	@	50 00
Refined Bar, bad assortment, ₱ lb	—	@	3½
Refined Bar, good assortment, ₱ lb	—	@	4
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	— 06	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	— 8½	@	—
Norway Iron	— 8	@	—
Rolled Iron	— 6	@	—
Other Irons for Blacksmiths, Mines, etc.	—	@	4½
COPPER.—			
Braziers'	— 31	@	32
Copper Tin'd	— 45	@	—
O. Nail's Pat	— 50	@	—
Sheatbing, ₱ lb	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	— 24	@	—
Composition Bolts	— 24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	—	@	16 00
Plates, I O Charcoal	14 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ lb	— 33	@	37
STEEL.—English Cast, ₱ lb	— 20	@	25
Anderson & Woods' American Cast	— 10	@	17
Drill	— 18	@	22
Flat Bar	— 18	@	22
Plough Points	— 16	@	17
ZINC	—	@	11
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	— 5¾	@	8
LEAD.—			
Pig, ₱ lb	— 5¾	@	6
Bar	— 6½	@	7
Sheet	—	@	9
Pipe	—	@	8½
QUICKSILVER, per lb	—	@	1 35

GENERAL MERCHANDISE.

WEDNESDAY M., July 22, 1874.

There were received during the week 3,400,000 Bags, nearly all sold in advance. The total number of Wheat, Oat and Barley Bags needed this season for this State and Oregon is put at 23,500,000. Stock carried over and fresh receipts leave the number yet to be shipped from England 7,241,000; or, on a higher crop estimate, considerably more. Prices are firm. Coffee is dull. Coal is steady. Spices are buoyant. Sugar is firm at advanced rates. Quite a movement in salt has been made. Tobacco is likely to rise materially, owing to failures in the crop in Kentucky, Missouri, etc. Turpentine is slow of sale, and 10c lower.

BAGS.			
Eng. Stand Wht.—14½@14½			
Detrick's Machine Sewed, 22x38 E	—	@	13½
do 22x36, do E W	—	@	14
do 20x40, do A	—	@	14¼
Flour Sacks ¼s	10½	@	12¼
" ⅛s	6½	@	7¼
Stand. Gunnies,			
double seam	—15	@	16
single seam	—13	@	13
" Wool Sacks	63	@	70
Barley Bags 24x38	—	@	15½
do 23x40	—	@	15½
do 24x40	—	@	16¾
do 23x36	—	@	17
Gat Bags, 24x40	16	@	16½
do 28x36	—	@	17
Hessian 40-in. gde	9½	@	10
do 45	10¾	@	11
do 60	—	@	15
CANNED GOODS.			
Asst'd Pic Fruits			
1a 2½ lb cans	2 75	@	3 00
do Table do	—	@	2 75
Jams & Jellies	3 75	@	4 25
Pickles ½ gl	—	@	3 50
Sardines, qr box	1 75	@	—
do hf boxes	3 00	@	—
COAL—Jobbing.			
Australian, ₱ ton	10 00	@	—
Goos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11
Cumberl'd, cks	22 00	@	23 00
do bnlk	18 00	@	20 00
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	19 00
Liverpool	11 00	@	12
West Hartley	12 50	@	—
Scotch	9 50	@	10 00
Scranton	15 00	@	17 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ bsk	75	@	—
Coke, ₱ bbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Central America	22	@	23
Costa Rica, per lb	23½	@	24
Guatemala	21	@	22
Java	28½	@	30
Manilla	22	@	—
Ground in oil	—	@	30
Chicory	10	@	—
FISH.			
Pac. Dry Cod, new	5	@	5
cases	6	@	7
do boneless	11	@	12
Eastern Cod	—	@	5½
Salmon in bbls	8 00	@	—
do ½ bbls	4 50	@	—
do 2¼ lb cans	—	@	3 00
do 2 lb cans	2 65	@	2 75
do 1 lb cans	1 75	@	—
Do Gol. R. ½ lb	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Herr'g	40	@	50
Mack'l, No. 1, ½ bbls	8 00	@	8 50
" Extra	—	@	9 00
" in kits	2 00	@	2 50
" Extra mess	3 00	@	3 50
" Ex mess, ½ bs	—	@	12 00
Sm'k Herr'g, bx	50	@	55
NAILS.			
Assorted size, ₱ lb	4¾	@	7
OILS.			
Pacific Glue Co. Neat F't No. 1	—	@	1 00
Pure	1 25	@	—
Castor Oil, No. 1	—	@	75
do do No. 2	—	@	1 60
Cocoanut	45	@	50
Olive Plagniol	5 00	@	—
do Possel	4 75	@	—
Palm	—	@	—
do Esclanqui	—	@	—
Linseed, raw	—	@	1 02
do boiled	—	@	1 07
China nut in cs	—	@	82½
do bulk	70	@	72
Sperm, crude	—	@	1 40
do bleached	—	@	2 20
Coast Whales	35	@	40
Polar, refined	50	@	55
Sperm	1 40	@	1 50
Lard	95	@	1 05
Coal, refined Pet	37½	@	40
Oleophine	—	@	34
Devoe's Brilt	—	@	34
Long Island	—	@	34
Eureka	37½	@	40
Devoe's Potro'm	26	@	29
Barrel kerosene	—	@	26
Glive	4 00	@	9 50
Downer Kerose'e	—	@	42½
Gas Light Gl	—	@	34
PAINTS.			
Atlan. W. Lead	7½	@	12½
Whiting	—	@	2
Putty	4½	@	5
Chal. Red	—	@	2½
Paris White	2¾	@	—
Gobre	—	@	3½
Venetian Red	3½	@	5
Red Lead	7	@	11
Litbarge	10	@	11
Eng. Vermillion	1 00	@	1 25
RICE.			
China No. 1, ₱ lb	5½	@	6¾
do do	5½	@	5¾
Japan	5½	@	5
Siam Cleaned	7	@	—
Patna	—	@	6¼
Hawaiian	7	@	7¾
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmo and Ad	1 00	@	13 00
Liverpool fine	20 00	@	23 00
do coarse	15 00	@	20 00
SOAP.			
Castile ₱ lb	10	@	11
Local brands	5	@	8
SPICES.			
Allspice, per lb	15	@	16
Cloves	45	@	47½
Cassia	22½	@	25
Citron	—	@	30
Nutmeg	—	@	1 07½
Whole Pepper	17	@	17½
Pimento	—	@	15½
Ground Allspice	—	@	16
do Cassia do	—	@	1 50
do Clovse do	—	@	1 50
do Mustard do	—	@	1 25
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	1 60
SUGAR, ETC.			
Cal. Cube per lb	10½	@	—
Parz'l Pre. Cube			
bbls or 50 lb bxs	—	@	10¾
do in 50 lb bxs	—	@	11
do in 25 lb bxs	—	@	11¼
Circle A crushed	—	@	10½
Powdered	—	@	10¼
Granulated	—	@	10
Dry granulated	10	@	10½
Hawaiian	8	@	—
California Beet	6	@	10½
Golden C	9	@	9½
do Rcy'g grade	—	@	6½
Cal. Syrup in bls	—	@	27½
do in ½ bls	—	@	30
do in kegs	—	@	35
Hawaiian Molasses	10	@	20
TEA.			
Oolong, Canton, ₱ lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	1 00
Gunpowder, Cant	30	@	42½
do Pingsuey	50	@	90
do Moyune	65	@	1 25
Young Hy., Canton	28	@	40
do Pingsuey	40	@	70
do Moyune	65	@	85
Japan, ½ chests, bulk	30	@	75
Japan, lacquered bxs, ½ and ¼ lbs	46	@	87
Japan do, 3 lb bxs	45	@	90
do pl'n bx, ½ lb	35	@	65
do ½ & 1 lb paper	30	@	55
TOBACCO—Jobbing.			
Sright Navys	50	@	60
Dark do	45	@	55
Dwarf Twist	57	@	62½
12 inch do	57	@	62½
Lights Pressed	48	@	75
Hard do	60	@	70
Conn. Wrap'r	40	@	50
Penn. Wrapper	20	@	30
Ghio do	7	@	15
Virgi'a Smok'g	60	@	95
Fine ot obe'g, gr	50	@	25
Fine out chewing, bu'ts, ₱ lb	75	@	90
Bans, ½s and 1 be	46	@	00
Eureka Cals	75	@	90
TURPENTINE.			
Eastern	60	@	85

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To Mining Secretaries.

An amendment to Section 338 of the California Code, taking effect July 1st, 1874, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the M. & S. Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements

Eagle Quicksilver Mining Company.—

Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of July, 1874, an assessment, No. 3, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 6, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessment shall remain unpaid on Monday, the 21st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Saturday, the 26th day of September, 1874, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Roome 5 and 5, No. 302 Montgomery street, San Francisco. jy25

Electric Mining Company—Location of

principal place of business, San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of June, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
G W Haskell	29	500	$50 00
G W Haskell	30	500	50 00
G W Haskell	31	500	50 00
G W Haskell	32	500	50 00
G W Haskell	33	500	50 00
G W Haskell	208	375	37 50
Wm R McCew	18	2600	250 00
Wm R McCew	65	300	30 00
Wm R McCew	203	435	43 50
J B Houghton	15	1168	115 80
J B Houghton	80	50	5 00
J B Houghton	91	25	2 50
J B Houghton	82	41	4 10
J B Houghton	93	500	50 00
J B Honghton	201	272	27 20
Wm H Baker	7	500	50 00
Wm H Baker	8	2000	200 00
Wm H Baker	200	375	37 50
G W Terrill	47	600	60 00
G W Terrill	48	500	50 00
G W Terrill	49	600	50 00
G W Terrill	50	500	50 00
G W Terrill	51	500	50 00
G W Terrill	212	300	30 00
Wm H Sparks	64	500	50 00
Wm H Sparks	219	75	7 50
M Ellsworth	9	250	25 00
M Ellsworth	213	37	3 70
A C Knox	71	100	10 00
A C Knox	222	15	1 50
Anna Woods	76	100	10 00
Anna Woods	131	500	50 00
Anna Woods	223	90	9 00
G S Eston	132	25	2 50
G S Eston	133	50	5 00
G S Eston	134	25	2 50
G S Eston	135	60	6 00
G S Eston	232	24	2 40
Maria Foley	136	50	5 00
Maria Foley	233	7	70
Maria Foley	234	½	05
Louisa Thompson	161	400	40 00
Louisa Thompson	239	60	6 00
Henrietta Grant	162	400	40 00
Henrietta Grant	240	60	6 00
Wm H Sharp	163	100	10 00
Wm H Sharp	241	15	1 50
M G Rader	182	200	20 00
M G Rader	244	30	3 00
M G Rader	249	157	15 70
M G Rader	250	23	2 30
M G Rader	251	½	05
Geo W Mullen, Trustee	126	1000	100 00
Geo W Mullen, Trustee	129	500	50 00
Geo W Mullen, Trustee	153	300	30 00
Geo W Mullen, Trustee	184	500	50 00
Geo W Mullen, Trustee	168	250	25 00
Geo W Mullen, Trustee	252	547	54 70

And in accordance with law, and an order of the Board of Directors, made on the 10th day of June, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Manrice Dore & Co., No. 326 Pine street San Francisco, California, on the 5th day of August, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—No. 318 California street, room 13, San Francisco, Cal. jy18

Enterprise Gold and Silver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, Meadow Lake District, Nevada County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 13, levied on the 22d day of June, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Battersby, Jas	173	3	30
Battersby, M A	361	7	70
Coll, Tracy	254	8	80
Coll, Tracy	278	40	4 00
Coll, Tracy	308	40	4 00
Coll, Mrs P M	337	24	2 40
Campbell, David	263	20	2 00
Davis, E	264	40	4 00
Davis, E	252	4	40
Flynn, P R	310	100	10 00
Freeman, J E	380	40	4 00
Fenton, D W	178	150	15 00
Fenton, M P	181	50	5 00
Fenton, S H	233	20	2 00
Furrey, Wm O	381	4	40
Goddard, S	369	40	4 00
Goddard, S	370	20	2 00
Goddard, S	372	20	2 00
Goddard, S	374	10	1 00
Goddard, Fred	3	40	4 00
Heathfield, E E	212	24	2 40
Hall, Thomas	331	4	40
Hall, Thomas	332	4	40
Hall, Thomas	333	4	40
Havens, Howard, Trustee	382	20	2 00
Jones, J W	355	20	2 00
Locke, S M	110	40	4 00
Locke, S M	Not Issued	20	2 00
Leet, A	296	12	1 20
Mathews, M R	144	4	40
Mothews, E G	27	40	4 00
Mothews, E G	28	40	4 00
Mallory, A P	298	4	40
Nelson, A T	14	4	40
Phillips, David	383	20	2 00
Pomeroy, H	149	20	2 00
Pope, J A	375	80	8 00
Pope, J A	376	10	1 00
Thompson, J P	240	4	40
Toudy, J C	353	5	50
Werren, Bessie	Not Issued	12	1 20
Woodward, E F	295	8	80

And in accordance with law, and an order of the Board of Directors, made on the 23d day of July, 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction at the company's office, 411½ California street, Room 3, San Francisco, on Saturday, the 15th day of August, 1874, at the hour of 2 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of the sale.

E. E. RICE, Secretary.

Office—Room 8, 411½ California street, San Francisco, California.

Annual Meeting—Hasloe Mill and Mining

Company. Location of principal place of business, San Francisco, California. Location of works, Mariposa County, State of California.

Notice is hereby given that the annual meeting of the stockholders will be held at the office of the company, 408 California street, room 14, San Francisco, California, on the 12th day of August, 1874, at 12 M., for the purpose of electing Trustees for the ensuing year. By order of the Board of Trustees. J. W. TRIPP, Secretary.

Land Purchasers' Association—Office, No.

425 Keorny street, San Francisco, Cal.

There are delinquent upon the following described stock, on account of assessment (installment No. 41) levied on the 9th day of June, A. D. 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J L Beyea	72	1	$10 00
V Ohevoiller	93	1	10 00
T A Lord	58, 59 and 77	3	30 00
W E Mayhew	23, 24 and 157	3	30 00

And in accordance with the law and an order of the Board of Directors, made on the 9th day of June, A. D. 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Secretary 425 Kearny street, (up stairs,) San Francisco, Cal., on Tuesday, the 4th day of August, 1874, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. S. WRIGHT, Secretary.

Office, No. 425 Kearny street, up stairs, San Francisco, California.

Manhattan Marble Company of California—

Principal place of business, San Francisco. Location of works, Oakland, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of June, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 20th day of July, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 11th day of August, 1874, at noon, to pay the delinquent assessment, together with costs of advertising and expenses of sale. SAMUEL B. POPE, Secretary.

Office—212 Sansome street, San Francisco, Cal.

Ohio Consolidated Gold Mining Company.

Location, West Point, Calaveras County, Cal. Principal place of business, San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the Thirtieth day of May, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
E A Richardson, Trustee	68	100	$20 00
W A Knapp, Trustee	91	150	30 00
W A Knapp, Trustee	238	100	20 00
H H Hnbbard	94	100	20 00
Jno J Crawford	97	100	20 00
B Dore, Trustee	289	50	10 00
B Dore, Trustee	295	100	20 00
B Dore, Trustee	290	50	10 00
B Dore, Trustee	308	100	20 00
B Dore, Trustee	309	100	20 00
B Dore, Trustee	310	100	20 00
B Dore, Trustee	311	100	20 00
B Dore, Trustee	314	200	40 00
J H Wood, Trustee	211	100	20 00
J H Wood, Trustee	213	100	20 00
J H Wood, Trustee	322	200	40 00
J H Wood, Trustee	335	100	20 00
J H Wood, Trustee	334	100	20 00
B Dore, Trustee	295	100	20 00
W B Boyden	299	500	100 00
W B Boyden	300	100	20 00
W B Boyden	301	100	20 00
W B Boyden	302	100	20 00
W B Boyden	303	100	20 00
W B Boyden	304	100	20 00
Wm Azel	305	50	10 00
D W Spear	376	100	20 00
D W Spear	377	50	10 00
F Franks	344	50	10 00
W A Knapp, Trustee	241	100	20 00
W A Knapp, Trustee	242	100	20 00
W A Knapp, Trustee	243	100	20 00
W A Knapp, Trustee	244	100	20 00
W A Knapp, Trustee	245	100	20 00
W A Knapp, Trustee	247	800	160 00
W A Knapp, Trustee	253	100	20 00
W A Knapp, Trustee	379	100	20 00
H C Hitnde	256	1000	200 00
W J Hamilton	338	100	20 00
W A Knapp, Trustee	262	50	10 00
W A Knapp, Trustee	264	50	10 00
W A Knapp, Trustee	266	50	10 00
W A Knapp, Trustee	268	50	10 00
W A Knapp, Trustee	269	50	10 00
W A Knapp, Trustee	271	50	10 00
W A Knapp, Trustee	282	50	10 00
W A Knapp, Trustee	283	50	10 00
W A Knapp, Trustee	278	100	20 00
W A Knapp, Trustee	316	100	20 00
W A Knapp, Trustee	317	100	20 00
W A Knapp, Trustee	318	100	20 00
W A Knapp, Trustee	320	100	20 00
W A Knapp, Trustee	323	50	10 00
W A Knapp, Trustee	325	50	10 00
W A Knapp, Trustee	280	100	20 00
W A Knapp, Trustee	281	100	20 00
W A Knapp, Trustee	326	100	20 00
W A Knapp, Trustee	327	100	20 00
W A Knapp, Trustee	328	100	20 00
W A Knapp, Trustee	329	100	20 00
W A Knapp, Trustee	331	100	20 00
W A Knapp, Trustee	332	100	20 00
W A Knapp, Trustee	333	100	20 00
W A Knapp, Trustee	341	100	20 00
W A Knapp, Trustee	342	200	40 00
H P Wood, Trustee	383	100	20 00
W A Knapp, Trustee	384	400	80 00
W A Knapp, Trustee	385	500	100 00
W A Knapp, Trustee	386	100	20 00
W A Knapp, Trustee	387	100	20 00
W A Knapp, Trustee	388	200	40 00
W A Knapp, Trustee	400	50	10 00
W A Knapp, Trustee	401	100	20 00
W A Knapp, Trustee	402	100	20 00
W A Knapp, Trustee	403	100	20 00
W A Knapp, Trustee	414	100	20 00
W A Knapp, Trustee	415	100	20 00
W A Knapp, Trustee	416	100	20 00
W A Knapp, Trustee	417	100	20 00
W A Knapp, Trustee	418	100	20 00
W A Knapp, Trustee	419	900	180 00
W A Knapp, Trustee	380	100	20 00
I Pollard	405	50	10 00

And in accordance with law, and an order of the Board of Directors, made on the 30th day of May, 1874, so many shares of each parcal of said stock as may be necessary, will be sold at public anction, at the office of the company, No. 116 Leidesdorff street, on Monday, the 20th day of July, 1874, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

W. AUGS. KNAPP, Secretory.

Office—116 Leidesdorff street, San Francisco, California. jy4

POSTPONEMENT.—The above sale is hereby postponed till Thursday, July 30, 1874, at the same hour and place. By order of the Board.

W. AUGS. KNAPP, Secretary.

Providence Gold and Silver Mining Com-

pany—Location of principal place of business, San Francisco, State of California. Location of works, Hayden Hill, Lassen County.

Notice is hereby given, that at a meeting of the Director, held on the 10th day of July, 1874, an assessment (No. 1) of Ten Cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 331 Montgomery street, room 18, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 15th day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the seventh day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. H. KNIGHT, Secrtry.

Office—No. 331 Montgomery street, room 18, San Francisco, California. jy18

South Fork Mining and Canal Company.

Location of principal place of business, San Francisco, California. Location of works, Placer County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 30th day of May, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
James Adams	8	1,000	$50 00
H B Congdon	9	2,000	100 00
J W Nye	10	2,000	100 00
P H Blake	11	2,000	100 00
S H Mather	12	2,000	100 00
S Harris	14	2,000	100 00
M Shick	15	4,000	200 00
J J Walker	10	2,000	100 00
Smith	17	2,000	100 00
G E Hinckley	18	1,000	50 00
Hemm	19	1,000	50 00
E J Elzy	21	1,000	50 00

And in accordance with law and on order of the Board of Directors, made on the 30th day of May, 1874, so many sharss of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, No. 306 Montgomery street, San Francisco, California, on Monday, the 27th day of July, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assesement thereon, together with costs of advertising and expenses of sale.

P. H. BLAKE, Secretary.

Office—316 Montgomery street, San Francisco, Cal.

Taylor Mill and Mining Company—Loca-

tion of principal place of business, City and County of San Francisco, California. Location of works, Garden Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the first day of July, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 607 Montgomery street, in the City and County of San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the eighth day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the twenty-eighth (28th) day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expense of sale. SAMUEL S. MURFEY, Secretary.

Office, 607 Montgomery street, City and County of San Francisco, California. jy4

Stockholders' Meeting—Tolman & Miller

Mill and Mining Company. Principal place of business, San Francisco. Location of works, Calaveras County, Cal.

Notice is hereby given that a meeting of the stockholders of the above named company will be held at the office of the company, 306 Montgomery street, on the 10th of August next, at 2 o'clock P. M., to adopt a code of By-Laws for the company.

D. A. MILLER, Act. President.

2t JAMES L. TRASK, Secretary,

Machine Builders.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

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Steam Engines and Boilers,

MARINE AND STATIONARY,

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Mining Machinery of Every Description

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MANUFACTURERS OF

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INCORPORATED.....APRIL 30, 1868.
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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary

24v17-qy

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Rolling Mill Company,

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Establishad far the Manufactnra of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

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HAMMERED IRON

Of avery description and size.

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CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

Dunbar's Patent Self-Adjusting Steam Pieton

PACKING, for naw and old Cylindars.

And all kinds of Mining Machinery.

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PNEUMATIC DRILLING MACHINES,

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The only Drilling Machinery that hae ever done any successful Tunnel work in America, is being used upon the largest tunnels and mining operations on the Cometock lode; alao in Placer, Mariposa and Nevada Counties, Cal. Sample machinery can he seen and further information given, by applying to

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Sole Agents for States and Territories west of the Rocky Mountains, 108½ Leidesdorff steeet, Hayward's Building, San Francisco, Cal. 21v28-3m-hd14p

OVER $3,500 PER MONTH SAVED

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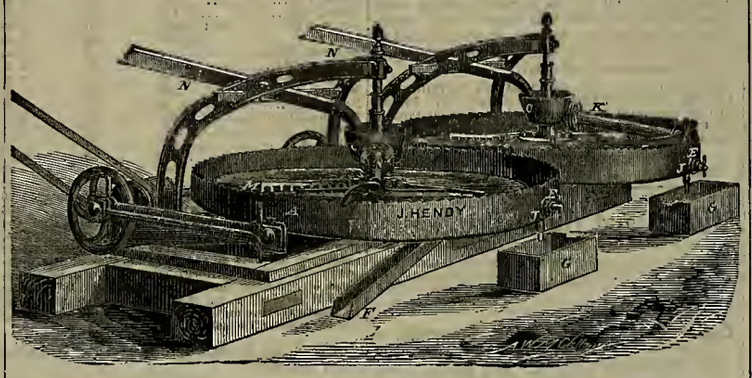
HENDY'S IMPROVED CONCENTRATOR.



Can be seen at the Manufactory, 32 Fremont Street, San Francieco.

SAN FRANCISCO, April 27, 1872.

JOSHUA HENDY, Esq.—*Dear Sir:*—As a practical miner and millman, I take pleasure in recommending the use of your Concentrators in all mills where gold or silver ores are reduced. No mills should be without them for the following reasons:

1st. They are good sizers (no perfect concentration in pulverized ores can be effected without first sizing).
2d. The best Concentrator I have ever known—(the concentrated stuff only containing 5 per cent. of sand).
3d. They are good amalgamators, light (feathery) particles of amalgam and particles of coated gold, by attrition are brightened, and from their specific gravity and the action of the pan, fall to the bottom and adhere.
4th. They require but little power and attention to run them, and with ordinary care will last for years.

I have been familiar with the workings of your Concentrators for four years past, have run them myself in the North Star Mine, Grass Valley; am familiar with their practical workings on the Empire Mine, Grass Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this testimonial. For further information you are at liberty to refer to,

Yours respectfully,
JAS. H. CROSSMAN, M. E.
409 California street, or Cosmopolitan Hotel.

SAN FRANCISCO, February 10, 1874.

OFFICE SUPERINTENDENT OF KEYSTONE CON. M. CO., AMADOR, AMADOR COUNTY.

MR. J. HENDY—*Dear Sir*:—In answer to your inquiries as to your concentrators furnished our company last July, I would say that I am more than pleased with them; and the saving to the company has been over $3,500 per month more than with the blankets and buddies formerly in use. O. C. HEWITT, Sup't.

References:

Reference is made to the following mills, some of which have had HENDY'S CONCENTRATORS in use for ove four years:

EMPIRE MILL (3 Concentrators).....Grass Valley, Nevada County
NORTH STAR M. & M. CO. (3 Concentrators).....Grass Valley, Nevada County
VULTURE CO. (3 Concentrators).....Prescott, Arizona
NOYE'S & CO'S MILL. (2 Concentrators).....Prescott, Arizona
LUCY MINING CO. (3 Concentrators).....Owyhee District, Idaho
EL TASTE CO. (3 Concentrators).....Sonora, Mexico
ST LAWRENCE MILL.....Georgetown, El Dorado Co
ST PATRICK MILL.....Newcastle, Placer Co
JULIAN MILL.....Newcastle, Placer Co
VIRTUE MILL.....Oregon
KEYSTONE MILL. (22 Concentrators).....Amador Co

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For full description send for Circular. Orders or letters of enquiry, address,

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Office and Works, 32 Fremont street. 22v27-2am-tf

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IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the **Hepburn Rolling Pan** and **Callahan Grate Bars**, suitable for Burning Screenings.

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ALL KINDS of Braes, Compoeition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Brace, Hinges, Ship and Steamboat Bolts and Gongs of enperior tone. All kinds of Cocks and Valves, Hydranlic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

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LIGHT AND HEAVY CASTINGS,

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Machinery and Castings of all kinds.

BLACK DIAMOND FILE WORKS.

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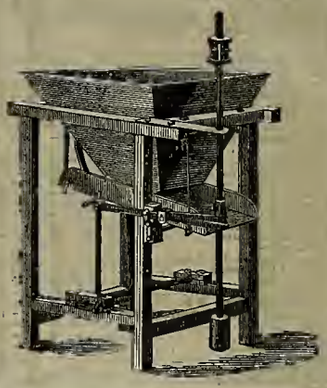
PURCHASERS please say advertised in Scientific Press.

Machinery.

Tulloch's Automatic Ore Feeder.



At the request of Mr. Jae. Tulloch, we have carefully examined his patent Ore Feeder for Quartz Mills, now on exhibition in this city at the Pacific Foundry, and in view of its simplicity of construction, directness of action, durability and compactness, as well as its small weight and the low price at which they are held by the patentee, so as to place them within reach of all mill owners, are free to state our unqualified opinion that we regard it superior to any Ore Feeder of which we have any knowledge in actual work. We are confirmed in this opinion by the severe tests to which it has been put, doing its work thoroughly well on ores of all kinds. We find the delivery to the mortars of the ore-stuff, whether dry, damp or wet, to be entirely uniform and regular, and that even slimes and slush can be worked in them under perfect control.

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J. W. GASHWILER,
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WM. H. HEPBURN,
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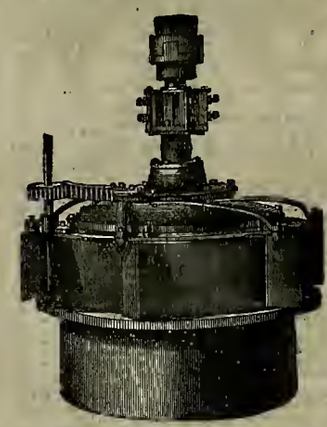
San Francieco, July 3, 1874. 2v29-1m

THE

AMERICAN TURBINE WATER WHEEL.



Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ⅝ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "Theee are the beet average reeults ever given by any Turbine Wheel in my experience."

A splendidly illnstrated descriptive catalogue, or any further information desired, furnished on application to

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Sole Agents for the Pacific States and Territories.
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THE SELDEN

DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
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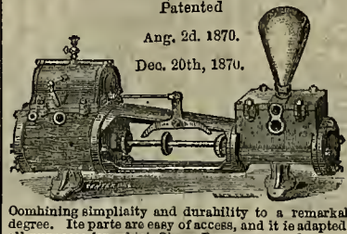

Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

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STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

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His patrons have already paid over Five Thousand Dollars for license to use machines purchased of the self styled

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Fisher's Machine is worthless unless the discharge pipe is furnished with appliances, the patent for which is owned by Messrs. CRAIG, and which Fisher is enjoined from making.

The Machine itself is also an infringement on another patent owned by the same parties.

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WILL BE PROMPTLY PROSECUTED.

I am sole LICENSEE to sell Machines manufactured under Craig's, Rice's, Macey's and Hoskin's patents.

I Guarantee Full Indemnity to all my Customers.

Machines of all sizes always on hand

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STEEL SHOES AND DIES

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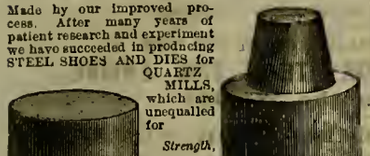
Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy.*



Die. Shoe.

Will wear three times longer than any iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.

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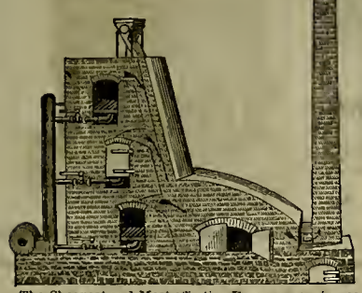
EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)



The Cheapest and Most effective Furnace now in use Parties desirous of building above furnace, or for any information on same, address,

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a31 No. 302 Montgomery st., room No. 14, S. F.

CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.

This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 200 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

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17v26-tf 315 California street, San Francisco.

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and Maker of Models for Inventors. All kinds of Diss Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

CAST STEEL SHOE & DIE CO.,

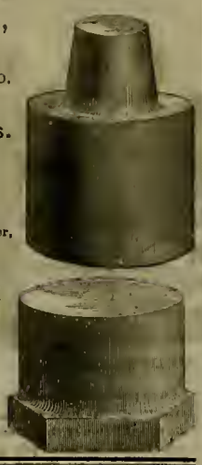
Room 28, Hayward's Building,

No. 419 California street, - - SAN FRANCISCO.

Cast Steel Shoes & Dies for Quartz Mills.

[PATENTED MAY 26TH, 1874.]

An improvement greatly needed, being stronger, more durable and economical than iron.



We guarantee the STEEL SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper. Price, 20 cents per pound, shipped from San Francisco. It takes 40 days to fill orders from the manufactory East.

Address all orders, with dimensions, to

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Room 28, Hayward's Building, San Francisco.

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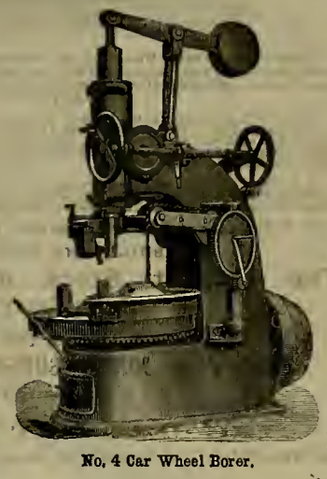

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Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

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Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes
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NO. 11 DRUMM STREET,

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Metallurgy and Ores.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and settlers for themselves, at the office, 229 Fremont Street, San Francisco

JOHN TAYLOR & CO.,

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Chemical Apparatus and Chemicals,

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We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

ASSAYERS' MATERIALS

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Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

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Nevada Metallurgical Works,

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Ores worked by any process.
Ores sampled.
Assaying in all its branches.
Analysis of Ores, Minerals, Waters, etc.
Plans furnished for the most suitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

E. N. RIOTTE,
C. A. LUCKHARDT,
Mining Engineers and Metallurgists.

Morris' Settler and Amalgamator.

PATENTED MARCH 25, 1873.

An important improvement in milling. Cheap, light, efficient and durable. Gains Quicksilver on working tailings. Is discharged from the surface in the center instead of the side, by means of a Syphon which extends to near the center of the Settler. Heaviest casting weighs only 135 pounds. The sides and bottom of the Settler are made of wood, as also Mullers, placed vertically—the friction of which brightens the quicksilver.

One of these machines is in daily operation at No. 616 Merchant street, (basement), San Francisco, Parties desiring information as to rights of use, purchase, etc., can address, FREDERICK MORRIS,
616 Merchant St., S. F.

Ores Assayed and Amalgamated. 8v28-3m

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

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4v16-3m

Important to Miners and Mill Men.

Silver-Plated Copper Amalgamating Plates, for Saving Gold.

Of all sizes and in any quantity, furnished to order. Full instructions sent for operating. Particular attention given to plating goods for Builders, Plumbers, etc. Hotel and Restaurant work replated.

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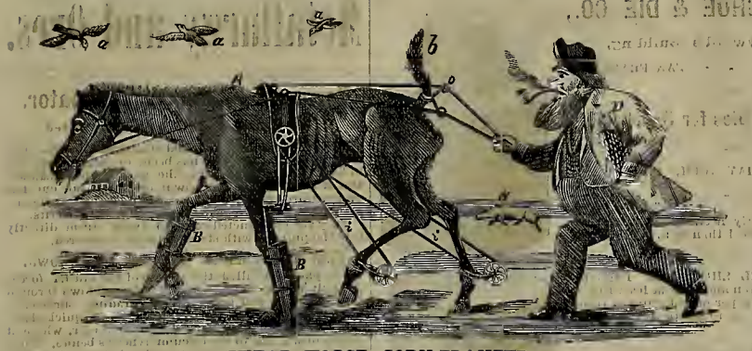
(Opposite the U. S. Branch Mint.

SAN FRANCISCO CAL. 7v21-3m



CHEAP HORSE CORN-PLANTER.

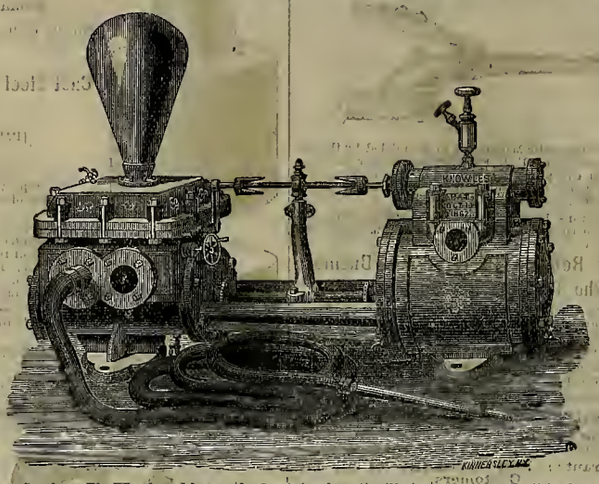
INVENTOR'S DESCRIPTION.—I am aware that a quadruped has heretofore been used in combination with an agricultural implement, and consequently I do not claim such a combination broadly; but what I claim, and desire to secure by Letters Patent, is—

1. The planters B B, in combination with the beast A, constructed an poperated as described.
2. The bands *i i*, and pulley *c c*, in combination with hind legs of a cheap-horse A, to operate the planters and prevent kicking, substantially as set forth.
3. I claim the cheap-horse A, clipped, as shown, in combination with a corpulent driver D, to prevent his traveling too fast, as described.
4. I claim the guide *o*, in combination withthe "tail of a cheap-horse," when said tail is put on in a vertical position, as shown and described.
5. In a cheap-horse corn-planter I claim the tail *b*, when arranged vertically, to frighten the crows, *a a*, as set forth.
6. I claim the worms (not shown) in combination with the "early birds" *a a*, for the purpose set forth.

The yellow dog, with few friends, helng an old device and somewhat at a discount in these days, we do not *set anything on him*, but merely throw him in to accompany the driver D, to give general effect to the patent after it is granted.

The above is dedicated to despairing inventors. It goes to prove that the field of invention has not yet been exhausted. We have not had the pleasure of reading the specification of the inventor, but we can easily conceive of the beautiful pen pictures which its writer might indulge in. The cheap horse made useful, the neat mechanism and its splendid adaptability to the construction of the horse. The advantage of "arranging, the tail "vertically." The benefit of the exercise upon the "corpulent driver," and to end the whole, a dissertation npon the "worms" and the "early birds," not to say anything of the "yellow dog." These points of advantage ought to satisfy the mechanical appetite of even a cheap Patent Agent; hnt jesting aside, the above comical representation is hut little inferior to many inventions which have been made the subjects of letters patent, as a glance through the Patent Reports will show. If any inventors are able to improve npon the above invention we will be most happy to send them one of our Patent Circnlars with full instructions "How to apply for a patent."—*Mining and Scientific Press, S. F.*

KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
SACRAMENTO, Cal., January 14, 1873.

A. L. FISH, Esq., Agent of the Knowles Steam Pump—Dear Sir: In reply to your inquiry as to the merits of the Knowles Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have now over 30 of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other. Yours, truly, A. J. STEVENS, General Master Mechanic.

A. L. FISH, Agent Knowles' Steam Pump—Dear Sir: In answer to your inquiries, we state that the highest award for Steam Pumps at the Eighth or last Mechanics' Fair in San Francisco, was a FIRST PREMIUM and Diploma, awarded to Knowles' Patent Steam Pump, as published in the Official List September 23d, 1871.

A. S. HALLIDIE, President Board of Managers.
W. H. WILLIAMS, Sec'y Board of Managers Eighth Industrial Exhibition, M. I.

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The Largest Stock of Pumps in the World,

And for Every Conceivable Purpose.

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Each Saw is Warranted in every respect.

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FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

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ANDERSON & WOODS'

AMERICAN CAST STEEL.

Price, 18c. per lb.

Every Bar Warranted and Guaranteed eqnal to any English Brand.

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Sole Agents for the Pacific Coast.

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KABATH & LADD,

109 California Street, SAN FRANCISCO.

HAVE JUST RECEIVED IN PRIME ORDER, PER "CLEOPATRA" AND "SOLOMON,"

A FRESH SUPPLY OF

EASTERN IRON KEG POWDER,

Manufactured by the World-Wide Known

LAFLIN & RAND

POWDER COMPANY

PATENT SAFETY FUSE,

Electrical Blasting Apparatus, Electrical Fuse, Rubber Tubing,

LEADING AND CONNECTING WIRE CAPS, ETC.,

AND EVERYTHING IN THE LINE OF

MINE & MILL SUPPLIES.

Send for Further Information.

THE ONE-PLUNGER JIG,

Delivered on R. R. Car at Denver, Col., or St. Louis, Mo.,

CONTAINING SIX SIEVES, END TO END,

Separates in one and the same operation—1. galena and sulphide of silver; 2. pyrites or blende; 3. tailings, containing no valuable parts; or, 1. gold; 2. pyrites; 3. tailings (quartz, etc.) containing no valuable parts; or, 1. copper; 2. tailings, containing no valuable parts. The One-Plunger Jig can be combined with existing stamp-mills with highly important advantages, as after amalgamation it will recover completely all fine meta and all base ores and all mercury out of tailings. It concentrates all fine metal ores to such cleanness that low grade ores can be shipped, after concentration, as first-class ores. Its feed and discharge are automatic. Its construction offers better guarantee against loss and repairs than any other apparatus in use. For particulars, apply to the inventor, F. CAZIN,

Mining and Oivil Engineer, Denver City, Col.
L. Box 2225. 13v28-1y

JOS. WAGNER,

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FRENCH BURR MILL-STONES

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Portable Mills.

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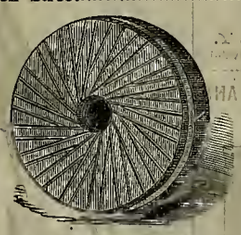
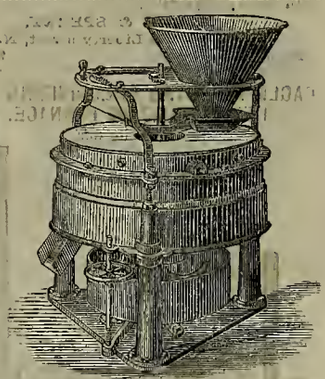
MILLS

Especially adapted for

RINDING QUARTZ.





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Dutch Anchor Bolting Cloths.

BOLTING CLOTHS MADE UP.

Eureka Smut Machines, Bran Dusters, Mill Irons, Spindles, Bails, Drivers, Steps, Regulating Screws, Silent Feeders, Pulleys, Proof Staffs, Hoisting Screws, Bails and Pins, Conveyor Flights, Plaster and Leather Belting.

Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt.

Mill Stones Balanced with FELLENBAUM'S PATENT BALANCE, of which I am sole proprietor for California Oregon, and WashingtonTerritory.

THE PACIFIC REDUCTION WORKS.

GUIDO KUSTEL - - - - Superintendent.

WILL PURCHASE GOLD AND SILVER BEARING ORES, CUPERIFEROUS SILVER ORES, GOLD SULHHURETS, ETC., AT THE HIGHEST RATES, OR WORK THE SAME FOR ACCOUNT OF OWNERS.

Office, 210 Front Street, San Francisco. 4v29-6m

GIANT POWDER.

Patented May 26, 1868.

THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,

For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.

GIANT POWDER, NO. 2,

For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.

☞ The only Blasting Powder used in Europe and the Eastern States.

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MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, AUGUST 1, 1874.

VOLUME XXIX Number 5.

Our Gravel Mines.

Few people realize what a large amount of work is being done in our hydraulic mining regions, and what extensive improvements are being made throughout the State, developing these claims. Immense ditches are being built in every direction, which are destined to open up new mines and develop sections of country hitherto unworked for lack of water. Capitalists are turning their attention in this direction, and the news concerning the gravel mines in every part of the State is very favorable. Some of the large companies are carrying on very extensive works, and employing a great number of men. These large companies, such as the Eureka Lake Water and Mining company, the Milton Water and Mining company and the North Bloomfield company in Nevada county, employ large numbers of men and expend fortunes every year in developing the resources of their neighborhood. The *Transcript* says the North Bloomfield company has shown more confidence in the richness of the mines of the county, and expended a larger amount without any returns than any company in that county. They are now employing 625 men in Eureka and Bloomfield townships, to work in their tunnels and ditches. They have expended, since they commenced opening up their mine, one million seven hundred and fifty thousand dollars, and have not yet got their mine opened. An outlet will be secured by means of the completion of the tunnel in about five months. The ground, when reached, will be the best paying in the county.

The long-talked-of and wished-for Amador canal is at last completed and probably by this the water has reached the distributing reservoir. This canal will inaugurate a new era, and under its influence mining will again become one of the leading industries of Amador county. Placer mining ground is being located at divers points within reach of its waters, and as soon as a full supply can be had, a large number of claims will be worked by hydraulic process. The *Ledger* in speaking of this subject says: "We have a large extent of placer mining grounds that can be supplied with water from the canal, and which, when properly worked, will be productive in gold. Ranges of gravel hills extend for miles along the line of the canal, which it will require years of steady mining to exhaust. But not placer mines alone will receive a new impulse from the canal, but quartz ledges heretofore idle will be prospected with a view to water for mills should the rock justify it. Wood for steam in our quartz mills, is becoming daily less, and more difficult to obtain, and our quartz owners will find it to their interest to substitute water for steam as the motive power about their mines. The certainty of an abundant supply of water in all the future, will not only give a new impulse to our mining interest, but will be the means of adding thousands of acres to the present cultivated area of the country. Indeed, we may hail the completion of this noble work as the beginning of renewed activity and prosperity in every branch of business in the county.

Tunnels are being run in various places and work starting up in new mines. The Grass Valley *Union* states that two tunnels to cost over $100,000 each are being run in from the vicinity of Dutch Flat and Gold Run. About 400 acres of auriferous gravel, averaging perhaps 200 feet in depth, occupying the bed of the Dead Line river, are nearly inaccessible at present for want of an outlet or channel. These tunnels will furnish the proper outlet.

In many places in Calaveras county gravel mining operations are being pushed with vigor. The Calaveras *Chronicle* says there is still an abundant supply of water, with no indications of a scarcity in the immediate future. The claims continue to yield well, and as the majority of them are extensive they can be classed among the permanent sources of present and future prosperity.

In Plumas county mining operations are favorably conducted and some large enterprises being carried on. The North Fork company's work is being carried on vigorously, about 60 men now being employed in putting together the iron for eight miles of pipe. This iron was brought from Pittsburg, Pa., and unloaded from the cars at Chico, from whence it is hauled to "Pipetown" on the line of the company's ditch, about five miles from Prattville, by tenmule teams hauling about 12,000 pounds to the load. The Plumas *National* is informed by Mr. Ragan that they expect to finish this work in October. The ditch will be twenty-three miles in length from where the water is taken from Ohio creek to the company's mine on Dutch hill, and the whole cost of the enterprise will probably exceed $150,000. The depression in the line, which has to be crossed by the pipe, is 320 feet. A very large force of Chinamen will be put to work in a short time, and it is the intention of the superintendent to complete the ditch this fall if possible. Surveyor Keddie, with his party, is running the lines as rapidly as possible, and will probably be engaged on the work for some weeks yet. The ditch will pass through tunnels in two places, one 800 feet in length and the other 1,030. Mr. McIntyre, of Greenville, has taken the contract for the two tunnels, and will soon have a large force of men at work, running night and day. The managers of the North Fork company's works seem to be perfectly satisfied that the prospects of their extensive claims justify the large outlay of capital now being made.

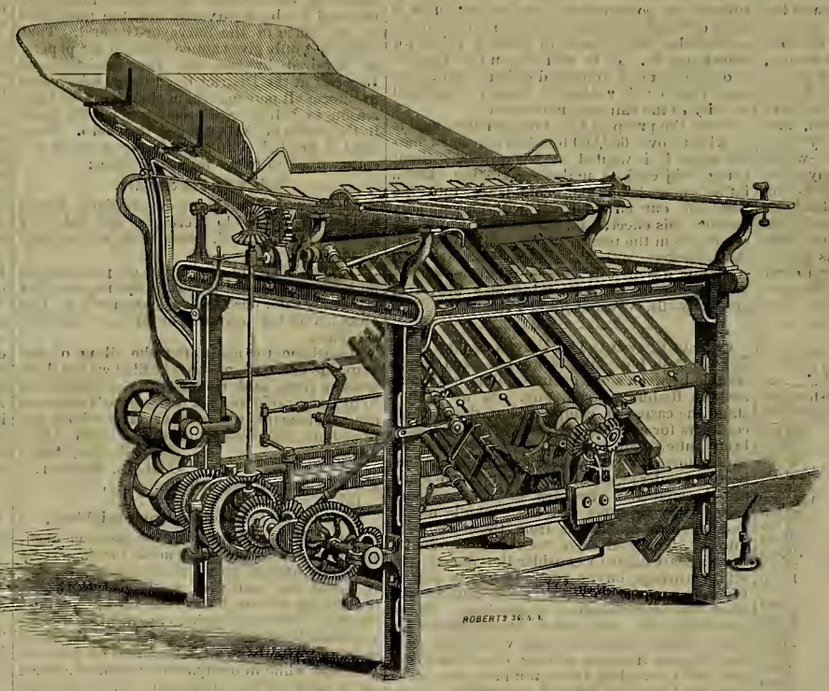
Under Table mountain there still remain hundreds of good claims, and capital only is needed to extend the old tunnels abandoned by poor men in early days, and go after the rich deposits. These claims, however, are not the only ones which could be worked, but many thousands still lie idle within the boundaries of our state which a near future will see worked systematically and with good profit.

The Idaho *World* reports that a Mr. Baldwin, who is mining on North Elk creek, cleaned up 251 ounces of gold one day recently as the result of nine days' work, employing three white men and six Chinamen. Reckoned at $16 to the ounce, 251 ounces is equal to $4,016 or a little over $40 per day to the hand.

The new works of the Sierra Nevada mine, in the Comstock, will be on a parallel in strength and durability with any on the lode.

Our New Folding Machine.

Among the improvements necessary to facilitate our increased business, we have recently procured a patent newspaper folding machine, and as we judge that most of our readers are not familiar with this class of machinery, we give herewith an engraving representing our new folder, which was manufactured by S. C. Forsaith & Co., of Manchester, N. H. Until lately, the folding of newspapers in the publishing houses of the country required a large number of hands to perform, and this item in the expense account was of no little consequence. By the employment of the Forsaith machine, the work is accomplished in a highly superior manner. Requiring the services of only a single operator, the machine will fold, in any desired form, 2,500 to 3,500 sheets per hour.



PATENT NEWSPAPER FOLDING MACHINE.

As will be seen by the engraving, the machine is very compact in form, and is a beautiful piece of workmanship. The printed sheets are placed upon the feed board, and the feeder stands on a small platform beside the machine. He slides the top sheet of the pile of papers down until its edge is caught by the grippers. These grippers carry the sheet forward along the parallel bars seen in front of the feed board, until it is in position to be creased by the blade which is seen uplifted. This blade descends at the proper moment across the middle of the sheet, doubling it, and at the same time starts it between the rollers, which carry the sheet through, folding it once. The doubled sheet falls upon the inclined bars below the parallel bars, and is again doubled by the creasing knife shown below, so as to again start in between the two inclined rollers, and thus give it a second folding. This operation is repeated twice more by similar devices, and the paper falls into the V-shaped packing apparatus, shown at the lower right hand corner of the machine, where the papers are neatly packed.

The machines are made to fold sheets of different dimensions, and the sheets in passing through the machine in the process of folding, are greatly improved in appearance, the results being similar to those produced by the dry press. The papers are, moreover, folded regularly, so that the paper can be cut without cutting the reading matter.

Unpatented Inventions.

The true relation of an inventor during the period which elapses between the completion of his invention and his application for a patent, is not generally understood by inventors. As a matter of course, when an inventor applies for his patent, he has fulfilled the requirements of the law, and his rights afterwards are fully protected; but if he should delay making the application after his invention is perfected, he must necessarily run some risks—exactly what these risks are we now propose to state. Patent agents' circulars, and even some standard works on patents, give prominence to the last portion of section 103, "Curtis on Patents," which reads as follows: "Inventors may now, therefore, permit the use of their inventions, by individuals, for a period of two years, prior to the application for a patent, and still obtain a valid patent, notwithstanding such use. But if the use thus allowed extends over a period of more than two years prior to the application for a patent, or if it amounts to an abandonment of the invention to the public, whether for a longer or a shorter period, the patent will be invalid."

While this statement is correct, it is liable to mislead inventors, from the fact that they are led to believe that no damage can be done to them by reason of the two years' delay; which is not so. The first part of the same article, above quoted, in speaking of the law on this subject, says that it "puts the person who, by the consent and allowance of the inventor, had had a prior use of the invention upon the same footing as if he had a special license from the inventor to use his invention; and at the same time the patent is valid after it is issued against all persons, *except such licensee*, who will continue to have the right to use the invention." This relates, however, only to such persons as use the invention with the consent of inventor or by purchase from him, and would not extend to persons who, without the knowledge or consent of the inventor, made and used the invention. Such persons would be infringers, and could be made to cease manufacturing after the patent issues. Another risk, which an inventor encounters by delay, is the chance of some one obtaining a patent on his invention, or may be for an improvement upon his original device, either of which would cause him expense and delay in righting matters and securing his patent, when he does make his application; as the Patent office always declares an interference between an application and a patent which has been previously issued, even if the former patent did not claim the whole device. These facts are important for inventors.

The mint in this city coined from 1854 to 1867, inclusive, $242,000,000, an amount equal to one-half the total coinage of the Philadelphia mint, from its establishment in 1793 to the same date. Since 1867 to the present time our mint has coined over $90,000,000—making a total coinage of over $332,000,000. The charges at the mint for work done are fixed by the mint law, which enacts that for "parting" gold and silver they "shall be equal to, but not exceeding the actual cost on the operation, including labor, wastage, use of machinery and material," etc. They are very moderate, and are as follows: On bullion, under 300 parts gold, 3 cents per ounce; 300 to 600 parts fine, 5 cents per ounce; 600 to 750 parts fine, 7 cents per ounce; 750 to 945 parts fine, 11 cents per ounce; 950 fine and upward, no charge. The new mint is nearly completed, and the machinery is now being placed in it. Active operations will be commenced in the new building in a few months.

James S. Reed, Sr., one of San Jose's oldest and most prominent citizens, died last week. Mr. Reed came to California in 1846, and was one of the famous Donner party, whose sufferings on the route have a prominent place in the history of this coast.

California Wheat Exhibit for 1874.

Parties who have confinsd thsmselves strictly to facts and figuree in eetimeting ths wheat orop of 1874 do not placs it so high as ths popnlar opinion, influencsd no donbt by the popular wish, had suppoesd ths indicatione of ths growing seaeon wonld werrant. But thsse cerefnl compilers have evidsntly gone ss wide of the mark in gsnging ths popular expectetione in this direction, ss ths lstter party had done in estimating the coming hsrvest. For, from our interconrss with farmsrs, personally end by corrsspondsncs, and after a carefnl peruesl of onr exchsugee throughout the seseon, ws ars inclined to ths helief that pnblic expectetion hss bssn kspt in check to a remsrkabls degree; and that neithsr agriculturs nor trads havs indnlgsd in airy csstls-huilding to any great extent. On ths contrary, thers hss been no svidsncs of want of ballsst in the halloon excursions thst trsde and industry hsvs indulged in dnring the psst season at the sxpenss of the incoming crop. Ths preeent stags of the harvest affords snfficient dsta upon which ws can form an eetimats of ths amount of ths preeent crop. The return aeeme to estisfy the pnblic expectatione and the eame degree of estiefaction is manifested in regard to the condition and proepects of the wheat market.

Ths psst season, it is true, hss been somewhat pecnliar; and in rsgard to the comparative prodnctivsnsse of the valleys and nplands, the tablee have been tnrned in a measure. Ths lats rains, which favored the growth of wheat in ths latter localities, wsre detrimental to ths former, to which we had previously looked for our heaviest crops. Ths unexpected yisld in eome qnartere is considered a fair offset to ths psrtisl failure in others. Lsrge trscts of land in the Sscramsnto vallsy, where grsin was late eown, have besn soaked to a degrse thst rendsred it necessary to out ths crop for hay; whils in epots which wsre nnprotectsd ths crops hsvs been entirely swspt away hy the ovsr-flowing of the river. Ths Antioch *Ledger* estimates ths loss from thia eonrce in that connty slone at $1,000,000. The over-worked soil in ths lowlands, whers ths wheat was allowed to matnre, has not returned an average orop, eigns of exhaustion appearing fsr more palpable than in any formsr sesson. Conld thess localitiee hsve eecaped the rsversee hsrs ennmsrated, and conld the higher lands, meanwhile, have yielded their pressnt unprscedented abnndance—which wonld havs bsen impossibls nndsr any other circnmetances than thoss nnfavorabls to the lower lying locslitise—we should probsbly be able to report the wheat orop of 1874 ae double that of 1873; whereas, it ie estimated by those who have redneed the matter, se far as practicable, to figurss, as bsing about one-fourth only in excsss of lsst year'e product. We give below a carefully compiled eetimats of ths crop of 1873, compared with that now being hsrvestsd:

COUNTIES.	1873. Acres.	1873. Yield. Centals.	1874. Acres.	1874. Estimated yield—C'tls.
Alameda	68,000	408,000	75,000	600,000
Alpine	500	3,000	750	5,200
Amador	2,000	14,100	3,000	21,000
Butte	50,000	400,000	60,000	480,000
Calaveras	800	4,400	860	6,800
Colusa	125,000	870,000	170,000	1,700,000
Contra Costa	67,000	342,000	66,000	594,000
Del Norte	300	2,700	400	2,800
El Dorado	1,000	5,000	1,300	9,100
Fresno	20,000	110,000	30,000	240,000
Humboldt	2,600	25,200	3,000	24,000
Inyo	1,800	11,800	2,000	12,000
Kern	5,000	35,000	6,000	42,000
Klamath	600	2,000	700	4,900
Lake	4,000	28,000	6,000	48,000
Lassen	1,700	10,000	2,600	16,000
Los Angeles	1,200	7,100	1,300	10,000
Marin	3,000	21,000	4,000	32,000
Mariposa	1,000	5,000	1,200	9,600
Mendocino	9,000	63,000	9,000	72,000
Merced	250,000	1,100,000	300,000	2,400,000
Monterey	170,000	1,190,000	204,000	1,632,000
Mono	400	2,000	600	2,500
Napa	40,000	23,000	86,000	288,000
Nevada	1,000	4,200	1,200	8,400
Placer	20,000	100,000	25,000	200,000
Plumas	2,100	13,870	2,300	16,100
Sacramento	25,000	176,000	25,000	200,000
San Bernardino	2,420	18,600	3,000	27,000
San Diego	2,300	11,500	10,000	80,000
San Joaquin	225,000	1,200,000	275,000	2,200,000
SanLuisObispo	7,000	30,000	7,500	60,000
San Mateo	5,000	25,000	6,000	48,000
Santa Barbara	2,000	10,000	25,000	200,000
Santa Clara	167,000	1,102,000	170,000	1,360,000
Santa Cruz	7,500	60,000	10,000	80,000
Shasta	10,000	70,000	12,500	100,000
Sierra	1,200	7,200	2,000	16,000
Siskiyou	10,000	60,000	12,000	96,000
Solano	100,000	600,000	100,000	800,000
Sonoma	80,000	180,000	30,000	240,000
Stanislaus	400,000	1,200,000	460,000	3,220,000
Sutter	60,000	480,000	75,000	600,000
Tehama	65,000	520,000	67,000	536,000
Trinity	1,000	5,000	1,200	8,400
Tulare	30,000	120,000	50,000	400,000
Tuolumne	6,000	30,000	12,000	84,000
Ventura			12,500	100,000
Yolo	100,000	700,000	100,000	700,000
Ynba	20,000	146,000	20,000	150,000
Total	2,063,420	12,676,470	2,490,700	19,891,800

Barlsy is nsxt in importancs to wheat in this State. The avsrage of the crop of 1874 is about 100,000 centsls in excess of that of 1873, and the yisld is in abont the same proportion. The crop of 1874, covering 509,200 acres, is estimated at 5,986,200 centale.

Ths qnsstion thsrsfore as to the amonnt of the pressnt crop is sbont ssttled to the satisfaction of the conntry at largs; thongh amid this general rejoicing we shonld considsr that in many cases individual farmers, and in others whole nsighborhoods, havs euffsred by short crops in eoms placee, and by eweeping miefortnes in othere. Thsrs ars two qusstions yst rsmaining which combined mey bs considered as nsarly, if not qnite "half ths hattls." These unanswered qnsstions are "what will the whset bring in ths merket, and whst are ths fecilitiee for eending it there?"

The commerciel espect of the whset prodnct hse been ae carefully watched as was ths crop itself, in its diffsrsnt stages of production. It is, of conrss, impossibls at preesnt to fix ths exact price at which the bnlk of ths crop can be eold; but enongh is known in rsgerd to the condition of the wheat market of ths world to warrant the belisf thet prices will not rsngs helow thoss of last year. In no countries of Europe is ths crop of 1874 rsported as in excess of that of 1873, whils in soms it is known to bs below ths averags; and whsn to this gsneral enpposition ths acknowlsdged fact is added that ths stock of whest on hand, both in thie conntry and in Enrope, ie cleaned out to a degree nnnsual at thie season of the yesr, it is safe to concluds that all onr snrplns wheat will bs wanted abroad at prices remnnsratives to tbs farmere. Ths market ontlook was probably nsver bettsr than at preeent—not exciting, but assuring.

Ths shipping prospecte ars spparsntly in keeping with thoss of the market prices. Ths agitation of this subjsct was commenced by ths Grangss, bsfore ths seed of the present crop hsd gsrminsted; and the growth and development of thie agitation hss fully kept pace with that of the crop to which it relstsd. They have alresdy chartered a eufficient amount of tonnags to prsvent monopoly in moving the present crop. Msny have seemed to really belisvs thst if our wheat was not to bs shipped by certsin psrties, it would not be ehipped at all, and would remsin an "elephsnt" on ths hsnds of ths California farmers. This delnsion is being rapidly diepelled, for that portion of the press which judges ths Order by its fmits alone, are free in their acknowledgmente of its efficiency in this direction. Thsy declsre thst ths effect of ths movsments of ths Grangss on the wheat msrket will bs to redncs ths multiplicity of commissions, and to estsblish a scals of freights which csn not bs excesded, no mstter what ths advancs in forsign prices for whsat may bs. It ie well known that thsrs is enongh chsrtsred tonnage dus hsrs within the next forty or fifty daye to fmpart s hssIthful sctivity to the shipping movsment.

With the prospect that ths immense enrplns of whsst—over 600,000 tona—is to reach a msrkst whers it is wanted at fair pricee, without being enbjected to nndus speculation, should infnse nsw hops and confidence into the hearte of our farmers. It will undonbtedly produce thie effect; and the monsy which the returns from ths preesnt crop will infues into their pockets will placs them in a finsncisl condition which will snabls them to condnct thsir operations for the coming ysar with still grestsr profit.—*Pacific Rural Press.*

Coal at Eureka.—The Enreka *Sentinel* eaye: For ths lsst few daye thers hse been much troubls hstween eome of ths lssding coal men and the Richmond compsny. Ae ws understand the case, the company has declared all contracts for coal off, and this, ae might havs been anticipated, opsrated to exasperste ths contractore. A great deal of bad feeling has been engendered, and several enits for damage are threatened. The idea of the compsny esems to be to crush out the "middle men" and purchaee coal direct from those who prodnce it. The coal msn were to have had a meeting last night to consider the qnestion in all its bearinge, bnt aa they declins to psrmit the presencs of our rsporter, we can not eay what was accomplishsd, if anything. If, ss tbey claim, the company ie attempting to ignore exieting contracts, both verbal snd written, iu open violation of long established custom, not to say law, there wonld appsar to be very good grounds for their complaints. Howsver, as there are two sidee to all questions it would psrhape be as well to snspend judgment nntil the metter at iseue shall have been mors fully developed. Thoee concerned, ws hope, will at all evsnts bs governed by moderation in all they do in connection with this knotty queetion. The businees of the town languishes to some extsnt in consequence of this sqnabble, but this state of affairs can hardly sndure long, as the Richmond has on hand only abont four days' supply of fusl.

The Dunderberg.—The Eurska *Sentinel* of ths 19th saye: The Dnnderberg, aituated on Prospect mountsin and owned by the Rnby Consolidated company, will to-day be closed down to admit of extensive improvemsnts about the hoieting worke. New and much heavier machinery is to take the plsce of thst heretofors in use. The gsneral plan or method of working ths mine is also to bs materially changed. It is thonght it will requirs about six weeks' time to complete these improvements, after which active work in the mine will bs resumed for the eeason. The new boilor is to be tubolsr in shaps, 16 feet long by 48 inches in circumfersncs, and 40-horse power. The engins will have a 12-inch cylinder, a 24-inch stroke and link motion, which will allow of ite being worked both ways. Ths nsw machinsry ie to be placed on ths hill immediately northwest of the present hoisting works.

Since January last 65,000 bara of hullion have been shipped on teams from Cartago, Inyo conty. The teams take 400 bars every day, which is about the number turned out by ths Csrro Gordo furnacee.

Useful Information about the Pre-emption and Homestead Laws.

A correepondent of the *Bulletin* writss to thet psper ae follows: "Conld yon, thronph the msdinm of yonr paper, put me and many othere right with regerd to ths pre-smption lsw? Quite a nnmber of eettlsre ars now in occupation of unsnrvsyed lands. Thers is a prospect of thsir bsing snrvsyed thie fall, bnt it will bs too late to bs of any esrvice to thoss who deeire to prs-smpt—if, se some enpposs, the law sxpires in September next. With regsrd to this, howsver, opinions differ. Soms msintsin that no legislation hss sffectsd the existing law, and othere eay it expires in Septsmber next. Snch information as ie in your power to impart will be thankfully receivsd."

In reply to the abovs ths *Bulletin* eeys: We snpposs our correepondent hee rsfsrence to a homssteed bill which wes hsfors Congrese at ths laet ssssion, and which wonld have abolished ths pre-emption laws. Thst hill nevsr becams a lsw; it passed ons houss and failed in the other. It originated with Drummond, Commissionsr of the Land Offics, who has since gone ont of office. It ie donbtfnl now if ths bill sver geta throngh Congrsss. The only good pnrposs which the bill involved wae the dedicstion of the entire body of public lands fit for agricnlture to homesteade. But ths law, as it now stsnds, securss practically ths eame resulte. No lands fit for tillsge are sold excspt to actnsl ssttlsrs. Thsre is, howsvsr, still grsat dsnger that large bodies of lsnd may bs granted to corporations. The effort to securs ench a rssult at ths last ssesion was bscked by ths most powsrful combination of corporstion capitalists ever known in ths conntry. Ths effort will be renswed at the next session; in ths meantims, we shall havs ths ususl number of platform reeolntions againet the meaenre, hut no calling to account by conetituents of their membsrs of Congrsss who go directly agsinst the tenor and epirit of thsir declsrations.

Ssttlers on unenrveyed lands havs *three months* in which to fils thsir declsrations, after the lsnd has besn surveyed and ths plats filed in ths office of the Snrvsyor-General. Thst officer not only gives notics throngh ths pspers, as requirsd by lsw, but ths Registsr and Receivsr at ths District Lsnd Offics tsks paius to inform all persons whom they know or hsvs reason to belisve are occupying pnblic lands in ths limits of ths eurveysd township. They send a printed circnlsr, with the nsms of the eettlsr filled in to the following effect:

Notice to Pre-emptors.

A. B.—Ths plst of Township 10 North, Rangs 8 West, Mt. Diablo meridian, hss this dsy been filsd in ths U. S. Land Offics, at Sen Francisco.

Persons clsiming the right of prs-smption on lsnds within ssid township ars required by law to file thsir declaratory ststements in this office befors ths expirstion of thrss months from this dats.

If aettlement is mads after ths filing of the map, the declarstions mnet bs filsd within threa months from said settlement. A nsglect so to fils may prejudics ths prs-emptor's rights ae sgainst olaimante nndsr other lawe whoss splications ars filed within ths said thres months.

H. G. R., Register.
C. H. C., Recsiver.

U. S. Lend Office, San Francisco, Cal.,——, 187—.

Pleass ehow this notice to yonr neighbors.

It may be noted, further, that psreons occupying laud, expecting to hold it for homestead purposes, acquire no right except what might be called the eqnity of eettlsment, until ths declaratory statemsnt has besn filed. Nor dose the time (fivs years) begin to run until such statsment has been filed. Ths occnpant has gained nothing up to that time except tbst his poesessory right while in occupation is good as against any outsider who is sseking to hold in the eame way. The Government has a right to appropriats such possssssory holdings to its own special use at any time, and it may do this without giving the occupant the fonndation of any claim whatever. Thus, whsn Congrese granted to certain railroads tracts of public lands, no notice was tsken of that class of settlers who were merely occnpying public land without having filed any pre-emption or homeetead declaration. They were compelled either to bny of the railroad at the ratss fixed by the company, which ranged from $2.50 to $10, or, being on the even sections within ths lines, they ocnld only bny of the Government at ths maximum rate of $2.50 an acre. Thsrs were many msn in this predicamsnt who had besn cultivating farms for 10 years or mors. Some of them had never had an opportunity to fils declarations becanse no surveya had been made. Bnt in a majority of cases the failure resnlted from sheer careleseness.

And this leade us to note another fact. There ars now lying in the District Land Office of this city 1,200 patente for lands, mostly for farms. Every one of thsse patents ought to bs taken ont and recordsd in the several counties where the land is sitnatsd, at once. Soms of the owners probably do not know that their patents are there. Bnt more do know; and thsy have been contsnt to let thsm rsmain thers, becanse heretofore pnblic land was not enbject to a State tax. The owner of ths patent wae therefore content to have hie patent qnistly tncked away, eo long as he could escaps taxation.

Hundreds havs avoided paying taxes this way. But now the law with respect to taxation is changed. Possessory rights are now taxed, having a real, tangible property vslnstion. Beeidee, msny of the County Aseessore havs adoptsd the plen of eending to the district lsnd officss to inquire if lsnd-holdsrs have petents thers, end, thees being found, ths aeeeesment ie lsid precieely as if ths pstent had been recorded in ths county records; that is, more than ths possesseory valnation ie pnt npon the property. Thers is now, thersfors, no gsin in witholding patents from record; bnt the rieks ars rnn on msny, and onght not to be encountered by any prndsnt land-holder.

Ws go bsyond ths inquiries of a "Snbecriber" to meet othsre, and enmmarize ths following facts: Thers are two classse of pnblic lsnds—one designsted es minimnm, rated at $1.25 an acrs; ths other, dssignated as donbls minimnm, rsting st $2.50. Titls may be ecqnirsd in fonr ways, viz: hy pnrchses at pnblic sels, by privats sntry, by prs-smption, and undsr ths Homestead Act. The first two ways are almost inoperetivs in California, heceuse no pnblic salee ars now made except now and then a "reservstion," and ths lsnd heretofore msrksd "offered" has nesrly all bssn taken np which hae any vslne. Psyments may he msds for public lande in land warrante, bnt these warsnts will only be rsted at $1.25 an acre; all sxcess, ss in the casse of a donble minimnm must bs psid for in cash (greenbacke of conree). Ths total feee to bs paid in aoqniring a homestssd title amonnt to $22. The fece for locsting on a lsnd wsrrant—160 acrss—amonnt to $4, not inclnding ths fees for filing a prs-smption declaration. Agricultural college script msy bs used to locats public lands enbject to private entry in nearly the ssme msnner se soldisrs' land warrants. But in the cses of the formsr only thres sectione can bs taken in any ons township of lsnd. If a eettlsr, having mads hie declsratory etatsment, and being a *bona fide* rssident of the lsnd, ehould die, his executor, administrstor, or heirs osn procesd to perfect the titls; the sntry in that caee, being mads in ths nams of ths hsirs, the patent will be fesued to them.

Co-operative Mining.—A correspondent of the Nevsda *Transcript* eays: I ses thst a movs in ths right dirsction in regard to working onr minss by oo-operativs companiea hae bsen made. The wonder is that snch a plan of working has not been thonght of befors. While we csn jnstly boast of having the riohest and moet extensivs minee of gravel and qnartz to be found on ths coaet, with every fscility for working them to advantsge, it ie a notorione fsct thst may msn ars conetsntly idle for wsnt of employment, and hence ars unable to pay their bills when due, when thsrs are hnndrede of good mines lying within a radius of fivs milee of thie city thst wonld pay good dividends, and givs smployment to all hsrs and many more, wers the co-operativs plsn generally adopted. I think we havs dependsd too much on ontsids capitsl, and not enough on our own exertions. We do not need monsy from San Francisco, and wonld get slong better without snch hslp se their capitsliste generally render us. Merchants and laboring men havs tsken nearly sll the chancee so fsr, and in too msny csses San Frsncisco capitalists havs rstirsd from bueinsss hers, forgetting to pay their bills. There is plsnty of room in thie conuty for a dozen snch companies, and with propsr mansgement and systemstic work, thsy cannot fsil of making a grand succese.

Consolidated Virginia Improvements.—Ths Coneclidated Virginia mining company are pushing the work of grading the site of their new mill, day and night. They ars now smploying at that point—ontside of the mine—about 200 men. Near where the nsw mill will stand they havs erected a two-atory frame building, which will bs used ae a sort of machine shop. It will contain two wood planing machinss and machinsry for doing other work that will bs required abont the new mill. Near this shop has been put np a large temporary ehed, under which a largs force of carpentsre and millwrights are at work at framing timbere. Sonars timbers and lumber of all kinds are oonstantly arriving by rail, also large lots of machinery from San Franoieco. A side track from ths Virginia and Truckee railroad rune along the west front of the eite of ths nsw mill, therefors all the lnmber, machinery and materials of every description requirsd in ite construction can bs bronght npon the ground by rail. The neighborhood of the new mill is at prssent the liveliest place in or or about the town.—*Enterprise.*

Idaho Mines.—The *Statesman* is informed thet the Gold Hill mill is working abont 50 men, and the mill is ponnding away with as good success as usnal. The Hawley or Idaho company have pnrchased the Tom Hart mill, formerly located at the Lawyer lsdge, and now have it moved on to the Iowa ledge, and are pntting it up with the intention of having it rnnning by the 10th of next month. They have 1,000 or 1,500 tons of ore out, and havs a small company of men stoping and taking ont mors rock. This mill will give considsrable new lifs to the camp, when they get fairly nnder wsy. Ben. Wilson, at Pioneer, hae been engaged for some time past etripping whst ie known as ths Slnm Gullian olsim, finding splendid prospects, and ie now washing np the gravel.

The newly developed qnicksilvsr minss in Lake, Napa, Sonoma and adjoining conntiss are drawing to them a large and active popnlation, and new towns are bsing built in all directione. Those ocnntiee present at this time a wonderfnl degree of activity and proeperity.

MECHANICAL PROGRESS.

Tin Plates.

From a paper recently read by Mr. Speakmaa, of Philadelphia, we obtain the following description of how tin plates are made:

After the sheets are cut down to size for tinning they are separated from each other by what is called opening; during the process of opening "stickers" and imperfect plates are thrown out, and the passed sheets then go into the pickling room. There they are put into a hot pickle of dilute sulphuric acid, to be cleansed from oxidized and silicinus matters, and undergo another rough examination in the scouring process; that is, any plate not cleansed is rubbed with sand in water. Defective sheets are again thrown out, and the plates are now passed into the annealing room.

The plates are carefully annealed and are then submitted to a hot but more dilute pickle of sulphuric acid, and again chemically cleansed; taken from the acid bath they are well washed in running water, and kept in clean water until the tinman is ready for them.

The tinman takes the plates from the waterbath (where they lie some hours) and plunges them wet into a bath of hot palm oil, called the "grease-pot." When they have acquired the temperature of the grease-pot, they are removed with tongs and quickly submerged in a bath of tin. The oil mixed with the water from the plates floats at the top, forming a flux which covers the melted tin and prevents oxidation. With the tongs, the sheets or plates are continually kept moving and separated, to insure the tin getting between all of the sheets. When the bath has recovered its heat, which it generally does in about half an hour, the tinman examines the charge, and if he finds that perfect amalgamation has taken place between the two metals, he removes them with a tongs to the next bath, which is kept at a low temperature.

The temperature raised by the change from the "tin-pot" is again allowed to cool down to a few degrees over the melting point of the tin, when the plates are taken in lots of a dozen or two at a time, and laid on an iron slab which is at the side or head of the pot. The waste metal and grease run back into the pot, the slab being inclined. The workman then takes up sheet by sheet with the tongs, and dips each into another bath of fine metal kept at a heat a little over melting point, immediately withdraws it, and places it in a rack immersed in a large pot of melted palm oil kept at the proper temperature, where they are allowed to remain certain time. The sheets are then slowly lifted out of the grease by a boy, who separates them into proper lots by counting carefully, regulating the intervals of time between them. The grease recoils from the top plate, and, as little is left on the sheets, they are again placed in a rack in the open air to cool; when cool a lad takes each sheet in a tongs, and dips the lower edge into a small bath of melted tin so regulated that the sheet can only enter to about the eighth of an inch. It is kept long enough to melt off the drops of metal which adhere to the lower edge, and when lifted the sheet is struck to throw off the superfinous metal from the edge. The plates are again put into a rack, and taken while warm to a bin of bran, where each sheet is thrust into and under the bran, to get rid of the grease which adheres. It is then passed on to a second and third hand, when the grease is pretty well behind in the last bin, which is kept filled with new bran. The sheets are turned out covered with flour dust and bran, and dusted off with cotton shaggy cloth.

The next process is in the sorting room. Here the finished sheets are laid on tables, and each sheet undergoes an examination by the sorter, who throws out those shearings which are defective in the iron or trimminge. The latter are reheated to regain the tin; the imperfect sheets are sold as "wasters" at a less price; the sheets are counted, and the box of 100 lb. weight is composed of 225 sheets of 14 inches by 10 inches, for home use or exportation.

NEW BRITISH STEEL GUNS.—For some special purposes a very light arm is required, as, for instance, where field-guns have to be carried over mountainous country, as also for arming the steam launches and pinnaces carried by iron-clads, and it is to supply this want that the steel weapons have been designed. They weigh but two hundred pounds each, and can, therefore, be carried on a mule, or in the prow of a boat, without inconvenience. Being bored and fashioned from a single block of steel, the utmost strength has been obtained, the weapons being, moreover, tempered in oil to harden them as much as possible, after attaining to the proper caliber. The bore of the gun is thirty-six inches long, and the diameter of the projectile that it fires is four inches. The utmost range of the new arms is stated to be four thousand yards.

UP to a recent date, the Westinghouse brake has been under the exclusive control of the engineer; now it can be applied to the entire train by any person in any car; while the train, in case of derailment, also applies the brake to itself, adding an immense impeding force to the obstacles which it otherwise encounters.

IN Maine, the building of three-masted schooners is increasing. These vessels are, on the Atlantic coast, fast superseding other kinds of vessels. They are built cheaper, consequently there is more profit in their construction.

Transmission of Power by Wire Ropes.

At a meeting of the Institution of Mechanical Engineers, London, Mr. Morrison described the mode of transmission introduced by the Bros. Hirn, and now extensively used on the Upper Rhine. It appeared that they first used flat metallic bands to transmit the power; but, these being found objectionable, round wire rope was subsequently adopted, instead. The rope is usually made of fine steel wire, as it must be very tough and flexible. The wire rope, which is about one inch in diameter, and contains 72 strands, is run at a high velocity, over pulleys of large diameter. The total loss of power by friction, etc., was stated to be 2½ per cent., and it appeared that, of 120 horse power existing at the motor wheel, 100 horse power was utilized at 2,200 yards distance; but it could not be elicited in the discussion how these figures had been arrived at. It was also estimated that iron shafting, capable of transmitting the same power, would involve the use of 3,000 tons of material. Various materials were tried for facing the grooves of the pulleys, such as copper, leather, etc., as there either was excessive wear in the groove, or the facing destroyed the rope. The best arrangement was found to be a dovetail groove, filled in with gutta-percha, in which the rope soon made a channel for itself, after which the wear was not excessive. The pulleys run at the rate of 50 miles per hour, and the ropes last from one and a-half to two years.

Dr. Siemens remarked that there was no doubt that, by running ropes from 30 to 60 miles per hour over palleys, a large amount of power could be transmitted with but little waste.

Mr. Wm. Smith said that in 1837, soon after his father had invented wire rope, it was used very similarly, and in 1839 and 1840 it was introduced on the Regent's canal, for towing barges through the tunnel beneath the Herrow road, and it was also taken three and a-half or four miles along the bank of the canal. The bargeman simply threw a catch line over the running wire, and let go when necessary. It was tested against the screw, duck-foot propeller and others, but was not found to be economic. He had many times seen a similar application of the principle; the fly-rope of an ordinary ropery was an illustration, but that had long since been obsolete. He would like to know whether the paper claimed, as a novelty, the introduction of endless wire ropes for transmitting power to a distance; if so, he doubted whether the claim could be substantiated. If the novelty merely consisted in the running of the ropes at a high velocity, which was all he could see in it, there might be something in the claim.

CASTING IRON IN SAND MOLDS.—In Fairbairn's *Iron Manufacturer* we find the following account of the first successful attempt in England to run cast-iron in molds of sand: In 1706, John Darby, one of the four partners of the brass works known as Beptist Mills, at Bristol, England, conceived the idea that cast-iron might be substituted for brass, and prevailed upon some of the workmen to try and make iron castings in molds; but they failed, and considerable loss was incurred in their experiment. A young Welsh apprentice, who had been a shepherd-boy, came into the employ of the Darbys. As he was looking on during the trial of the Dutch workmen to cast iron, he said to Abraham Darby that he thought he saw how they had missed it. He begged to be allowed to try, and he and Abraham Darby remained alone in the workshop, the same night for the purpose. Before morning they had cast an iron pot. The boy Thomas entered into an agreement to serve Abraham Darby and keep the secret. For more than 100 years after the night in which Thomas and his master made their successful experiment of producing an iron casting in a mold of fine sand, with its two wooden frames and its air holes, the same process was practiced and kept secret at Colebrook Dale, with plugged key holes and barred doors.

COAL-CUTTING MACHINES.—In the course of a paper on coal-cutting machines, read at Bradford, by Mr. Firth, mention was made of the extraordinary power of these machines in dispensing with hand labor. One man, a youth, a boy and a machine, can compass the work of twelve men, thus reducing "that hard physical labor" by seventy-five per cent. Moreover, the machine in use at Ardsley showed great power in grappling with a difficult seam, and reduced the cost of production by 1s. 7d. per ton. The rapid introduction of coal-cutters seems to promise a revolution in the coal trade, and will doubtless present an additional indncement to the many capitalists who are now devoting their energy and their cash to the opening-up of new pits.—*English Exchange.*

THE smallest steam engine on record was made by a Scotchman, named Crawford. It is perfect in every part and so small that it can be covered by a lady's thimble. It can be worked by steam, but he usually works it by atmospheric pressure, through a flexible tube, with rubber air receiver. The pet engine was made as an amusement, and to show what could be done. It is undoubtedly the smallest working machine ever made.

STOPPING BOTTLES.—A new invention consists in attaching india-rubber tubing to the neck of the bottle, said tube being bent over and secured in that position to close the neck of the bottle.

SCIENTIFIC PROGRESS.

Remarkable Motive Power.

A curious capillary experiment was devised by M. Lippmann some months since, which the author has recently utilized in a very ingenious way. The original experiment is thus described: Place in a saucer or in a large watch-glass a globule of mercury and inch or two in diameter, and pour upon it a little water acidulated with sulphuric acid and slightly colored with potassium bichromate. If now the mercury be touched laterally with the point of a needle, the globule will be observed to contract and withdraw itself from the needle, then to extend again to its primitive position. This brings it again into contact with the needle, the contraction is renewed, and so on indefinitely. When the globule is quite large it executes contorted and grotesque movements which are surprising to those who are not in the secret. The explanation of this phenomenon is found in the fact that under the joint influence of the iron and the bichromate, the mercury is successively oxidized and deoxidized, thereby producing an alteration in its capillary condition and causing the swelling and flattening. This oxidation and deoxidation may also be effected by an electric current. The globule is seen to swell up or to flatten, according as it is connected with the negative and deoxidizing or with the positive and oxidizing electrode. It is this oscillating motion of the globule of mercury that M. Lippmann has utilized in his motor. It is constructed as follows: In a trough of glass two small cups are placed, full of mercary; in each of these moves a pistou formed of a bundle of glass tubes. The trough is filled with acidulated water, and the two masses of mercury are in communication with the electrodes of a battery in such a way that when the one contracts the other flattens. Consequently, when one of the pistons rises the other falls; and by simply transforming this reciprocating motion of the pistons into a rotary one, an electro-capillary engine of some hundredths of a kilogram-metre of power is readily obtained. In the machine actually constructed by M. Lippmann the fly-wheel made a hundred revolutions per minute.

The extremely feeble current needed to set this engine in action suggests its use as an indicator of currents too feeble to be detected by ordinary instruments. Used in this way it would constitute an extremely sensitive electrometer. Indeed it might come in use for the reception of cable dispatches, which, as is well known, are sent by means of very feeble currents. Certain movements of the machine might correspond to certain predetermined characters or sentences, and in this way the dispatch might be easily deciphered. Though scarcely more than curious at present, these experiments of M. Lippmann are exceedingly interesting, and will undoubtedly in the future receive important applications.—*Journal of Franklin Inst.*

CLAY GLACIERS.—The gliding masses of clay, resembling glaciers in many respects, which are to be seen in the vallays of the Apennines, form the subject of a memoir communicated to the French Geological Society by M. de Mortillet. These mountains consist of sandstone, sand and clay. The clays retain water like a sponge, and becoming saturated, take the form of a sort of slippery dough. Then they slide and move like glaciers; the pressure on the clay as it glides along the sides of the valley causes the calcareous debris to rise to the surface, which gives the moving mass a further resemblance to a glacier. Lateral moraines, too, are formed, and along the sides of the valley is found a great accumulation of calcareous fragments. The pressure exerted by these masses is enormous. M. de Mortillet mentions railway embankments of solid construction being swept away by them, the gravelly stratum on which the embankments were constructed being carried off. The movement of a glacier is due solely to the pressure of the higher portions of it upon the lower, and its progress is in proportion to the weight of the mass above. Glaciers are plastic, it is true, but they can not be said to flow.

NATURE OF ELECTRICITY. — Attempts have been made to combine the wave theory of light and electricity by supposing that the vibrations of the ether which produce the phenomena of electricity are longitudinal, resembling those of sound, while the phenomena of light are produced by transverse vibrations of the same medium. Another theory which has been long believed, is that electricity consists of two fluids, and that a body is electrified positively or negatively, according as one or the other of these is in excess. According to Dr. Franklin's theory, there is a single fluid and the phenomena depend upon the excess or deficiency of this fluid. About three years ago, Professor Edlung read a paper before the Swedish Academy, in which he advanced the theory that this single fluid was the ether by whose vibrations light is produced; a body being charged positively when it contains an excess of ether, and negatively when the ether is deficient.

SUGAR CONTAINED IN VINE LEAVES.—Petit, the author, finds that grape leaves contain from 20 to 30 grms. of glucose per kilogramme, and from 13 to 16 grms. of acid, of which one-third is tartario acid, mostly existing as bitartrate of potash. Grape leaves contain cane sugar as well as glucose.

Atmospheric Dust.

Among the conclusions reached by Mr. Cunningham, of Calcutta, in an elaborate series of microscopical examinations of atmospheric dust, are the following:

Specimens of dust washed from exposed surfaces cannot be regarded as fair indices of the constituents of atmospheric dust, since they are liable to contain bodies which may have reached the surface otherwise than by means of the air, as well as others which are the result of local development.

Specimens collected by gravitation also fail to indicate the nature and amount of organic cells contained in the atmosphere, as the heavier amorphous and inorganic constituents of the dust are deposited in relative excess due to the method of collection.

Dew also fails to afford a good means of investigating the subject, as it is impossible to secure that all the bodies really present in a specimen of it should be collected in a sufficiently small space, and, moreover, because it is liable to accidental contamination, and also affords a medium in which rapid growth and development are likely to take place.

Spores and other vegetable cells are constantly present in atmospheric dust, and usually occur in considerable numbers; the majority of them are capable of growth and development; the amount of them present in the air appears to be independent of conditions of velocity and direction of wind; and their numbers are not diminished by moisture.

The amount of inorganic and amorphous particles and other debris suspended in the atmosphere is directly dependent on conditions of moisture and of velocity of wind.

NEW EXPLOSIVE.—An English inventor has taken out a patent for improvements in explosive compounds, in which he uses sawdust, spent tan, etc., freed from impurities, and submerged for a few moments in nitric or sulphuric acid, and mixed with certain nitrates. The tan, etc., when prepared, is termed the wet incipient compound, and to form explosive compound No. 1, 40 lb. of this is mixed with 60 lb. of nitrate of baryta, ammonia, lead or strontium. To this mixture is added 5 lb. of nitro-glacerine, absorbed by fine dry sand or infusorial earth, 20 lb. of soft wood charcoal or coal, 10 lb. of chlorate of potash, and 5 lb. of sulphur. The whole is then dried at a temperature of about 90 deg. to 100 deg. Fah. For compound No. 2, 57 lb. of spent tan are mixed with a boiling saturated solution of nitrate of baryta, soda, etc., 15 lb. of sulphur, and 6 lb. of chlorate of potash, and dried at about 212 deg. Fah. Compound No. 3 contains 70 lb. of nitrate of baryta, 12 lb. of anthraoite, sea-coal or soft wood charcoal, 7 lb. af nitrate of potash, 6 lb. of loaf sugar, 6 lb. of sulphur and 2 lb. of chlorate of potash, first crushed and then mixed together. The mixture is then damped with ordinary glycerine, sufficient to make its various parts cohere, and dried at about 212 deg. Fah.

GAS PRESSURE ALARM.—When two neighboring buildings are illuminated by gas derived from the same source, it frequently happens that the extinction of the lights in one building causes the pressure of gas in the other to become greatly increased, and sometimes to result in accident. M. Launay proposes, as an alarm to give warning of this over-pressure, a bisulphate of mercury battery, in which the liquid is in communication with the gas by means of a siphon, so that the pressure of the gas in varying, rises or lowers its level. If its pressure is above a certain fixed limit, the liquid is raised so as to come in contact with the metallic portion of the battery, establishing a current which sounds an electric alarm. M. Lsunay also suggests that a simple method of determining leaks in gas pipes throughout a building is to force some strongly odorous smoke into the supply pipe. The fumes of incense, for example, escaping in any room, would be readily distinguished from gas, and the locality of the leak quickly found.

CHINESE MIRRORS. — The curious property possessed by Chinese metal mirrors of reflecting figures put upon the back by way of ornamentation, has long been a matter of wonder to persons ignorant of the reasons for the phenomenon. Their manufacture is described as follows: Chinese mirrors are castings of a somewhat porous alloy. Before the reflecting face is finally polished, it is laid on an anvil, and the embossed designs or figures at the back well hammered. This, of coarse, condenses and closes the pores of the metal in these parts, and, in consequence, when the face is finally polished, the metal in front of the design has its power of reflecting light increased, and so gives rise to the fallacious idea that the pattern shines through the metal.

VASELINE.—The new product of petroleum to which this name has been given promises to come into use as a vehicle for various emollient preparations, for which it appears to possess some peculiar advantages. It is a solid, semi-transparent jelly, neutral, and free from taste or odor, and it is said to undergo no change by keeping. It becomes liquid at a temperature of 95° Fahr. The manufacturers state that it is prepared simply by the evaporation of crude petroleum, and filtering the residue through animal charcoal.

M. BERTHELOT has recently succeeded in producing nitrite of ammonia for the first time in a crystalline state.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, July 29, 1874.

NAME OF COMPANY.	IN MINE.	IN FEET	SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.							
Alamo							
Alpha Con	300	6000	11¾	10½W			¾
Alta	3600						
American Flat		30000	6½T	6¾T			1
Bacon M. & M	65	24000	1TH	1TH			
Baltimore Con		54000	1¾T	1W			½
Belcher	1040	104000	68¾M	63¾TH			5¾
Best & Belcher	224	22400	23½S	23½TH			1½
Bowers	20	5600					
Buckeye		16000					
Bullion	2500	25000	8½F	8F			
Caledonia	5000	20000	15¾F	15W			
California			38½F	37½W			1
Chollar-Potosi	2800	28000	55½F	47½W			6½
Confidence	130	24960	11T	10W			½
Con. Gold Hill Quartz	3434	20000	2¼TH	2⅛TH			
Con. Virginia	1150	100000	83½W	81½F			
Cook & Geyser	1600	24000					
Crown Point	600	100000	70M	66¾TH			8
Daney	2000	24000	2M	2M			
Dardanelles	1200	24000	12W	9M			1½
Dayton			3¼W	3W			¼
Eclipse	70	25000	6¾W	5½F			
Empire M. & M	75	50000	7¼T	6¾TH			
Exchequer	400	8000	63T	58TH			
Fairmount							
Flowery	3000	12000					
Franklin			2M	2M			
Globe		20000	2S	1¾W			¼
Gould & Curry	1200	48000	20½F	17¼W			
Hale & Norcross	400	16000	40½F	40½W			½
Imperial	184	100000	1¾T	1TH			
Indus							
Isaurancs	2000	80000					
Jacob Little							
Julia	2000	50000	2¾T	2½F			¾
Justice	3000	21000	8S	7T			
Kentuck	85	30000	14¼F	12¾W			¼
Knickerbocker	1200	24000	5W	3TH	1		1¼
Kossuth			⅞S	¾W			
Lady Bryan							
McMeans	3600	36000					
Mint	1600	50000	¾M	¾M			
Nevada	3000	40000					
New York Con	3600	36000	2¾T	1¾TH			
Occidental	800	10000					
Ophir	1400	16800	18W	16¼T			½
Overman	1200	37400	33M	27½TH			½
Phil. Sheridan	1200	24000					
Picher	2000	24000					
Rock Island		24000	2¼M	2TH			¼
Savage	800	16000	80F	50W			
Seg. Belcher	160	6400	83F	20T	9		
Seg. Caledonia		10000					
Seg. Rock Island							
Senator		24000					
Sierra Nevada		20000	4¾S	4¾T			
Silver Hill		54000	6¾M	4¾M			¾
South Comstock							
South Overman		24000					
Succor M. & M	1600	22800	1¾TH	1½TH			¼
Sutro		24000					
Trench	20	50 0	6TH	4¾F			
Tyler	2200	32000	3¼W	2¾T			½
Union Con	803	20000	11W	10W			
Utah		20000	3¼M	3W			¼
Woodville	1100	25000	3⅜S	2⅝W			
Yellow Jacket	1200	24000	19F	17W			1½
NEVADA.							
Adams Hill		50000					
Alpe	500	30000	½W	¼W			
Amador Tunnel			½M	4TH			
American Flag M. & M		30000	2W	2¼W			
Arkansas	300	30000	4¼W	4W			¼
Belmont			4½M	4W			¼
Bowery		30000					
Chapman M. & M		30000					
Charter Oak	1000	30000					
Chief of the Hill		30000					
Chief East Extension		36000					
Columbus M. & M	10000	50000					
Condor		25000					
El Dorado South			2½TH	2W			1¼
Eureka Con		50000	12¼TH	10W			1
Excelsior		12000					
Harper		30000					
Hayes							
Hermes	1000	30000					
Home Ticket							
Huhn & Hunt	3600	30000					
Ingomar	1000	40000					
Ivanhoe		30000					
Jackson		50000					
Josephine							
Juniata Con	5000	50000					
K. K. Con							
Kentuck	1000	30000					
Kineton	1000	30000					
Lehigh	1000	30000					
Lillian Hall	1000	15000					
Louise	2400	30000					
McMahon	1000	30000					
Marion		30000					
Meadow Valley	24023	60000	6¾TH	4½W			1
Mocking Bird	1200	30000					
Monitor-Belmont			1¼M	1W			¼
Murphy	2000	60000					
Newark	800	32000	1¾TH	95cT			¾
Pacific Tunnel							
Page & Panaca	2400	40000	⅞S	¾W			
Peavine	1000	30000					
Phœnix		50000					
Pioche	1000	20000	6TH	5W			½
Pioche West Ex		35000					
Pioche-Phœnix		40000					
Portland							
Raymond & Ely	5000	30000	15F	10W			1½
Rye Patch			1¾TH	1W			
Silver Peak		30000					
Silver West Con							
Standard M. & M							
Star Con	18000	50000					
Starlight	6900	25000					
Sterling		30000					
Spring Mount		25000					
Spring Mt. Tunnel		20000					
Ward Beecher							
Washington & Oracle		30000					
Watson	200		1¾TH	1W			¼
Yellowstone							
CALIFORNIA.							
Alpine	1200	12000					
Bellevue	8000	20000	1¾TH	1⅝M			⅛
Calaveras	3200	20000					
Cederberg		24000	2¼W	2W			
Chariot Mill			8¾F	7½W			
Con. Amador							
Cottonwood Creek		20000					
Dunderberg M. & M							
El Dorado							
Eureka	1650	20000	5F	5F			1
Gillis		24000					
Independent	1800	25000					
Keystone		10000					
Mt. Jefferson	1500	25000					
Oakville							
St. Lawrence M. & M							
St. Patrick	1600	20000					
Tecumseh	3000	30000					
Yule Gravel	400	10000					
IDAHO.							
Empire		25000	2⅞TH	2¼M			⅛
Golden Chariot	750	30000	8¼F	6W			
Ida Elmore	1300	10000	1¼F	¾W	1		
Mahogany	720	10000	3½M	3F			½
Red Jacket							
Salt Chariot	650	20000	11¼TH	9¾F			¾
War Eagle	1000	10000	2⅞TH	1½W			⅝
WHITE PINE.							
General Lee	1000	20000					
Mammoth	1800	36000	15cTH	10cTH			
Noonday	1000	20000					
Orig. Hidden Treas	800	21333					
Silver Wave							
Ward Beecher		24000					
UTAH.							
Deseret Con	2400	30000					
Wellington		50000					
OREGON.							
Virtue		20000					

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertiements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Adams Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	E Landers	507 Montgomery st
Arizona & Utah	Washoe	9	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Belmont M Co	Nye Co Nevada	3	1 00	July 17	Aug 22	Sept 12	C H Bogart	402 Montgomery st
Best & Belcher M Co	Washoe	3	50	July 15	Aug 17	Sept 12	W Willis	419 California st
Bishoye G & S M Co	Washoe	11	50	July 21	Aug 28	Sept 16	G A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	8	3 00	July 15	Aug 22	Sept 11	R Wegener	414 California st
Caroline M Co	Ely District	5	25	June 30	Aug 8	Aug 31	R H Brown	402 Montgomery st
Chief East Extension M Co	Ely District	3	10	July 7	Aug 15	Sept 8	R Wegener	414 California st
Europa M Co	Washoe	2	25	July 13	Aug 18	Sept 10	T G J Margetson	418 California st
Eureka M & Smelting Co	Eureka Nev	4	25	July 14	Aug 19	Sept 7	T P Beach	424 Montgomery st
Europa M Co	Nevada	2	25	June 9	July 15	August 7	F G J Margetson	418 California st
Globe Cone M Co	Washoe	2	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Globe M Co	Washoe	7	1 93	June 11	July 15	August 4	Joseph Maguire	419 California st
Golden Chariot M Co	Idaho	10	3 00	July 3	Aug 7	Aug 27	J Kaplan	Merchants' Ex
Hale & Norcross S M Co	Washoe	42	5 00	June 9	July 14	August 4	J F Lightner	438 California st
Hayes G & S M Co	Cal	6	50	June 4	July 13	August 10	Gen R Spinney	320 California st
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 19	W Willis	419 California st
Josephine Cons S M Co	Nye Co Nevada	2	15	July 20	Aug 22	Sept 12	C H Bogart	402 Montgomery st
Justice M Co	Washoe	10	2 50	June 13	July 14	August 3	Frank Swift	419 California st
Kossuth M Co	Washoe	1	25	June 29	July 31	Aug 18	E F Stone	419 California st
Lady Washington M Co	Washoe	1	50	July 1	Aug 3	Aug 31	H C Kibbe	419 California st
Leon M Co	Washoe	3	50	June 8	July 16	Aug 14	C J Eaton	Express Building
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	C D Briggs	402 Montgomery st
Mammoth S M Co	White Pine		10	July 13	Aug 17	Sept 15	D A Jennings	401 California st
Mint M Co	Washoe		10	June 30	Aug 5	Aug 27	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	July 1	Aug 13	Sept 7	W W Hopkins	411½ California st
Pauper M Co	Idaho	2	25	June 16	July 25	Aug 17	J Kaplan	Merchants' Ex
Pioneer Cone M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	C S Neal	419 California st
Rock Island M Co	Washoe	4	1 00	July 17	Aug 21	Sept 8	J W Clark	418 California st
Rye Patch Cons M & M Co	Nevada	3	25	July 21	Aug 21	Sept 19	D F Verdenal	409 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	July 27	Aug 27	A C Ryce	308 California st
Silver Cord M Co	Idaho	4	50	July 3	Aug 6	Aug 21	F Swift	419 California st
Silver Hill M Co	Washoe	3	2 00	June 25	July 29	Aug 20	W E Dean	419 California st
St Laurence M & M Co	Placer Co Cal	7	1 00	June 23	July 27	Aug 13	R B Noyes	411½ California st
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Table Mt Alpha M Co	Cal	4	25	June 18	July 23	Aug 18	T F Cronise	438 California st
Uthna Cons S M Co	Washoe	6	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
War Eagle M Co	Idaho	6	50	June 19	July 23	Aug 12	L Kaplan	Merchants' Ex
Yule Gravel M Co	Cal	4	15	June 10	July 15	Aug 6	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
El Dorado Water & Gravel M Co	Cal	4	5 00	June 19	July 20	Aug 5	H Elise	416 Montgomery st
Electric M Co	Cal		10	June 10	July 15	August 5	A B Paul	318 California st
Emma Hill Cons M Co	Utah	1	50	June 3	July 13	August 10	L C Fowler	302 Montgomery st
Enterprise G & S M Co	Nevada	1	10	June 22	July 22	Aug 25	E L Rice	411½ California st
Equitable Tunnel M Co	Cal	7	25	June 12	July 12	Aug 8	D Hunt	Merchants' Ex
Glasgow G M Co	Yuba Co Cal	3	25	June 16	July 20	Aug 7	D L Thomas	419 California st
Hartford M Co	Washoe	2	20	July 13	Aug 13	Sept 1	E F Stone	419 California st
Heckerdorn G & S M Co	Cal	13	25	July 7	Aug 10	Aug 29	P J Roberts	620 Washington st
Keystone No 1 & 2 M Co	Arizona	3	100	June 17	July 18	Aug 3	W R Townsend	419 California st
Knickerbocker M Co	Nevada	9	1 50	June 23	July 25	Aug 14	H Boyle	Stevenson's Buildings
Magenta G M Co	Grass Valley Cal	1	10	June 27	July 30	Aug 13	L Kaplan	Merchants' Ex
North Bloomfield G M Co	Cal	32	1 00	June 15	July 20	August 10	Thomas Osrby	320 Sansome st
North Fork M Co	Pinmas Co Cal	4	1 50	July 24	Aug 24	Sept 15	A Martin	520 Washington st
Ocella M Co	Amador Co Cal	8	75	July 25	Aug 31	Sept 19	L Kaplan	Merchants' Ex
Phœnix Tunnel & M Co	Utah	5	20	June 12	July 12	Aug 4	C S Healy	Merchants' Ex
Pioneer Cone M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	C S Neal	419 California st
San Marcial S M Co	Mexico	14	1 00	June 18	July 28	Aug 17	C F Schulze	426 Montgomery st
Stanislaus River M Co		3	15	July 20	Aug 18	Sept 5	W Smart	113 Leidesdorff st
Starr King S M Co	Nevada	6	25	June 11	July 14	Aug 3	L Kaplan	Merchants' Ex
Umpire Tunnel & M Co	Utah	3	5	June 29	Aug 3	Aug 24	P A Eakins	230 Kearny st
Valley Copper M Co	Nevada		10	June 15	July 15	August 1	Wm H Martin	534 California st
Venus G & S M Co	Cal	1	3 00	June 8	July 18	August 8	S Pattee	328 California st
Wonder G M Co	Cal	2	10	July 18	Aug 18	Sept 8	David Buck	331 Montgomery st
Wyoming G M Co	Nevada	3	25	July 28	Aug 31	Sept 18	W J Gunn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Alhambra M Co	Cal	Called by Trustees	210 Front st	Special	Aug 3
American Flat M Co	Washoe	G W R King	434 California st	Annual	Aug 5
Cascade Blue Gravel Co	Cal	J M Buffington	Merchants' Ex	Annual	Aug 6
Cons Gold Hill Quartz M Co	Washoe	F Wegener	414 California st	Annual	Aug 3
Exchequer M Co	Washoe	Called by Trustees	Merchants' Ex	Special	Aug 29
Genesee Valley M Co		Frank Swift	419 California st	Annual	Aug 6
Mammoth Blue Gravel M Co	Cal	J M Buffington	Merchants' Ex	Annual	Aug 6
Monitor-Belmont M Co	Nevada	W W Hopkins	411½ California st	Annual	Aug 3
Providence G & S M Co	Lassen Co Cal	W H Knight	331 Montgomery st	Annual	Aug 8
Silver West Cone M Co		F R Bunker	608 Montgomery st	Annual	Aug 8
"63" G & S M Co		H Knapp	306 Montgomery st	Adjourned	Aug 3
South Comstock M Co	Washoe	J M Buffington	Merchants' Ex	Annual	Aug 17
Sntrn M Co	Washoe	G W R King	424 California st	Annual	Aug 3
Tolman & Miller M Co	Washoe	J L Task	306 Montgomery st	Annual	Aug 3
Woodville G & S M Co	Washoe	A Noel	419 California st.	Annual	Aug 6
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Special	Aug 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	20	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	5 00	July 10
Cederberg G. M. Co.	California.	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Con. Amador M. Co.	Cal.	F. B. Latham.	402 Montgomery st.	50	April 3
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 00	July 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	July 11
Diana M. Co.		N. G. Fasett.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	0 90	Dec. 15
Keystone Quartz M Co		L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	B. B. Minor.	411½ California st	50	Dec. 5
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

There is nothing much of interest to report in the Stock Market, as prices continue low. The Comstock mines are all looking well, and many of them are not only meeting with good indications bnt are also finding good ore. Prominent fluctnations in price have been as follows: Eureka Cons. varied between $10 and $12.50; Meadow Valley, $4.50 and $6.50; Golden Chariot, $6 and $8.25; Belcher, $63.50 and $68.75; Best and Belcher, $23.50 and $25.50; Caledonia, $15 and $17.50; Chollar, $47.50 and $55.50; Cons. Virginia, $81.50 and $83.50; Crown Point, $66.50 and $70; Dardanelles, $9 and $12; Exchequer, $59 and $63; Gould & Curry, $17.25 and $20.50; Hale & Norcross, $40.50 and $50.50; Kentuck, $12.75 and $14.25; Knickerbocker, $3 and $5; Ophir, $16.25 and $18; Overman, $27.50 and $33; Savage, $50 and $80; Seg. Belcher, $70 and $83; Yellow Jacket, $71 and $79.

Prominent advances over highest prices of last week were as follows: Best & Belcher, $1.50; Cons. Virginia, $1; Dardanelles, $2.50; Gould & Curry, $1; Knickerbocker, $1; Seg. Belcher, $9.

The declines were more nmmerous and were as follows: American Flat, $1; Belcher, $5.75; California, $1; Chollsr, $6.50; Crown Point, $8; Exchequer, $1; Kossuth, $1.12; Yellow Jacket, $2.50; Eureka Cons., $1; Meadow Valley, $1; Raymond & Ely, $1.50; Eureka, $1; Empire, $1; Ida Elmore, $1.

MINERS at the Omineca mines are said to be making large wages.

New Incorporations.

The following companies have filed certificates of incorporstion in the County Clerk's Office, San Francisco:

FLEETWOOD QUICKSILVER M. Co.—July 23.—Trustees: R. R. Craig, S. G. Thompson, Wm. R. Williams, James B. Cooper and Charles E. Buckingham. Capital stock, $3,000,000, in 30,000 shares.

BLUE JACKET QUICKSILVER M. Co.—July 23. Location: Sonoma Co., Cal. Trustees, J. W. Jackson, Lewis B. Harris, Frederick Clay, Chas. L. Sell and W. J. Dakin. Capital stock, $3,000,000.

BERKELEY FERRY AND RAILROAD Co.—July 23. Object: Constructing or buying ferry boats to run between San Francisco and Berkeley, and to build a street railroad from ths westerly end of University avenue to the grounds of the State University, near the College of Arts, and lateral branches thereof, not to exceed a total length of 10 miles. Directors: F. Chappellet, Henry Durant, A. Moore, A. Rammelsberg, S. A. Penwell, H. T. Graves and W. W. Spaulding. Capital stock, $10,000,000, in 20,000 shares.

POTOSI MINING AND SMELTING Co.—July 27. Location: Cerro Gordo District, Inyo county. Directors: J. A. Pritchard, V. H. Vaughan, T. Hardy, Henry Raymond and John Simpson. Capital stock, $5,000,000.

NORTHWESTERN QUICKSILVER M. Co.—July 27. Location: Lake county. Directors: B. M. Hartshorne, E. J. Weeks, A. H. Harris, J. C. Hanscom and R. M. Wilson. Capital stock, $5,000,000.

PACIFIC MILL AND MINING Co.—July 29. Location: Nevada. Directors: W. S. O'Brien, J. C. Flood, Joseph G. Fair, John K. MacKay and Edward Barron. Capital stock, $8,000,000.

Meetings and Elections.

DARDANELLES M. Co.—July 23. Trustees: J. J. Robbins (President), S. C. Theller, C. C. McCracken. W. S. Duval was re-elected Secretary.

UNION CONSOLIDATED M. Co.—July 23. Trustees: Robert Sherwood, (President), J. R. Keene, J. W. Coleman, J. S. Follansbee and J. P. Cavalier. J. M. Buffington is Secretary and S. L. Curtiss Superintendent.

YELLOW JACKET M. Co.—Trustees: Thomas G. Taylor, G. W. Hazleton, F. A. Tritle, D. L. Bliss and T. B. Storer.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior in proximity to the mines mentioned:

California.

AMADOR COUNTY.

SALE OF MINING CLAIMS.—*Ledger*, July 25: A sale of valnable placer mining ground has been made by Thomas Sorocco to a gentleman of San Francisco. The claims sold are located in Union fist, nesr Volesno, and are considered very valuable. We understand the claims were sold for $16,000. From all we esn learn and from our personal knowledge of the ground sold, the purchaser has obtained a good bargain.

GOVER MINE.—Reports from this mine are very favorable. At a depth of 600 feet, a drift has been run across the ledge to the hanging-wall, s distance of 40 feet. The whole of the ledge, vast as it is, will pay good returns for milling, while about four feet in thickness, next to the hsnging-wall, the rock is represented as being of very high grade.

RICH ROCK.—*Dispatch*, July 25: We were shown a few days ago some splendid looking rock, recently taken out of a new qnartz mine on Murphy's ridge, and now being developed by Messrs. McKay, Love & Co. The company have been engaged for several months past in running a tnnnel into the ridge, bnt we believe they have not yet had any of the rock crushed. The prospect, however, looks decidsdly encouraging.

CALAVERAS COUNTY.

WEST POINT DISTRICT.—*Chronicle*, July 25: Hoisting works are being erected at the former Big Flat mine by S. Haskins & Co. An overshot wheel is in position to furnish the motive power. When worked, heretofore, the ore extracted from this mine never yielded less than $100 per ton. The Trip Hammer mill of the Ohio suspended operations temporarily. One of the balance wheels broke and the battery mortar appears to be too wide for profitsble work. The Tolman & Miller mill and mining company hss been incorporated. The mine is situsted about three miles east of West Point. The msin ehaft is about 50 feet in depth, tapped by a short tunnel which drains the snrface water. The lead is of fair size and asssys well, but no levels have been run as yet. The vein wss worked superficially, in former times for a considerable distance with uniform healthy net results. The Zacatero mill has not commenced crushing yet but will undoubtedly next week.

BLUE MOUNTAIN.—A team heavily loaded with machinery passed through town, a few days ago, en ronte for Blue mountsin. The machinery was designed for the extension of the Heckendorn mill, together with new appsratus for putting in operation Mr. F. Smith's process for working sulphnrets.

SAN BRUNO ROCK.—We have seen specimens of the rich ore recently struck in the San Bruno mine at Mosquito, and are prepared to testify that the reports concerning it do not exaggerate the truth. The rock is fairly cemented together with the precious metal. In fact, the specimens are about the handsomest and richest we ever saw.

EL DORADO COUNTY.

QUARTZ.—*Mountain Democrat*, July 25: Fox & Russell, of Garden Valley, are prospecting a vein of quartz, whioh is undonbtedly a continnation of the esme ledge on which the shaft of the Taylor mine has been snnk. The rock shows plenty of free gold and at the snrface is quite soft. They have sunk to a depth of thirty feet, and bave been amply repaid for all work that has been done.

THE ehaft in the Naper mine, Poverty Point, has heen cleaned ont and thoroughly timbered. Sinking commenced last week, and the rock now being taken ont looks well. It is good for from $50 to $75 per ton.

LASSEN COUNTY.

PLACERS.—Butte *Record*, July 25: Parties have struck very rich placer mines in the hills above Mountain Meadows, Lassen county. It is said that the deposit is quite extensive, and several claims have been taken up with first-rate prospects.

NAPA COUNTY.

MINING PROSPECTORS.—*Reporter*, July 25: For a week or so hack, a party bave been diligently engaged in tracing up a piece of float cinnahar rock to the main ledge, if there be any sucb, in the hills to the east and above Napa City. Good indications have been fonnd in Foss valley, and it is thought that the rock spoken of oame from the same lsad bearing from thence in the direotion of the Vallejo quicksilver mines.

NEVADA COUNTY.

DARTMOUTH.—Grass Valley *Union*, July 28: In the Dartmouth gravel mine a quartz ledge has been strnck by the miners, which shows well in heavy sulphnrets, galena and good general appearance of live quartz. This strike was unexpected, and another ledge is known to exist in the Dartmonth grondo. To prospect a mine here is success.

A NEW MILL.—The Eagle mine, now the property of the Oakland Gold & Silver Mining Company, located in Indian district, is to have a mill for the reduction of its ores. The mine is now sufficiently developed to justify its owners in assuming this expense. The mill is to be of fifteen stamps crnshing capacity, with all the modern improvements for working ores.

OMAHA MINE.—The ledge in the north drift of the Omaha is about a foot thick and shows rich rock, not in spots but wherever the ledge has been uncovered. In the south drift the ore is fair and will pay for mining and milling and will then give a profit over. The Omaha's prospects are more than fine.

NORMAN.—Some few weeks ago a tunnel was started on this claim for the purpose of tapping the ledge at greater depth than in the shaft, and also to facilitate the working of the mine. On last Saturday a very good ledge was struck in this tunnel, hut, being very near the surface, the ore streak is not so large nor rich as in the shaft. The owners, however, are well satisfied with their prospect.

PLACER COUNTY.

ORLEANS.—*Herald*, July 25: We learn from Mr. Gordon, that the blast which was being put in at the time the accident occurred, last Tuesday, knocked off some of the richest rock, in appearance, yet found in the mine. There is one characteristic about this mine which adds greatly to its value; that is, the unusual width of the pay chute. At a depth of about 70 ft they have already run horizontally 180 ft. through pay rock all the time; and instead of showing signs of pinching out, or becoming barren, the ledge maintains its full width of 4 ft., and from what Mr. Gordon says about the development of this last blast, is growing richer.

TWO MILLS.—Thomas H. Gordon, owner of the Orleans mine, has leased the Greene mill, and intends starting it on Orleans rock, next Monday. He has had the Eclipse mill pounding on rock on this mine, but it, alone, is too slow for the industrious Thomas; so, hereafter, both of these mills will be run steadily on Orleans rock, until that big pile of rich ore, now on the dump at the mine, is crushed.

WHY DID THEY STOP?—Some time ago work was suspended on the Auburn mine, and the property apparently abandoned. A few weeks ago the mine and all the things of value thereon, was sold by the Sheriff, to satisfy the claims of creditors. The last few tons of rock taken out was at the dump at the time of the sale and, was bought for a trifle by Mr. T. H. Gordon. Last week Mr. Gordon crushed this rock, at the Eclipse mill, about 12 tons, and greatly to his astonishment cleaned up $25 per ton. The query is now, why did the company stop work? Were they ignorant of the treasure they had in store, or was the abandonment a blind for the purpose of giving a few speculators an opportunity to get hold of all the stock at their own figures? Had they not allowed the mine to be sold, the latter supposition would seem most likely, but as it is, the thing is a mystery. There is a big ledge, and if it pens out to the tune of $25 per ton, the mine is valuable.

PLUMAS COUNTY.

GOOD ROCK.—*National*, July 25: The New York mill, at the mouth of Dixie cañon, recently cleaned up about $2,700 from 18 days' run, crushing 270 tons of rock. The mill is now running splendidly, and the mine looks very promising.

BADGER HILL.—On Tuesday last, in company with a friend, we paid a flying visit to the Badger hill claims, owned by Mr. E. B. Jacks, but now leased to the Plumas Ditch and Mining Co. Leaving our horses in the cañon, we ascend the steep hill on foot, and on reaching the summit we are favored with one of the finest views of a mining claim in "full blast," that it has ever been our fortune to witness. Two large monitors are throwing a tremendous volume of water upon the yielding banks of gravel and pipe clay, one rainbow-shaped stream being fully 300 ft. in length from the nozzle to where it strikes the bank. The working force comprises some 20 men. The bank is 170 ft. high, about 100 ft. clay and red dirt, and 70 ft. on the bed-rock of splendid looking gravel. The two pipes, one 4½ and the other 6-inch, throw 1,150 inches of water, under a pressure of 220 ft. The pipe clay comes down in large masses, and has to be broken up with picks and giant powder before going into the flume. The flume is 700 ft. in length, and passes through a tunnel for some distance. It is provided with the latest pattern of under-currents, and unless the clay "steals" some of the gold, but very little is lost. The water will hold out for some time yet, and as the clean-up, which takes place about every 10 days, shows a yield of from $300 to $500 per day, the aggregate for the season's run will be a very large amount of the precious metal. Mr. Folsom informs us that they will have four pipes next season, with increased water facilities, and, judging from the amount of bed-rock which has been uncovered already, they will make a "big hole" in the claim during the two years' time for which they have it leased. The claim is very extensive, however, and we imagine that a dozen fortunes will be left when the ditch company give up possession.

SAN DIEGO COUNTY.

JULIAN NOTES.—San Diego *World*, July 25: We are indebted to Mr. M. B. Woods, one of the late proprietors of the Ready Relief, for the following Julian notes: Mr. Woods has just started for San Francisco to exhibit some specimens of ore, from mines in the district, which he has recently discovered.

A gentleman named Beaver, German scientist, has found a splendid ledge, which is an extension of the Ready Relief, which has every indication of most promising results. A capitalist named Thomas Finley has interested himself in this new discovery.

In the Chariot mine a large ledge six feet wide has been struck, which is considered far richer than anything heretofore found in that locality.

The Little Joker, which is also an extension of the Chariot, has again developed rich ore. Some 70 men are now employed in developing this new discovery. The ledge has been for some time separated from the main ledge by a slate formation. A junction of both leads has now been found, and the result is most satisfactory.

The Hidden Treasure is also coming up to the mark of a first-class mine. Messrs. Ross & Putnay, who have plenty of means, have a number of men at work upon it now. Mr. Woods exhibited a specimen of rock from this ledge, which certainly looked fine.

The Golden Rule, owned by the "Count" and Mr. Snow, have already reached a depth 150 feet with their shaft. They have come upon an immense body of low grade ore.

On the first south extension of the Ready Relief, Messrs. Atkinson, Allen and Woodruff have their tunnel nearly completed, and are tapping the old ledge at a depth of 200 feet. This accomplished, splendid results are looked for. The "chimneys" from the Ready Relief pitch into this tunnel.

A strong force of men are busily at work on the Atlantic Cable, tunneling, and everything looks bright. Upon this work Mr. R. J. Conners is pushing things with his usual energy.

SAN LUIS OBISPO COUNTY.

THE MAHONEY MINE.—*Tribune*, July 25: We learn from undoubted authority, that Mr. Edward Mahoney, owner of the Mahoney quicksilver mine, in this county, has been offered $100,000 for his mine. It is an English company who are trying to negotiate for this valuable piece of mining property.

SUSPENDED.—Work has been suspended on the Josephine quicksilver mine, by order of Bell & Co. Our estimate of its value has been verified in this order of suspension from headquarters. The mine is a failure and there is no disguising the fact.

SOLANO COUNTY.

QUICKSILVER.—Benicia *Tribune*, July 26: We have been presented by Mr. A. P. Whitman, with several specimens of ore taken by him in a recent prospecting trip, some of which appear to be exceedingly rich. There is scarcely a doubt but that the Solano county foot-hills contain any quantity of this valuable metal, if the capital and labor were united to develop it.

TRINITY COUNTY.

BULLYCHOOP.—*Journal*, July 25: Siegfried & Co. are getting considerable rock out of their quartz mine on this mountain, and it continues to prospect well in free gold. Large prospects are also obtained in the earth below the ledge, which is considered as a very favorable indication. An arrasta is to be put up and a quantity of the rock worked before snow comes.

INDIAN creek miners are cleaning-up with good results. The Sillcox ditch has a full supply of water, but aside from this that element is scarce.

THE mines of the McGillivray company are being run with plenty of water yet. No attempt at a clean-up will be made until water fails. Everything is working favorably and prospects are encouraging.

TUOLUMNE COUNTY.

A RICH MINE.—*Independent*, July 25: On Tuesday, Mr. Le Roy Reed exhibited to us some of the richest quartz specimens we ever saw. This lode was discovered about two years ago in the American Camp district, on the bluffs above the Stanislaus, near Pine Log, about three or four miles northeast of Columbia. Mr. Reed and C. T. Ferrier were the locators, the latter having recently sold out to his partner, and gone north to see the country. It is a pocket lode, and is now down sixty feet, where another rich pocket has just been struck, some five inches in width. There are four chutes on the vein within a distance of 100 feet, and all run at the same angle. The pockets are found from eight to ten feet apart, the longest distance being less than twelve feet. The smallest one yielded $1,600, and from that in various cuts up to $4,000. The rock is gray, and over half mineral, with the gold all through it. It looks like the rock from the silver mine of Knowles & Tullock. Mr. Reed informs us that sometimes the rock is so full of the gold and other minerals that it is impossible to break it, and they have to cut it out with a cold chisel. Where the lode was first discovered on the surface it was a mere thread, but the vein grows larger and richer as they go down on it.

Nevada.

WASHOE DISTRICT.

CONSOLIDATED VIRGINIA.—Gold Hill *News*, July 22: Daily yield, 300 tons of ore. The north winze from the 1,300 to the 1,400-ft. level has been enlarged to 40 ft. square, greatly cooling the face of the ore breasts. Sinking the north winze No. 2, from the 1,300 to connect with the 1,400-ft. level is making good headway, the bottom still in ore. Driving the main south drift on the 1,500-ft. level is making rapid headway, following the west wall of the ledge. The heat in this drift is great, and causes slow progress. Preparation for the erection of the new 60-stamp mill goes steadily on.

GOULD & CURRY.—There is no change whatever to report of the prospecting operations on the 1,500 ft. level. Sinking the double incline winze below the 1,700 level is making steady headway. Work in this winze is being pressed with all the vigor possible, so as to enable the opening of the 2,000-ft. station at the earliest day possible, for the purpose of running a south drift from that station to connect with a north drift on the same level from the Savage mine for ventilation purposes.

CROWN POINT RAVINE.—The management of this mine has recently passed into the hands of some heavy San Francisco capitalists, who have again commenced a vigorous prosecution of the work of prospecting the ledge. Recent developments on the 300-ft. level proved the ledge to be from 40 to 45 feet in width, with regular, well-defined walls, and assaying from $4 to $80 per ton.

SIERRA NEVADA.—The completion of the new machinery is being pushed with all the vigor possible, all the men being employed that there is room to work. The new water tanks on the hillside, above the hoisting works, are completed, and the pipes for conducting the water to the works are being laid. The hydraulic is steadily at work, and begins to make quite a hole in the side of the mountain. Daily yield, 60 tons of ore, keeping the mill steadily running.

GLOBE CONSOLIDATED.—The rock in the face of the main west drift, at the 400-ft. station, is working much softer, and admits of far better progress than heretofore. The west drift at the bottom of the winze, from the head of the incline, has developed a fine body of high grade ore, that appears to be improving as the work progresses to the westward.

HALE & NORCROSS.—The ore in the main north drift, on the 2,000 foot level, is showing considerable of an improvement, and promises a development of more value than was at first expected. Daily yield of ore, 40 tons, from the old upper levels.

SAVAGE.—The main south drift, on the 2,000-foot level, to connect with the north drift from the Hale & Norcross on the same level, is making steady progress. A north drift, on the same level, to prospect that portion of the mine, and eventually connect with a south drift from the Gould & Curry, for ventilation purposes, has just been started.

CROWN POINT.—Daily yield 450 tons of ore. The ore breasts on the 1,300, 1,400 and 1,000-ft. levels continue to look well, and yield the usual amount of rich ore. Driving the main south drift, on the 1,500-ft. level, toward the Belcher line, is making fair progress, considering the extreme heat on that level.

BELCHER.—Daily yield, 400 tons of ore, from the 1,200, 1,300 and 1,400-ft. levels. Work has been suspended on the 1 000-ft. level until better ventilation can be secured. Working operations throughout the mine have been somewhat embarrassed during the past week, both by putting in of new machinery and the extreme hot weather, which causes a vast difference in the heat on the lower levels.

OVERMAN.—The main north drift on the 1,200-ft. level is making good progress. The north drift from the 200-ft. station in the winze is still driven northward in quartz and porphyry. This drift is intensely hot, so much so that but slow progress can be made. Sinking the main shaft was resumed on Saturday last.

IMPERIAL-EMPIRE.—Opening the 2,000-ft. station in the main incline is about completed. The only work now being done on the 1,850-ft. level is the driving of the main south drift to connect with the south winze from the 1,700-ft. level.

JULIA.—The enlargement of the main shaft for a third compartment is progressing at the rapid rate of 10 ft. per day. Cutting out for a new pump station at the 1,000-ft. level is also making good progress.

CHOLLAR-POTOSI.—Daily yield, 90 tons of ore, the assay value of which is $29 per ton. The repairs to the old Belvidere air shaft are completed, and prospecting in that portion of the mine has been resumed.

WOONVILLE.—The mine is looking well throughout; the ore in face of the north drift, on the 400-ft. level, is opening out finely. The south drift on the 300-ft. level has been again started up, and the face continues in fine ore. The mill is kept steadily running on ore from the mine.

SUTRO.—The main west tunnel is steadily advancing the face in rock that is quite hard, but which blasts out finely. The flow of water does not impede work.

DAYTON.—The water from the shaft has been drained from below the second station level. The third compartment of the shaft is finished from the level of the drain tunnel to the surface, and the new pumps will be put in, ready for use in a few days.

UTAH.—The strong flow of water from the bottom of the shaft still continues. Hoisting and pumping the water goes steadily on, day after day, without intermission or cessation, and with but a slight decrease in the head of water in the shaft.

KNICKERBOCKER.—Sinking the new shaft is making good progress and will be down by Saturday next, ready for the commencement of the opening of the 600-ft station.

OCCIDENTAL.—The old pump is being taken out and a new one put in which will afford greater security against a strong flow of water, should such a body be encountered while sinking.

BALTIMORE CONSOLIDATED.—Sinking the shaft is making excellent progress, the rock working somewhat harder than heretofore. The flow of water at the bottom still continues, but does not interfere with sinking.

DANEY.—The main west drift, at the 400-ft. station, yesterday morning encountered a fine streak of quartz and ore 6 to 8 inches in thickness, with a considerable increase in the flow of water from the face, giving strong indications of a near approach to the ledge.

SUCCOR.—The extraction of ore through the little shaft, east of the mill, continues without interruption, the ore vein often varying from one to three feet in thickness.

PHIL. SHERIDAN.—Very good work is being done sinking the shaft, and the new hoisting machinery will soon be in position.

CALEDONIA.—The shaft is 98 feet below the 800-ft. level, in fair sinking ground. Sinking the air winze below the 700-ft. level is making good headway.

CALIFORNIA.—The north drift from the Virginia Consolidated on the 1,400-ft. level is still driven vigorously ahead.

LEO.—The main tunnel is being driven steadily ahead. The ore streak continues from 18 inches to 2 ft. in width, and of excellent quality.

AMERICAN FLAT.—The new drift mentioned in our last report as being started at the 750-ft. station of the Baltimore Consolidated shaft, is being driven ahead with all the vigor possible toward the American Flat ground.

PICTOU.—The main tunnel continues to be driven ahead. Very favorable looking stringers of quartz are occasionally met with.

BEST AND BELCHER.—Surveys are now being made for the more thorough prospecting developments of this valuable little mine, which lies directly between the Gould & Curry and Virginia Consolidated mines.

FLORIDA.—The bottom of the new shaft is in excellent sinking ground at present, with no water to interfere.

LADY BRYAN.—Sinking the new shaft is making excellent headway, with strong indications of soon cutting the main ore vein.

TYLER.—The flow of water from the east drift at the 200-ft. station has been nearly drained again, so as to permit of the resumption of work in the ledge.

BUCKEYE.—The extraction of ore from the south winze has been commenced.

NEW YORK.—Drifting for the ledge at the 600-ft station is making good progress with fine prospects of a good development soon.

KOSSUTH.—The new machinery is about completed, ready to resume sinking the shaft and prospecting the first station level.

Arizona.

BLACK CAÑON DISTRICT.

BLACK CAÑON.—Arizona *Miner*, July 18: Swilling & Co. and another company continue to work ore in their six arrastras, with profitable results. Mr. Pfandler and his partners have constructed and are running arrastras by horse-power. Some Mexicans, while prospecting the bed of a creek for placer gold, found several large pieces and immediately measured off claims, which they are now working. The distance from Prescott to these "diggings" is about 50 miles, by the nearest trail, which is very winding.

HASSAYAMPA DISTRICT.

SOME OF OUR GOLD CROP.—*Miner*, July 23: Mr. Jas. S. Giles showed us, this forenoon, about $350 in native gold, from the mines of Lynx and Hassayampa creeks, near Prescott. Some of this gold was taken out of the beds of the creeks, the remainder out of quartz rock, by arrastra process. Of course, this is but a *taste* of the gold crop of this vicinity, this season, as tens of thousands of dollars have been taken out by a very few miners. What may we not expect when Arizona shall have as many mills and furnaces as Nevada?

British Columbia.

CARIBOO DISTRICT.

MINING NEWS.—Nanaimo *Free Press*, July 15: The mining news is sparse. Next week, however, the claims on Lightning will commence pumping out, and work will be actively resumed in the different claims in this district.

BURNT CREEK.—Homeward Bound Company are in good pay; washed up 48 oz. last week. Old Dominion Company have brought in a ditch which will give them a good supply of water all season. Two Chinese companies hydraulicing and ground sluicing are doing well.

JACK OF CLUBS.—Two Brothers Company's shaft is down 165 feet—the deepest shaft in Cariboo. Everything looks favorable, and they will commence to open out next week. Two Sisters Company are getting along well with their drain.

YAKIMA MINES.—Cor. Dalles *Mountaineer*, July 15: Miners on the Pishastin, and a tributary of it, called Nigger creek, are making fair wages—from $3 to $6 per day. The mines on this side of the range, on the Swock and Yakima are variable. A good deal of mining outside of discovery has ceased, the men have gone prospecting in other quarters, while the discovery boys are sometimes doing remarkably well. Week before last they (six men) took out $500. One piece weighed $184.67, another $34, and from that down to six dollars. It was nearly all coarse gold. Then the week following they did not make to exceed one dollar per day to the hand. Old miners are sorely puzzled as to where that pay streak extends. The pay will be more regular on the Yakima bars, but the water is still too high for successful mining there. Two and a half to three cents to the pan is quite common on many of the river's claims.

Colorado.

CLEAR CREEK DISTRICT.

CLEAR CREEK.—Colorado *Miner*, July 23. The mines in this district, old and new, are generally producing well.

SEVERAL new discoveries have recently been made on the Seaton Hill, near Idaho Springs, which show fair assays.

THE rush for that portion of Clear creek

[Continued on Page 76.]

Mineral Wealth of Colusa County.

Last week we visited a portion of our county, of whose richness we were bnt little awsre. We bave rsad small reports of our minersl wealth. Bnt practical experience in a visit caps all knowledge you can otherwise receive upon tbe snbject. The first mine we visited, accompanied by Messrs. Chapin & Eaton, part owners, waa the

Elgin.

Tbis mine is as yet undeveloped, hnt the richness of the prospect is self-evident. Everywbere seams of the richest ore are revealed to view, and ere long it will tnrn ont to ba one of ths richest mines in that vicinity. The Elgin company opened their mine abont six months ago, and have now s force of ten men, together with a retort, from which they run four flasks per week, and ship to Booth & Co., of Ssramento. They are busily engaged in rnnning tunnels, and ere long we will hesr of a big strike for the Elgin. They are preparing to hnild a furnace which will be complete ahont fall. This mine is nnder the superintendence of J. Melbourne. While present thsy ran off a retort of 34½ per cent. ore. From tbe Elgin we proceeded to

The Abbot,

Whose reputstion is already known. Mr. G. C. Ingram, euperintendent, kindly brought us throngb the tunnels, inclines, and down into the shaft of this mine. Its richness is nndoubted. Ten experienced miners are continnally employed in extracting furnace ore, and the work goes on nigbt and day. Tbey are now busily preparing to build a furnace at a cost of $10,000. No qnicksilver has been as yet manufactured from tbe Abbot, but they have now furnace ore sufficient to last a montb, when started. The Abbot is an old developed mine, but has been under tbe auspices of the present company but three months. From the Abbot we proceeded to the

Buckeye,

The best developed mine in this region. Ssama of the richeat cinnabar are plainly visible wherever the eye glancea, and from this mine very little waste rock is extracted. The Buckeye runs a force of twenty-eigbt men, steady, and retorts weekly fifteen flasks of quicksilver. A flask is considered worth $100. The Elgin and Buckeye are the only two mines reducing ore, and paying for working as they proceed. Grading has already commenced for the building of a furnace for tbe Buckeye, wbich will be an extensive arrangement. Tbe contract haa been let for the hurning of the brick, and in two months it will be erected. Mr. Caswell is the general snperintendent, and Mr. D. Smith, who kindly volunteered to show us around, is nnderground auperintendent. We paid a visit to the

Empire,

A new and rich prospect, struck but a monthago. The value of this mine is in the small amount of labor necessary to work it, it being all clay soil, composed of mngnesia, lime and cinnabar. The superintendent, Mr. H. B. McNemer, is buay pushing the mine through, and this at slight expense, it having cost but $125 in one month. Tbey have struck the ledge of the Mansinette already, and ere many days Empire stock will he high up, as the showing is now the very best.

The mines in this section of our connty excel all we have seen in richness. The very best ore, which will average 30 per cent., is found on the snrface of the hills.

We cannot forget to make mention of the

Gas Fire,

Which issues from the mountain in close proximity to tbe Elgin mine. The side of the bill is all ahlaze, and has been so for eigbt years, when fire was communicated to the gas which emitted, by M. G. L. Eaton, and has been burning steadily ever since. This accrues enormously to the richness of the Elgin, as they can run tbeir furnace with little or no expense. An escape is now taking place of 125 oubic feet, sufficient to run a dozen furnaces.

Our time was so limited we could not visit the other prospects, but will return ere long again.

This portion of our county abounds in quicksilver wealth, and those owning mines will at first have to enoounter difficulties, but ere long tbey will overcome tbe hardships of developing their mines, and in all experience with regard to mineral wealth, Colnsa has the richest.—*Independent.*

White & Shiloh.—The Unionville *Silver State* says of the Wbite & Shiloh, the principal mine in Galena district: "Since work was commenced on thia claim, about four years since, 13,000 tons of paying ore bave been taken from it, between 7,000 or 8,000 tons of which yet remain on the dump. The mine is well opened, and from a thorough examination of the numerous drifts and stopes it is estimated that there are at least 32,000 tons of paying ore now in sight in tbe mine."

The following is given by a Los Angeles paper as a fair average of wages paid in Los Angeles: Farming hands, $30 per month; laborers per day, $2.50; sboemakers, $4; carpenters, $4; masons, $5; plasterers, $5; gas-fitters, $5; blacksmiths, $4; wagon makers, $4; carriage painters, $5; harness makers, $3; tinsmiths, $3.50; oahinet makers. $3.50; stair builders, $4.50; bouse servants, $30 per month (very scarce).

The Silver Cord Mine.

The Owyhee *Avalanche* gives the following about the Silver Cord mine:

Day before yesterday, hy invitation of, and in compsny with J. O. Lennon, the efficient and gentlemsnly superintendent, we went through the Silver Cord mine. Work was qnietly inaugurated upon it last winter, and hnt little bss hitherto heen known or said about it on the outside. We knew thst Mr. Lennon wss taking ont some rich ore, hnt we did not expect to see such a large and rich ledge as met our gaze in the various drifts and levels. It has a substantisl shafthouse and very good steam hoisting works. The vein dips to the eastward at the rate of ahont 33½ feet in 100. The adit, or drain tnnnel, is 40 feet below the surface. The first level is 80 feet deeper, in which a drift has heen run 100 feet north and 15 feet south of the shaft. At a depth of 100 feet helow tbe first level we find the second level drift extending 140 feet north of the shaft and 85 feet sonth. The third is also a 100-foot level, and already hss a drift in 70 feet north and 120 feet sonth of the shaft. A winze connects the second and third levels 30 feet south of the shaft. The shaft is down 40 feet for the fourth level and a winze will also he snnk 90 feet south for the purpose of connecting the third and fourth level drifts. As soon ss the fourth level is opened the mine will he in splendid shape for tsking out ore. The vein is well defined, with smooth, solid casings. Its average width in the second and third levels is from 18 inches to two feet, sbowing free gold and silver in abundance, and assaying from $60 to away np in the thousands per ton. But little blasting is required to take down the ledge, mnch of which is decomposed and similar in character to the rich vein matter formerly found in the Poorman. The Silver Cord is situated south of the latter named mine, and many are of the opinion tbat they are one and the same ledge. A tank 16 feet long, six feet wide and seven feet deep, has heen put in the bottom of the second level, which collects all the water and renders the sinking of the shaft oomparatively an easy task. Mr. Lennon is doing all his work by contract, which be finds to he nearly 50 per cent. cbeaper tban hy having it done hy the day. On the dump there is qnite a large pile of as rich ore as can he found in camp, and plenty more will soon be takeu out. As soon as the road leading to the mine can he repaired they will commence hauling the qnartz to the Ellmore mill. We have ventured the assertion, and will hack it up! with a reasonable wager, that tbe Silver Cord will be on the list of dividend paying mines before the snow falls.

The Great Air Shaft.—The Belcher Co. lsat Saturday hegan work on their new air shaft at the 850-foot level, atarting at that point to raise up and connect with that portion of the ahaft now coming down from the aurface. The first set of timhera was put in on the 850-foot level last Saturday. Tbe ahaft is now down 300 feet helow the surface. Work will shortly he commenced at the 900-foot level; indeed, tho shaft will be completed to the lowest level in tbe mine as soon as possihle. Tbis will he strictly an air shaft, and the only one worthy of the name on the lead. It consists of two unusually large compartments, each being six feet square in the clear. These bnge, unobstructed openings will admit of the upward rush of immense volumes of air. The shaft will he of almost incalculable value in the ventilation of the mine, and also of the Crown Point. The great column of heated air aseending throngb it will cause a strong downward draught of pure surface air into all the lower shafts. No cages will he placed in this new ahaft to obstruct the ascension of the air ruahing up from the aweltering regions below. In one of its compartments there may be placed a cage for lowering large timhera and for use in hoisting out men in case of a fire in the mines. Hereafter this large sbaft will be pushed down as fast as new levels are opened, and will alwaya ha kept at the bottom of the mine, with connections on all the levels.—*Enterprise.*

South Chariot.—This mine made ita first shipment of bullion last Wednesday—five hars, valued at $11,000—and will follow it with othera every few days. The mine continuea looking splendid in the lower levels, and additional miners are heing put to work as fast as the stopes can be opened. Most of the ore has hitherto come from the 6th level, but they have commenced in the 7th, and will he stoping in the 8th next week. The new hoisting works are everything tbat conld be desired, and are sufficient to work the mine to a depth of 2,500 feet. The main building enclosing them is 75x32 feet, to whioh a large addition is being built for sorting room, ore house, blacksmith shop, carpenter shop, etc. South Chariot ia all right from this time henceforth, and will make plethoric the pockets of lucky shareholders.—*Owyhee Avalanche.*

Alaska Mine.—This ia somewhat of a new ventnre and is located in the neighborhood of the once much talked of Ione mine. It is in the course of a prospecting working at the present time. Den. Meagher, who seems to he posted on the Alaska, although be holds no interest in it, says that the rock from the ledge "is staving good rock." We know that there are hundreds of staving good ledges all around here, beside the Alaska, and all they want in the way of making the "staving" manifest is some picking, blasting and other work. Keep on proapecting, for there is pay in it.—*Grass Valley Union.*

Pioche Mines.

The Pioche *Record* of the 19th ssys: The condition of the two principal mines of this district, the Raymond & Ely and the Meadow Valley, has changed so little since onr report of last week, save in mere length of openings made, as to call for little or no comment. At the Raymond & Ely the shaft is being enlarged on its western end and on one side. Men are engsged at this work at two points in the shaft, and in a few dsys others will be added. The other work going on in the mine is in the eastern sud western drifts on the 1,200-foot level and the western drift of the 1,000-foot level. The faces of these drifts look ahout the same. The western drift of the 1,200-foot level is still in country rock, and will probahly not resch the ledge nntil it is advsnced some 60 or 70 feet further.

In the old Creole works preparations are heing made to extract some ore, whicb will he raised to and passed through the old Burke tunnel.

The Magnet company during the past week has not raised as much ore as nsual. The grade of that which has been extracted is ahout the same as heretofore.

Operations at the Meadow Valley are going on as ususl—the appearance of the mine not varying in any essentisl particnlar from thst noted last week.

At the Pioche the work of exploring the new gronnd is proceeding as rapidly ss circumstances permit, and continues to offer a very encouraging appearance.

The Newark is yielding a considerable amount of ore of a very fair grade, and is shipping it so rapidly to the mill that it is accnmulating. The latter is kept constantly at work either on cnstom rock or the company's ore, and is giving good results, shipping something over $12,000 during the week.

From the American Flag some considerable ore is heing taken from the upper levels. The station has been opened on the 1,000-foot level, and the cross-cnt is being opened towards the ledge.

The Mazeppa shaft of tbe Washington & Creole is now within a few feet of the main level of the mine, and will reacb it in the course of a few days. The easterly level lacks ahout 75 feet of making the connection, but is being pushed as rapidly as possible. Work is going on in the west winze, which is still in ore.

The Portland, Bowery and Chief of the Hill are in about the same condition as when lsst reported on. From the latter a ahipment of ore has been made, which was taken ont by men working on shares.

Seven-thirty.—What pickings and shovelings are in progress around Grass Valley mining district are paying very well. The Seven-thirty mine haa been pecked at for a number of years, and whenever it haa been hit a few blows, it has turned out the gold. Yet the ownera were afraid of it and at a critical time refused to pay taxes on the property. They seemed to think that as they conld not see gold down in the ledge a thousand feet or so helow any workings, that there could not he much gold in that concern. And so the Seven-tbirty claim and all ita appurtenances were allowed to he sold for taxes, and the amonnt of the taxes was only $60 or $70. In the last week something like $5,000 or $6,000 bave beeu taken from this mine, and that too without any great tronble and at a very trifling expense. The mine has shown that it was good for its taxes, at least. The history of the Seven-thirty has in it much that is significant. It teacbes that very frequently a little work will dig out a great deal of gold in this district. The lesson ought to he learned, and picka and sbovels and drills and blasting powder come into more general use in Grasa Valley. There are plenty of ledgea here which await work in order to make them pay. The home prospector, when he sticks to his huainess and puraues it with energy, is sure to make a good strike. Think of the Seven-thirty and go to work.—*Grass Valley Union.*

Omaha Mine.—The Grass Valley *Union* says: This mine is looking well. A few months ago aome folka thonght it was a failure and that it would shut down. But the owners, mostly Sacramentans, did not see any sense in stopping work when only a little scratching bad been done. So M. Dodsworth, sometimes called "Nick," came up and took charge of the works. He has made a good showing. The ledge ia nearly two feet thick and carriea mineral in quantities. A crushing of rock taken from the drift is about ready to be cleaned up, at Larimer's mill, and it is safe to say tbat the crushing will give $25 to the ton. Some of the ore on the old dump, which was left over from a former crushing as being of no account, has yielded well by mill process.

Newark District.—We paid a short visit to this locality and obtained the following as the result of our observation: Mr. Stratton, an owner in the company, who haa been appointed general agent and auperintendent of the mines and mill, informed us he would first settle up the old hnsiuess before making any new move. Tbere were quite a number of men at camp, mostly idle at present, some few being still at work in the mines. The mill ia shut down, and nothing definite is known as to the time of its being again started up. Mr. Stratton seems a gentleman fully alive to the situation, and will exert his energies in bringing order out of the chaos into which the company has been placed hy former mismanagement.—*White Pine News.*

Eberhardt & Aurora.

On account of a press of other matter, we find it impossihle to give an extended acoount of the appearance of the mines now being worked hy this company, hut will endeavor to do so in our next issue. Howevsr, we are enahled to give the following as the resnlt of a conversation with William Maxwell, foreman, regarding the present outlook: A drift run north from the Peerless chamher a distance of 50 feet resulted in tho opening up a large hody of high grade ore, and the discovery has heen named the Wyon chamher. The work prosecuted shows at this writing a width of 40 feet, and depth 60 feet, with ore on sides, top and hottom. Twenty-eight feet more of tunnel will connect the opening with the centrsl shaft, whence all ores hereafter extracted will he raised hy means of the steam hoisting works now being placed in positiun. When this connection is made, the Peerless, Beecher, Ladies' and Wyon chambers will he united, and uninterrnpted communication seonred. In this hrief item it will he impossihle to give more tban a summsry of the whole workings, which sre simply that from the Ward Beecher Consolidated on the north, to tbe South Anrora on the south, indications point to one of the finest properties on the Pacifio coast. Many thousand tons of high grade rock are now in sight, and the work being done is daily exposing other and larger hodies. Manager Frank Drake has concluded to ahandon the South Aurora tnnnel, which for a long time has heen the way used for the transportation of ores, etc., and for which a royalty has been paid to the South Aurora company, hereafter conveying all oros through the central shaft. Oft repeated predictions seem certainly to he approaching nesrer, a snrer confirmation than ever hefore imagined, and we have now no hesitancy in ssying thst much-ahused Treasure Hill will will soou he the great attraction of Nevada in a mineral sense. At least, we are prepared to await the course of events, as are many others now deeply interested in the future of the district.—*White Pine News.*

Lida District.

A oorrespondeut of the Inyo *Independent* says: I will give yon an account of the result of the experimental furnaces built hy the Marrotte Bros. at Sylvania. The furnace is huilt on the principal of a Mexican "basso," and is so constructed as to receive the lead when melted in a hasin, the alsg floating on top, and is removed through a aide tap; the lead is alao drawn from a tap-bole in the side; the ore is laid on a sole or hearth, and is reduced by the heat from a wood fire (no coal heing used); the slag is perfectly olear of any globulea of lead; the ore smelted was of second-class lead ore, being only an experiment; the result waa that from five tona of this ore one ton of ailver lead waa produced; the bullion was 12 fine, value per ounce $.0155; value per ton of 2,000 pounds, $457.98. This provea beyond a douht that the orea of thia district are good, this heing aecond-class ore. You may expeot astonishing figures when they make a run on firat-olass ore, which will be soon.

In Lida district all the mines that are being worked look exceedingly well. There are 11 men at work on the Death Valley mine, commonly known as the "Frenchman's mine." Tbey have a four-foot vein of good ore; they have out on the dump about 200 tona of ore that will mill over $200 per ton. Thia bids fair to he the finest mine in this country. Three men are at work on the Sewando, taking out snlphuret ore (the only mine in thia camp in which sulphuret ore has heen found) of very higb grade, assaying $1,000 and upwards. Active operations have heen commenced on the Benet mine, and also on the Simon Pure. The three latter have been leased to different parties.

A Patient Worker.—A correspondent of the Salt Lake *Tribune*, writing from Star district, says: Ahout three years ago a man hy the name of Omar came to Star and hegan prospecting in the foothills, and at laat he struck a good proapect, and went to work on it, a party in Pioche assiating him. Qnietly and steadily he kept to work until he had run a tnnnel several hundred feet into the hill, doing nearly all the work himself. He now haa strack it, and those who have seen the mine say the gold quartz in sight is truly wonderful. He has also huilt a small furnace on the draft principle, to test other ore in the mine. Reliahle miners say that thia ia a rich and wonderful mine, having hoth smelting and milling ore. This mine, I helieve, has only three ownera; aud will, no douht, before long, cause considerahle excitement.

Pancake Fire Rock.—In the early days of amelting iu Eastern Nevada, it waa found necessary to find a substance for lining purposea which would resist the intense heat required in smelting, and the Pancake sandstone was the result of explorations to discover the same. Since that time fire hrick has heen imported from St. Louia, Philadelphia and other points with which to line np furnaces, bnt, after a ahort trial, it was found that nothing would so well fill the hill aa did the "Pancake." To-day, quite a large traffic baa sprung up in this line of husiness, and ordera are received from all neighboring districts, as well as from Omaha and San Francisco. All furnace men agree that no other stone has ever yet been found the equal of that now in nse.—*White Pine News.*

Good Health.

The Human Frame.

No. 8—The Muscles.

A man with the skin removed is a curious-looking object. He is thon literally envelnped in a blanket of fat, of greater or less thickness according to his inclination towards corpn-lency, or otherwise. Remove this adipose tissne—which is deposited beoeath and in the meshes nf a delicate membrane, or fascia—and ynn thsn perceive a still moro ourious object; not a man now, but a machine. He is nnw a mass of ropes, so to speak, of all lengths, sizes and shapes, nnd attached in a bewildering manner to his bony framewnrk. The labor of maatering the technical details of a man-of-war's rigging is nothing to that required to unravel this labyrinth nf stays, halliards and olswlines, which have the wonderful power of shortening or lengthening themselves at the option of their possessors.

Anatomists compute about six hundred pairs of these muscles; some like ribbons, others like cords and still nthers like fans, feathers, etc. Ths largest are very coarse and strong, as, for instance, the glutei mnscles which help to soppnrt the body on the lnwer extremities. From this size they gradoally pass to microscopical minuteness.

Muscle itself is what is called "flesh;" is of a deep-red color, and is composed of fibrin. It is disposed in little bundles of parallel fibers, which aro bound together with a delicate arenlar tissue. It is very contractile, and to this property we owe our nlmost unlimited power of movement. Like all other organized substances it is formed of cells so arranged end to end as to form the "ultimate fibers" which make up ths larger bundles of which we have spoken. Its contraction is supposed to be owing to a change in the long axes of these almost infinitesimal cells; just as a hollow rubber ball can be flattened or elongated between the hands. Some theorists have supposed the life of these cells to last only during a few contractions of the muscnlar substance, and hence ont every movement to involve the death of myriads of these minnte prntotypes of our lives. However this may be, it is certain that their existence is oomparatively very short, and that the old worn-out cells are continunlly giving place to new and vigorous ones; so much so that we are supposed to have an entirely new body each seven years of our existence. Yet the transition is so gradual, and the new cells snch faithful representatives of the old that but little hope is held out by the above fact of any great change in onr personal appearance however much some of us might desire to change the old for a handsomer shell. The only positive change consists in the number of these ultimate cells, muscular and others, which prodnce differences in our weight and figure, according ns the cell supply exceeds the demand for new material, or otherwise.

It is curious to reflect that death is thus ever present with us; that withiu ourselves a fierce battle is ever raging between life and death, and that our thriving or wasting bodies tell of temporary success to one or the other of these implacable foes. By-and-by the powers of life begin to grow weary of the unceasing attacks of their relentless enemy, and the wrinkled, wnsted body tells na that denth is slowly but surely gaining another of his inevitable victories. If the laws of nature have not been violated, and no accident hastened the fatal issue, this contest lies simply between the nltimate cells of our bodies—a warfare waged by the tiniest of combatants—nntil the deaths so far exceed the births that the human mechanicism runs slower—slower—stops!

A few words as to the attachment of muscles to the bnny frame-work. Each muscle as it approaches its termination loses its fibers, while the fibro-areolar tissue, whioh bind the bundles together, becomes denser and thicker, and finally merges into a round or flat tendon, snoh as every nne is familiar with, which then passes to the bone, and is glned, as it were, so firmly to its surface that the muscle will tear in two before this tendon will break. Usually there is a roughened spot on the bone in order to afford firmer attachment, and often prominences or "processes" by which to afford leverage; but this will be more fully spoken of when the bones are under consideration.

Phosphorus as a Cure for Oataract.—Dr. Combas gives a oase of a girl, aged 24, of nervous, lymphatio tempernment, suffering from capsnlo-lenticular cataract, hardly able to discern light from darkness; suffered frequent headaches. Two or three drops of phosphorized oil were dropped into the eye daily, and frictions of the same used over the forehead. After four months of this treatment was used persevoringly, the eye improved, colors could be distinguished, and the opacity of the lens so far diminished that it could not be discerned at a distance of two or three paces.

An army hisouit, oomposed of one-third rye-flour, one-third beef dried and powdered and one-third sourkrout ground to powder, was used by the Russiau army in the Khiva expedition with great benefit. It was eaten with great relish, and proved highly preservative of health.

Among the strange presoriptions for dyspepsia, black currant leaf tea is recommended.

Physical Life.

It is popularly snpposed that we change our cnnstitntions once in seven years; hut practically svery decade makes n turning point in life. It is not too much to say that, barring accidents, a man can at certain dates docide what manner of death nnd from what class of disease he shall die. The formation of the constitution in early life—say from the age of five to fiftesn—devolves on the nnrse, the mother, and the training in the nursery aud school-room. In the nursery, at any rate, over-feeding is a cardinal vice; but the over-fed children whn eat flesh meat three times a day become so gross and unwieldly as to be a burden to all concerned; while tight stays, tight boots and high hoels develop every evil under the sun, from bunions downward. At this point two years of gymnastics, or a couple of years spent oo board of one our training ships, does wonders for our boys, who get tho use of their arms nud legs to an amazing degree. The athletio work performed by schoolboys nnd university men is perhaps at its best in these days, though most happy is the man who is never overtrained, because he is perpetually in oondiiion. From fifteen to twenty-five n man has to prepare for that legitimate enjoyment of life which should by rights be his. He has in all probability ohosen his profession, memory is at its best, ambition at its highest, and his temptation to burn the candle at both ends—to be n brilliant boon companion, a man whose good tales are remembered, and whose witty sayings are everywhere quoted—is almost irresistible; facility does not come with age, and the best stories grow stale. Of the nnmber of prematurely exhausted intelleots and shortened lives broken down in this way there is no need to tell. Every man's memory will furnish him with a list of names more or less well known.

From 25 to 35 is the true time for all the enjoyment of a man's best powers, when physical vigor is at its highest, and human passion is at its full strength. During the last half of this decade n man should bo assiduous to construct a system of philosophy by which to rule his life, and to contract a chain of habits intelligently, so that they should not sit too tightly upon him, and yet cautiously, so that he should neither be their slave nor too easily cast them aside. The exact proportion of physical and intellectual strength should be gauged, and the constitutional weakness, or, in other words, the disease toward which a tendency exists, should be ascertained. Preserve, if possible, the absolute neoessity for exercise, and have your place of business two or three miles away, over whioh let nothing tempt you to an omnibus or carriage save rain. The day on which a medical man gives up riding to see his conntry patients, or the use of his own legs to see his patients in town, and takes to a close brougham, fixes the date when sedentary diseases are set up—indigestion, liver, kiduey disease, and so on; while if, to utilize his leisure, he reads as he drives, his eyesight becomes seriously affected. From 35 to 45 a man should arrange with his food and square hypochondria. He cannot, it is true, change his diathesis, but he can manage it. The habitual character of food, no less than its qnantity and quality, begins to tell whether it charges the system with fat, muscle, sinew, fiber or watery particles.—*Pall Mall Gazette.*

In regard to the hight which travelers are able to attain, we may state that Alexander von Humboldt, in his ascent of Chimborazo, was compelled to stop at a hight of 16,000 feet, at which point he had to give up from suffocation; but in late years the brothers Schlagintweit ascended the Himalayas, and slept all night in bivouac at a hight of 19,200 feet, and later ascended the peak Ibi Gamin, 22,200 feet high. The English astronomer, Mr. Glaisher, claims that he has ascended to a hight of 26,000 feet without feeling any discomfort, and that only when reaching 32,000 feet he experienced auy very serious feeling of snffocation. No doubt, different constitutions are differently affected; some are unable to resist diminished atmospheric pressure; others, increased pressure. —*Scientific American.*

Cure for Hydrophoria.—A German forest-keoper, 82 years of age, not wishing to carry to the grave with him an important secret, has published in the *Leipsig Journal* a recipe he has used for 50 years, and which he says has saved several men aud a great number of nnimals from n horrible death by hydrophobia. The bite must be bathed as soon as possible with warm viuegar and water, and, when this has drled, a few drops of muriatio acid poured upon the wouud will destroy the poison of the saliva, and relieve the patient from all present or future danger.

Breathing in Rarefied Air.—M. Paul Bort describes in *L'Institut*, a series of experiments made on himself in a receptacle in which the diminution of pressure of air was carried to 25 centimetres—equivalent to an altitude of nearly a mile and three quarters. He found he could avoid all the ill effects of this diminished pressure by breathing a mixture of 60 per cent. oxygen with atmospheric air. This discovery has already been made trial of by aëronauts, who will, by its means, be able to attain hights hitherto impossible.

Chilblains are successfully treated by applications of sulphurous acid solution, by means of a camel's hair brush or by a spray-producer.

Useful Information.

Cotton-Gunpowder Blasting.—Trials nf the cotton-gunpowder manufactured at the works of Oare, near Faversham, of considerable importance, were made last week with great snccess in the fine Kentish ragstone quarries at Preston Hall, nesr Maidstone, from which the proprietor, Mr. Bensted, is now gettiog ont stone for the new snmmer palace of the King of the Belgians. Two ohnrges of 25 pounds of nncompressed powder wore fired hy electricity in holes grubbed in from the vertical face of a cliff at least 50 feet high, along a thick band nf sand parting, soms thonsands of tons of rock heing thereby fissured in all directions, in n way to make easy the fnture operations of weighing or lifting out of the stone for building and other practical purposes. Charges of 100 pounds of ordioary black gunpowder would probably have failed to have given anything like corresponding results, if indeed they would have accomplished any worthy effect at all, nnder the like circumstance of a perfectly horizontal borehole. The interest which attaches to the experiments is thnt this brand of powder oan be manufaotured from beginning to end without any risk whatever of explosions. Some ten-pound charges of the same material were afterwards fired, demonstrating the power of the powder to be more than equal to that of the best gun-cotton; whilst a like oharge of the oompany's strongest blasting powder, manufactured nnder very high pressnre, gave very startling results, rivaling those of the nitro-glycerine oompounds of the first order.—*Colliery Guardian.*

Skimming the Seine.—Of all the things in the world whioh appear utterly worthless, are soap-suds. Mr. Simmonds takes a different view. He tells us that "soap-suds, as n stimulant of vegetable life, can not be too highly appreciated." We oan not go into his arguments on the great value of soap-suds, and it is sufficient to say that, when poured out as n mannre, they are of prodigious efficacy. The French, who are up to everything in the chemical line, have taken a proper view of the value of soap-suds. Whether from private dwellings in Paris, or from the barges of the *blanchisseuses*, the Seine must have a good deal of soap floating about it in a wasteful kind of wny, to say nothing of the greasy pollntion from dead dogs and cats. There was a fortune, if properly looked after. An enterprising firm, tortified by the authority of the Prefect, determined to begin a system of skimming the Seine. Yon would imagine it was a nonsensical idea. Quite a mistake. By uniting the skimmings of the river with the offal from hospitals, the firm is able, hy the aid of chemistry, ateam and cookery, to fatten 8,000 pigs, and to produce annnally 500,000 pounds of soap. Let England touch that if it can! Oan any one mention a town in Great Britain where the most valuable productions are not senselessly floating off down the gutters and sewers, never more to bs of use to human beings?—*Chambers' Journal.*

Moving in a Circle.—In a recent nnmbor of *Nature*, a letter appeared in which it is stated that it is believed in North America that a lost man always strays in a circle toward the left. I may mention that whilst walking in a woody and hilly part of the New Forest I found to my great astonishment that I had described a complete circle, and it was toward the left. My father also tella me that he has been informed, although under what circumstances he does not recollect, that the same idea obtains in Australia. It has been suggested that the reason of this fact (if fact it is) is, that the right side of the body is stronger than the left. In confirmation of the truth of this explanation, it is worthy of notice that Dr. Wm. Ogle finds that men are right-legged as well as right-handed, although the rule has not so nuiversal an application. One of the points adduced by him in evidence is, that bootmakers generally find the right foot larger than the left.—*Cor. Herald of Health.*

Butter and Fats.—Dr. J. Campbell Browu says that the proportions of the chemical constituents vary so greatly (from zero upwards) that no reliable evidence of purity or impurity can be obtained by estimating the different fats obtainable by decomposing butter. In fact, the distinction between pure butter and butter mixed with flesh fats is no more a chemical one than the distinction between different animals or different plants. The physiologist distinguishes one kind of tissue from another more readily by their microscopic characters than by their chemical composition; and microscopical examination with polarised light is the most reliable means of distinguishing pnre butter from that which contains an admixture of less easily digestible and less palatable fats.

Use of Paraffine in Pharmacy.—To keep metallic surfaces from oxidizing, it is only necessary to immerse them in melted paraffine, or paint them over with it. Strips of paper, say Manilla paper, drawn through melted paraffine, will make a very useful covering for bottles, boxes, pots, etc. Carbonate of ammonia can be kept in an original pound bottle perfectly pure and free from contact with the air, by sealing it with paraffine. Prepared paraffine paper is first laid over the mouth of the hottle, the cork is then inserted, and dipped iuto melted paraffine. The cork is in a great measure protected from the ammonia, and will last a long time.—*Druggists' Circular.*

Curious Origin of Fires.

Alfred Tozer, of the Chief Fire Station, Manchester, England, commnnicates ths following paper on the origin of great fires, from a natural history point, to the *Science Gossip:* In one warehouse two instances occurred in which rats gnawed through a lesden gas mniu pipe a few inches above the floor. Other similar instances have occorred of rats gnawing a gas in mistake for a water pipe. It has been thought they heard the water bubbling in the gas pipe, and have not found their mistake until they have penetrated the pipe. The warehouse was on both occasions damaged by fire through some of the employés seeking for the escaping gas with a light.

I have attended and traced several instanoes of fires occurring through rats and mice gnawing lucifer matches. Matches are now dipped in paraffine wax instead of sulphur, as before; the rats or mice have carried them nnder the floor for the purpose of gnawing off the wax; in doing so, their teeth have come in contact with the phosphorus at the ends, and so fired them. In 1856 I attended a fire at the Snltan's Palace, at Scutari, Asia Minor. After the fire I gathered from under the flooring a quantity they had been gnawing. Some years ago a fire occurred in London, oaused through a jackdaw getting at n box of lucifers, and pecking them nntil it set them on fire.

Fires have occurred through rats and mice conveying, nnder the flooring boards, oily and fatty rags, which have afterward spontaneonsly ignited. This is rnther a oommon cause of fires in cotton mills.

The following is an extraot from the Journal of the United Service Institntion for 1868: One of the presents sent to the mnseum for this institution is a rat's nest and young. The nest was set on fire by a lucifer match, ignited by the old rat as she worked it into her nest. Lieutenant Gilmore states that a fire occurred on board H. M. S. *Revenge* from a similar cause.

Cats and dogs have caused fires in various ways, such as upsetting explosive and inflammable things into fires and lights; also through lying inside fenders and under fire places. Hot coals have fallen and adhered to their backs, which caused them to bsat a hasty retreat, no doubt being anxious to get rid of the annoyance as soon as possible. They have sometimes snoceeded by rolling or rnbbing on oarpets, curtains, heds, straw, shavings, and other inflammable things. The last instance I recolleot occurred at a baker's shop. A dog was lying under an oven fire, and a piece of ohip fell from the fire on to his back. He immsdiately ran to some shavings and rolled upon them, at the same time setting them on fire before the eyes of his mastsr. In 1863, three distinot fires were caused in one room of a gentleman's house, through a cat lying inside the fender, when some hot ashes fell out of the fire on to its hack, which oaused it to rush abont the room, when the cinders were deposited in different places, which set fire to the oarpet.

That mischievous animal, the monkey, has lent its aid to the devouring elsment. Fires have occurred through its agenoy in a similar manner to cats and dogs—also through its playing with fire in various ways. In one instance a monkey npset a charooal brazier, and set a room on fire. Many fires have occurred through our domestics hunting bugs and other small fry by the light of a candle or lamp. In their anxiety, especially, to hunt fleas, they forget they may produce an enemy much more to be dreaded. Many fires also occur through persons fumigating apartments to get rid of bugs and various kinds of vermin.

A few instances have occurred through the concentration of the sun's rays upon glass fish globés. A residence was set on firs through the concentration of the snn's rays upon a water oroft standing upon a table. Colored bottles in chemists' shops, cracks, and bull's eyes in glass have been known to focus sufficient heat from the sun to set buildinga on fire.

Birds' nests nnder the eaves and wooden crevices of houses have been frequently set on fire throngh sparks from a neighboring chimney, and have contained sufficient inflammable matter to set fire to the buildings.

Although I have given the dogs the credit of producing work for the firemen, still it would not be fair if I were to omit to mention that they have frequently discovered and given timely notice of fires; and many an aneodnte can be told of the very great interest dogs take in and at fires.

Kalsominino Fluid.—The following is commended as a good kalsomining fluid for walls: White glue, 1 lb.; white zinc, 10 lbs.; Paris white, 5 lbs.; water, suffioient. Soak the glue over night in three quarts of water, then add as much water again, and heat on a water bath till the glue is dissolved. In another pail put the two powders and pour on hot water, stirring all the time, until the liquid appears like thick milk. Mingle the two liquids together, stir thoroughly, and apply to the wall with a white-wash brush.—*Jour. of Chem.*

Exhibiting Photographs. — The effect of photographic transparencies in the microscope, as well as on the screen, is greatly improved by placing a pale blue glass in the path of the illuminating beam. This correots the brown or "foxy" tone which they too often present, and gives depth and richness to the shadows.—*Scientific American.*

Whether carbon exists at all as an impurity in zinc is donbtful, if we consider the mode of its extraction.

MINING AND SCIENTIFIC PRESS.

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San Francisco:
Saturday Morning, August 1, 1874.

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H. B. PLATT, contractor of the Stockton and Ione Narrow Gauge Railroad, has entered into a contract with the owners of the Ione or Arroyo Seco grant, whereby he obtains control of the coal bede on the grant. Platt agrees to pay fifty cents per ton for the coal, and take it from the mines himself. The beds are supposed to be extensive and the quality of the fuel is good. He further agrees to remove 1,000 ons per month.

THE Spring Valley Canal and Mining Co., of Cherokee, have contracted with Samuel McCarffer to construct a ditch commencing at the high lands of Day creek and reaching a point on the road known as McCargar ranch. The contemplated ditch will open up a large tract of valuable mining land in the part of Butte county.

AN important case of Shaffer against the Milton Mining Co. is occupying the attention of the courts in Nevada county. The suit is brought to recover damages for injuries received by plaintiff while working in defendants' mine, from neglect on their part to provide for the safety of men working in the mine.

LUMBER MILLS.—All the owners of lumber mills on Truckee river and branches, with one exception, have formed a combination, and incorporated under the name of Sierra Nevada Lumber Association. The object is to fix a uniform price at which to sell their products.

THERE are three surveying parties in the field, on San Juan island, looking up sites for fortifications, and examining into their probable cost. They are pushing the work, and expect to have it finished by the 15th of September.

THE HOLLY SYSTEM.—The Sacramento *Union* is disgusted with the Holly system of water works in use in that city, and says "if a vote was to be taken on the subject, it would be spurned with contempt."—[The vote?]

IT is stated that the Pittsburg mine, in Nevada county, was owned by Dr. Merritt and the late W. B. Bourn. At one time it made $20,000 and $30,000 per month.

A NEW town is being laid out about two miles southeast of Middletown, Lake county, and near the Great Western quicksilver mine.

The Caracoles Mines.

Our readers frequently hear mention made of the Caracoles mines, but perhaps few know anything about them. In conversation with a gentleman recently from there, we gleaned some facts which may be of interest. The mines are situated about 110 miles from the port of Antofagasta, *now* the principal sea-port of Bolivia, South America, though at the time of the discovery of the mines it was only known as a port on the coast where the house of Gibbs & Co., of London and Valparaiso, shipped some thousands of quintals of nitrate of soda annually. This product was extracted at a place called Salar, some 17 miles inland from Antofagasta. At that time the population did not exceed perhaps 50 persons; now there are 5,000 or 6,000 inhabitants, with the usual accompaniments of civilization, such as public and private schools, churches, theaters, etc.

The Caracoles mines were discovered in July 1869 by Juan Diae Gana, a Chilian miner, who, contrary to the usual fortune of discoverers, in 1872 realized $1,500,000 for about three-quarters of the interests in different mines and parts of mines he had acquired. Previous to his discovery he had found it difficult to meet the demands of his landlord and tailor, being rather hard up. He was a man of fair education and had been a book-keeper at one time; and his actions, since he so suddenly acquired fortune, show a well balanced mind, good heart, and more than an ordinary share of good, sound, common sense. His first act, after receiving his money, was to relieve in a very generous manner the necessities of some of his relatives, and afterwards to settle down in a quiet, unostentatious way, with but little difference from his previous style of living excepting, perhaps, indulging more frequently in the "Zamba-cueca," the national dance of Chili; but not by any means in dissipation. He named his discovery "Caracolee," meaning in Spanish, "snaile" or "sea shelle," from the great quantity of *ammonites* and other kinds of petrified sea shells which were found by the first prospectors, although the mountains are between 8,000 and 9,000 feet above sea level.

Around Antofagasta, from there to the mines and to the summits of the Cordilleras, some 60 or 70 miles east of Caracoles, the country is a perfect desert. For a person who has always lived in a country where there is vegetation, it is natural to suppose that where there is land, there will be found animals and birds or at least some kinds of insects; but this country is an instance of plenty of solid ground, without a trace of animal life, excepting of course, the kind of animal life incident to the influx of 5,000 or 6,000 people comprising the population of Caracoles. Our informant says that he passed some two months in the district, and in all that time saw only one bird—a kind of hawk—and he seemed to getting away as fast as possible. Rain very seldom falls in that part of the country on the west side of the mountains and water is an expensive luxury. In 1872 it was selling at 50 cents per gallon, and of rather an ordinary quality at that; but considering that it had to be brought about 20 miles on the back of a donkey, whose feed cost 10 or 12 cents per pound, the price was not exorbitant.

Although there have been considerable quantities—in value—of ores taken from these mines, containing from 10 to 40 per cent. in silver, the real value of the mines depends on the great abundance of ore of a medium grade, containing from .001 to .01 of silver. Up to the present time, however, owing to lack of railroad communication, which it is expected will soon be established, ores containing less than .003 of silver do not pay. Some idea of the extent of the district can be formed from the fact that in March, 1872, according to the "Registra de Minas, Official," there had been over 10,000 mines "denounced" or claimed. In more than half of these there were probably "signs" of silver; others were claimed for their location near mines where silver had been found. These claims extended over an area of country nine or ten miles long by four or five miles wide. Of course it is not to be expected that one in ten of these claims will ever be paying mines; but if one in twenty, or even one in forty, should prove to be good, it is still a very extensive silver-bearing region.

The mines have not been developed so much as would be supposed by the amount of capital—nearly $20,000,000—which has been expended upon them, owing to the great number of claims among which this money has been distributed. Probably eighty per cent. of this capital was furnished from Chili, and nearly the same proportion of the inhabitants are Chilians. Through the last six months of 1872 and the first of 1873, those who had furnished this capital began to feel rather doubtful whether they would ever see it again, and mining shares in Caracoles were at a terrible discount in the stock market of Valparaiso; but, during the last six months of 1873 and the first three of this year, the mines had yielded very fair returns—or, at least, quite a number of them have done so. Here is what a correspondent of the *Caracolino*, a mining and commercial journal published in Antofagasta, says of the state of the mines, in April. It speaks of some dozen or so of the principal mines:

Of the Deseada mine the vertical depth is approximately 590 feet. The work is carried on with celerity. The state of the mine, for the abundance of ore already in sight, could not be more favorable. The monthly production of this mine is represented to be from 20,000 to 25,000 marks of fine silver. (One mark equals eight ounces avoirdupois). It can be said, without exaggeration, that the ore already in sight will keep this mine running for some years to come. In 1873 the mine produced 6,052 tons of ore, which contained of fine silver 75,710 kilogrammes, showing an average grade of ores containing a little over .013 per cent. of silver. (920 kilogrammes equal a ton of 2,000 pounds, or 1 kilogramme equals 2.17 pounds). In the first three months of 1874 the production showed an increase of 4,405 kilogrammes over the same months in 1873.

In the "Cautiva" (Captive) mine the production for 1873 was 1,305,389 kilogrammes of ore, producing 11,903 kilogrammes of silver. The first three months of 1874 shows an increase of 1,056 kilogrammes of fine silver over the first three months of 1873. The future of this mine is supposed to be similar to that of the "Deseada."

In the "Flor del Desierto" (Flower of the Desert) they have found the best ores at a vertical depth of 80 meters. They are turning out from 3,000 to 4,000 marks per month. The mine produced in 1873 about 807,766 kilogrammes of ore, producing 9,038 kilogrammes of silver showing an average grade of ore containing about .011 per cent. of silver. Increase of the first three months of 1874 over first quarter of 1873, 512 kilogrammes fine silver. The correspondent referred to speaks very favorably of some eight or ten other mines, and in conclusion draws a very flattering picture of the future of Caracoles. Seen from his point of view, and with his opinion sustained by his statistics, it certainly looks reasonable. Different news, however, comes from the old mining districts of the north of Chili, in the vicinity of Copiapo, such as Chanarcillo, Tres Puntae and Lomas Bayas. All three of these districts are producing small quantities of silver ore of a low grade, and what is still worse for Copiapo, the price of copper is so low in England that many of her mines have stopped work. They have a gleam of light, however, in the long-talked-of railroad from Caldera—the port — passing through Copiapo, which is 50 miles inland, and up through the valley across the Cordilleras into the Argentine Republic. Unfortunately this is only talked of as yet; but there may soon be some action taken concerning it.

Under the Willows.

The recent army-worm scare at Sacramento should teach a lesson of prudence to those who tolerate willow trees about their premises. The worms are supposed to have been propagated in the willows which abound in that vicinity. The willow is a dangerous tree in this respect. There is scarcely a tree to which worms of the caterpillar class resort so much as to this. They, however, do but little injury to it; using it as a rendezvous for their armies, if they do not actually originate there. It being also remarkable for its uselessness, it should meet with little favor at the hands of property holders. We have known cases where one willow tree would harbor caterpillars sufficient in numbers to become a nuisance to a moderate-sized village.

We are not going to criticize the taste which favors this tree, but the same taste can be gratified by the presence of trees of similar appearance, but less objectionable in other respects. Although it is very tenacious of life in spots favoring its growth, it is very exacting in its requirements, and will only grow in such soil as with drainage would produce almost anything in profusion. It is extremely unconguial, unneighborly and "clannish" in its habits; other trees and all kinds of vegetation seeming to shun its presence. There are reasons for suspecting that its influence on animal life is deleterious; for there is scarcely a tree to which men and animals resort less for pleasure or comfort than to the willow.

The basket-willow is grown with considerable profit where the manufacture of willow ware creates a market for it; and we can see no obstacles to the development of this business in California. But the growth of the basket-willow would not necessarily favor the army-worm or any other vermin of the caterpillar kind, the growth being of one season only, and the attention and cultivation which they demand being of a character that allows of no approach of such worms.

LARGE ENGINES.—The new iron steamship "City of Peking," built by John Roach for the Pacific Mail Steamship Company, will have immense engines. Her boilers, 14 in number, were put into her three weeks ago. There are four cylinders, two high and two of low pressure and are respectively 88 and 51 inches in diameter, representing 6,000-horse power. The screw weighs over six tons. The screw shaft is made in sections, is 24 inches in diameter, and extends 200 ft. to the stern. The powerful boilers and pumping engines are placed near the forecastle, abreast of the steerage cabin, and can be used to their full extent, even if the hold is half full of water. As a preparation against fire or leakage, 11 donkey engines have been placed in different parts of the vessel.

QUICKSILVER.—Two hundred and twenty-seven flasks of quicksilver were shipped through Napa during the week ending July 18th, as follows: Redington mine, 185 flasks; California mine, 18 flasks; Phœnix mine, 14 flasks; Manhattan mine, 10 flasks.

The Foot-prints of Pomona in San Francisco.

Apricots still linger about our fruit stands, crowded to the back shelves by some of the latest favorites. Red currants are also with us yet, prices advancing somewhat as the supply diminishes. Blackberries are in their flush season. This fruit is gradually improving under the experimental culture of our fruit-growers, and some of the varieties now in market are exceedingly attractive and luscious; the seed of the berry being scarcely perceptible. Some of the better varieties of pears are finding their way into market, but we can hardly say as much for the apples; still, being aware that the best and most enduring things mature slowly, we await trustfully the approach of the more select varieties of this peer of all fruits. More attractive grapes are now cluttering about the fruit-stands. As to the peaches now being offered for sale, it is to be hoped that the stranger within our gates will not consider them as fair samples of what California can do in this line. The coming peach will undoubtedly be along before another fortnight. A few cherries are left blooming almost alone.

The black currant now appears in our market as a sort of novelty in the eyes of Californians; 25 cents per lb: being charged for the first invoices, and not very good ones at that. We have on former occasions alluded to this fruit, and urged our small fruit culturists to include it in their lists. It is known as one of the most healthful of fruits, and the bush is exceedingly hardy. The strong odor which the foliage exhales not only repels from itself all destructive worms and insects, but is a protection for neighboring bushes and other vegetation. When the currant worm nearly drove the red currant out of the gardens of the East, the black currant remained unmolested. Its peculiar flavor, it is true, requires a little education on the part of the consumer to render it palatable; but when the taste is once acquired it becomes a lasting favorite; and the strong odor from the leaves is remarkably invigorating. In England the black currant is a standard favorite, and is highly esteemed—for puddings, especially. It is hardly an abundant a bearer as its red brother of the garden, but the hardiness of the bush, with its uniformity in bearing, place it among the most reliable of fruits.

We have plums also in market, but they are rather hard and dry. Probably we shall have better by and by, though this is one of the fruits that Eastern people are particularly inclined to crow about when a comparison is drawn between their own fruit and ours. California fruit-growers should look to their laurels in this matter.

THE Kimball Manufacturing company are building the rolling stock for the Saucelito narrow gauge railroad. The business of the Kimball company has increased to such proportions as to necessitate the leasing of the property on Fourth street opposite their works, with a frontage of 130 feet. Their weekly pay roll involves a disbursement of about $10,000. The new buildings will be occupied by the carriage department. The portion of the works vacated by the carriage-makers will be devoted to the manufacture of furniture for the Palace Hotel.

LOS ANGELES.—Says the Los Angelee *Express:* "Los Angeles has a woolen mill, iron foundry, two brick-yards, an ice factory, tannery, two flour mills, two candy factories (wholesale), book-bindery, three daily newspapers, five weeklies, two monthlies, five hotels, three banks, a school house—accommodation for 1,500 children, a large number of wine-brandy distilleries, and is sadly in need of a new theater."

DIEBOLD, Morris & Co., of Canton, Ohio, have been awarded the contract for furnishing the safes for the San Francisco Safe Deposit Company. There is to be one large vault with 4,600 small safes inside it. The contract amounts to $100,000.

IT is proposed to prospect the bed of the Upper Missouri for gold, the idea being that if the Jefferson mines are good and extensive; the bed of the Missouri will prove better and more extensive.

WILLIAM FITCH and H. C. Firebaugh have discovered a chrome iron mine within two miles of Healdsburg. The ore appears to be of good quality, with indications of an inexhaustible supply.

THE Cunard fleet consists of 49 steamers, of 90,000 tons and 15,000 horse power, and employs 6,000 men. Last year the company shipped and discharged 42,000 sailors.

THE Sacramento *Bee* says that those who have prospected and examined, state that within easy distance of Sacramento there are vast beds of iron ore, of the best quality.

J. H. THOMAS, of La Porte, just returned from the East, has effected a sale of the Buckeye claim, Plumas county, to New York capitalists, for the sum of $100,000.

A REDWOOD tree was recently cut near Guerneville, from which was sawed over 52,000 feet of clear lumber.

WORK will shortly be commenced on the branch railroad from Colusa to Woodland.

The Comet and the Weather.

"Is he gone and hath nothing?" —*Mercutio.*

Perhaps some of our readers may have been led to exclaim, on the sudden and quiet disappearance of our late celestial visitor, with Mercutio, after his encounter with the "furious Tybalt," that he has been suffered to take his departure with too little ceremony or note—that he is gone and hath nothing. No doubt astronomers have embraced, to the utmost extent, all the manifold advantages which they now possess over observers on previous occasions, in securing every attainable fact which has been placed within their reach, as to all the various phenomena connected with these curious wanderers in space, and that in due time all the information gained will be spread before the public. These observations will no doubt do much to remove from the public mind the superstition which heretofore has so generally endowed them with attributes of terror, and caused them to be regarded as harbingers of disaster. It is scarcely a matter of wonder, considering the imposing appearance which they sometimes assume, that, until modern astronomy gave us a little insight into their true character, and the laws by which they are governed, they should be looked upon as appearances to be dreaded. Many of our poets, by their bombastic descriptions, have done much to confirm and perpetuate these superstitious notions. Instance the following allusion to several of these visitors by Du Barta:

"Here, in the night appears a flaming spire,
There, a fierce dragon, folded all in fire;
Here, with long, bloody hairs, a blazing star
Threatens the world with famine, plague and war;
To princes death, to kingdoms many crosses;
To all estates inevitable losses;
To herdsmen rot, to plowmen hapless seasons,
To sailors storms, to cities civil treasons."

Happily, however, the day of superstition is fast passing away, and comets are now known and generally regarded to be harmless, homeless wanderers in space, consisting, for the most part, of such attenuated forms of gas that they could scarcely penetrate even the highly rarified substance of the outer atmosphere of this earth; while their tails are literally nonentities, so far as substance is concerned, the mere shadowy reflections of polarized light. They no longer terrify or disquiet, save when ignorance is most gross, and so unnecessarily as to be more deserving of contempt than pity.

Do Comets Affect the Weather?

The attribute of danger from the presence of comets has now been pretty well eliminated from the minds of men; but there is nevertheless a very strong probability that the near approach of one of these bodies to the earth may to some extent effect the meteorological condition of our atmosphere, and thereby cause an unusual prevalence of storms. Either such is the case, or there is a most remarkable coincidence between the occurrence of such things and the near approach of comets, as may be seen from the following recorded facts:

During the presence of the comet of 1783, a very dense fog continued for fully a month over nearly or quite all Europe, Africa and North America. So far as could be determined by the inferior means of observation then available, this fog appeared at about the same day in all this widely extended area. The fog rose above the loftiest mountains; was not dissipated by even the heaviest rains or highest wind. It is said to have been a very dry fog, producing no especial effect upon the hygrometer, and to a certain extent possessing the property of phosphorescence.

The same or very similar phenomena were observed during the near approach of the comet of 1831, the tail of which was thought to have swept over and completely immersed the earth within its supposed substance.

The comet of 1826 was accompanied by unusually heavy rains, and consequent inundations.

The brilliant comet of March, 1843, seemed to have brought with it unusually cold and severe weather. The season was unfavorable for fogs and rains.

That of 1856 brought with it a dense and unpleasant fog, which was very general and lasted three weeks.

The comet of 1861 was noted for a series of tornadoes in regions separated by thousands of miles, and accompanied by most unusual electrical phenomena. Water spouts were numerous, often attended with severe inundations. These phenomena reached their culminating point during the day on which the comet made its nearest approach to the earth.

And now, at the very time when the visitor which has just left us was sweeping by us at its nearest approach, the Storm King has been holding a most terribly destructive course. The eastern side of the continent has been swept by innumerable thunder storms, while scores of human beings have been suddenly struck down by lightning. Every storm that passed seemed to have hurled thousands of thunder bolts upon the earth, scattering dwellings, churches and trees into splinters.

The terrible outburst from the clouds at and around Pittsburg, Pa., surpasses any disaster of the kind, perhaps, of which we have any record, especially in the sacrifice of human life. From various parts of the State of Nevada, from Arizona and Southern California comes the same terrible word of destruction by storm and rain. These storms, so sudden, so much of the same character, so far apart geographically, coming so simultaneously with the nearest approach of the comet, and taken in connection with so many similar coincidences in times past, would seem, very naturally, to suggest, in the mind of the inquirer, some connection between the two. The supposition is barely possible, but we leave the problem to the researches of those especially learned in comet lore.

Ground Sluicing.

Our illustration shows a party of miners "ground sluicing," in the early days of California mining. At that time our system of hydraulic mining was unknown, and the immense beds of gravel now worked were untouched. Then only the richer portions of the high banks were worked by drifts or otherwise, and after the best part was taken out the mine was abandoned as worthless. Ground sluicing was the favorite method employed for washing low banks where the quantity of water available and the lay of the land permitted it to be employed. By this process a comparatively large area of ground could be worked in a short time, the earth and rocks being dumped into the ground sluice and worked out by means of a heavy stream of water. But since the perfection of hydraulicing has been reached, this process of ground sluicing is too slow, and it is only in certain localities that it is ever used. The scene shown in our engraving will be a familiar one to most miners who have worked in the California gravel mines.

MINERS "GROUND SLUICING."

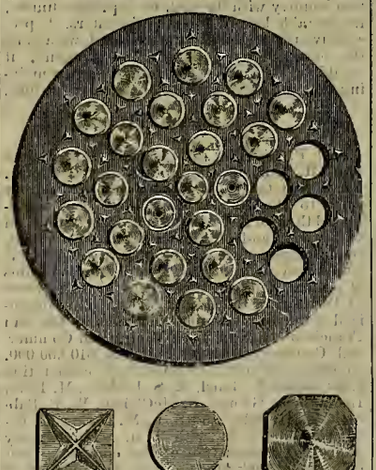
Lynch's Patent Illuminating Tile.

In cities, where every foot of space is utilized, and where every floor of a building, avant to the seventh and eighth stories, yields its proportion of rent and profit, it is also found to be profitable and necessary to construct basement stories and cellars. These basements are at best but dark, cheerless, gloomy places, being only lighted by an overhead dead light or illuminating tile which yields a muffled illumination. This light is usually sufficient, however, to relieve the darkness and enable a person to move around without groping. Besides being dark and gloomy these basements are always damp and have a musty smell because no fresh air, except what passes down through an open hatchway or perchance rushes in through a temporarily open door, can get into them. Mr. William Lynch, of this city, has recently secured a patent through the Mining and Scientific Press Patent Agency for an improved illuminating tile which is also a ventilating tile, being provided with a sufficient number of metal blanks, each of which has a ventilating opening, to furnish fresh air to the basement or cellar.

The illustration herewith given represents an illuminating tile, and the separate diagrams at the side of the tile represent the glass blocks which are fitted into the tile frame, for allowing light to pass through. Mr. Lynch in addition to these glass blocks provides a ventilating block or blank which can be inserted in the frame alternately with the glass blocks, and in the same manner. The ventilating blank is made in the shape of an inverted cup and has an opening in its top.

This cup-shaped block is made of the proper size to fit in the dead light openings of the frame, when it is inverted, thus bringing the bottom of the cup with the hole in it, above the level of the frame and approximately level with the upper surfaces of the glass lights.

The hole serves to ventilate the basement, cellar or other place. As many ventilating blocks are inserted as may be required; and their position can be adjusted to suit, as they will fit in either of the openings in the frame. These ventilating blocks are secured in place with cement or by other convenient means in the same manner that the glass lights are secured. For further particulars address William Lynch, San Francisco, Cal.



Lynch's Patent Illuminating Tile.

Yellow Jacket.—The annual election of this company was held at Gold Hill on the 20th ult. The old board of officers was re-elected. The *News* takes the following items of interest from the reports of the officers:

Balance on hand July 1st, 1873		$37,427 89
Received from assessment No. 16	120,000 00	
" " " No. 17	120,000 00	
Rents and advertising	1,055 50	
From sale of machinery	4,139 43	
From Belcher Mining Co. for hoisting	79,281 37	
		$361,904,19
CONTRA:		
Amount of disbursements for y't	$321,045 67	
Cash on hand	21,428 55	
Stock on hand	19,429 87	
		$361,904 19

Prospecting in the mine has been carried on most assiduously, but with poor success. The lode continues very regular in make and dip, carrying an average width between clay walls of upwards of 300 feet; are now drifting for ledge on the 1,740-foot level, which is 273 feet vertically below the level of the Sutro tunnel. This new level, it is hoped, will carry them below the barren belt which has continued from the 940-ft. or last ore-producing level. They hoisted during the past year for the Belcher mine, 50,127 tons ore. The machinery of the mine, both pumping and hoisting, is all in good working condition.

Crofutt's patent life-protector, which we illustrated and described a short time since, was tested this week by the Chief Engineer of the San Francisco Fire Department. In a room of small proportions smoke was produced from pulu and tobacco, and became so dense that the daylight could not be seen through the large glass door. Then four men, with the protectors over their faces, remained inside for more than half an hour without, as they state, experiencing the slightest difficulty in breathing, and could have stayed as long again with impunity, so that the experiment was a success.

The ore breasts on the 1,300-ft. level of the Consolidated Virginia mine are looking well and yielding splendidly, showing no signs whatever of a diminution in the amount of ore being extracted from that portion of the mine.

New Placer Mines.—A dispatch from Elko, Nev., dated the 27th ult., says: A half interest in a gravel mine in the new placer mining district, 70 miles north of here, on the head waters of the Bruno river, was sold to day for $60,000 to a San Francisco company. These mines were discovered last fall, and but little confidence has been felt in them until very recently, when developments were made showing a 15-foot bed of gravel carrying from ten cents to a dollar to the pan. The new diggings are very extensive, covering an area of ten miles, and are situated on a high plateau between the head waters of the north fork of the Humboldt and Bruno rivers, the latter being a tributary to Snake river. A genuine gold fever is now raging, and the prospectors are making locations rapidly; but owing to the scarcity of water very little can be done this summer.

R. E. Osgood, contractor and builder of bridges, commenced, on Monday, the construction of the two large bridges near the beach for the San Luis Obispo Railroad Co. The first bridge is 1,000 feet in length and 50 in hight, and the second 900 feet in length and 40 in hight.

Mexican Mines.—A Mazatlan correspondent says: Of mining reports, we hear that the new gold diggings discovered near Chororse, in Chihuahua, give brilliant returns, nuggets of two pounds' weight having been found. An American company is now working the silver mines of El Parral, and other American companies are working different mines in the Sierra Madre. At Zacualyan the famous Alaeran mine is again in *bonanza*, but the same cannot be said of the Alaeran mine, in this State, worked by an American company, though offering good prospects. There is much American capital invested in Mexican mines, particularly on this coast, in Sinaloa, Sonora, and Lower California.

Anthracite.—The Puget Sound *Courier* says a party of explorers, who recently left Olympia in search of anthracite coal, have returned, bringing with them specimens of the croppings of a coal vein, which bears a nearer resemblance to anthracite, both in appearance and specific gravity, than anything heretofore discovered in the Territory. And what is still more in its favor is that it is nearer the Sound than the Packwood discovery, and there is an easy grade for a railroad from Olympia to the mine, and a direct and practicable route to Walla Walla. Five veins of lead ore have been discovered but a few miles from these coal deposits.

The Cedar Creek company have started up and commenced piping in their lower claim, the Yankee, having made the first connections with their tunnel. They are using one of Hoskin's Little Giants with 510 feet pressure in the discharge.

A large invoice of California furniture was shipped by J. C. Palmer & Co., of this city, to the Sandwich Islands during the week. This firm is also making a superb mantel of California laurel, to be sent to England as an example of California wood and work.

The Panamint Mines.

From a letter written by J. W. Whitlatch, published in the Enreka *Sentinel*, we meke the extracts given below. We may state that Mr. Whitlstch, who is connected with the California ore sampling works of this city, has made several extended trips through the various mining districts in the southern part of the State, and has carefully examined the prospects of all. He says: I have been to Panamint district, and have given it a searching investigation. It is a fine prospect on the surface, but I do not believe the mineral will extend to any great depth. I am satisfied the lodes will go down, but am afraid the mineral will not. In every case where sinking has been done to the depth of 20 feet, the ore becomes poorer in most of the leeds. Still, there is mineral as far as any sinking has been done, but it is confined to lines or streaks, not extending through the whole mass.

The Wonder of the World, or, as it is commonly called, "Jacob's Wonder," is a fair representative mine of the district. The mineral is a black, copper ore, and the vein carries considerable silver or carbonate copper in spots, while on the ontside nearer the wall rock the quartz is barren. It is fair to say that out of seven feet two is good ore; but not much, if any more will pay. The Mexicans have been running a sort of smelting works, which is but a small concern run by an ordinary 46-inch bellows. They have also an arrastra which they have been working. Two tons of ore, selected as a sample of the best ore, were taken from the Hemlock and sent to Cerro Gordo and produced $490. This, I should say, was a very good general sample of the district. Some portions may be better, others poorer. Black lime is found mixed through the ore deposit and large bowlders, weighing from three to four tons, appear on the surface. Between these bowlders, streaks, two and three feet in width, of chloride, rich as any ever found in old Austin, are found. What we used to call bromide silver is also found. Take any of this ore and put it in a forge and it will blister out equally as well as the old Yankee Blade ore of Union district. It is impossible for any one to make head or tail of this singular deposit, still I think they will succeed in finding a defined lead. At all events, the owners have a fortune in sight—at least $50,000. The ore appears to be a grayish looking sulphuret; the quartz is white, of a fine, soft texture, fully charged with mineral, and will yield 80 per cent. of its metal by the ordinary mill process.

The road to reach the Panamint mines is hard to travel—heavy sand and high mountains to pass over. The distance to Tulare, the present terminus of the railroad, coming from San Francisco via Bakersfield and Havilah by stage to Indian Welle, is 140 miles; from Indinn Welle to the mines, over a frightfully heavy, sandy road, 80 miles; and coming in by way of Los Angeles it is all of 250 miles.

Panamint valley is 1,350 feet above, and Death valley, on the east side, is 240 feet below the level of the sea. The mines are situated all the way from 6,000 to 8,000 feet high. The major part of the mountains, until you have attained an elevation of 7,000 feet, are barren of any soil or earth—all solid rock. The hill sides are so steep that it is impossible to take a horse to any of the mines, without first making a trail. A good road is built in Surprise canon from Panamint valley to the spot selected for the town site, at the upper springs.

I have no doubt but what a general stampede will occur sooner or later to this place, but not until next spring, as no money can be made until the machinery arrives and is put in operation.

Any one putting up a mill in Panamint now would certainly make a fortune; as the chance for ore to mill is a "dead shot," and can be furnished in abundance. I visited thirteen mines or prospects that show a large quantity of rock, and the chance for mining good ore out of any of the mines is splendid. Nature seems to have done for this camp more real prospecting than any place I ever saw.

The greatest expense will be to build roads to and from the mines, in order to get the ore to the mills. The mines are scattered over a large scope of country, although you can go to the summit of the mountains and take in the whole country. Still, it will require, at least, five days of hard labor to get to all the mines. I did four of the hardest days' work I ever accomplished in my life, to see for myself the different locations. On a clear day, by going to the summit of the mountain, Ord District, Ivanpaw, Cerro Gordo, the Sierras, and the Fort Tejon mountains can be plainly seen. Death valley stretches its barren waste along the eastern base of the mountain, and west of the valley. But little grass is found in the country, and provender for animals will always command a high price. I am convinced that it will be a rich camp.

John Martin and W. B. Pierce have discovered a rich ledge 15 miles from Holcomb valley, or 30 miles from San Bernardino. Tests have been made of the ore, some of which goes as high as $150 per ton, and averaging, all through, $50.

Varnish for White Woods.—Dissolve three pounds of bleached shellac in one gallon of spirit of wine; strain, and add one and one-half more gallons of spirit. If the shellac is pure and white, this will make a beautifully clear covering for white wooden articles.

Prospects of our Mining Counties.

The Calaveras *Chronicle* says: The present condition of our mining counties is not very encouraging. People are continually leaving. Rivers whose beds 12 or 14 years since were turned for miles, and whose banks were the scenes of great activity, are now quite deserted. One may travel for miles seeing naught save the traces of former settlements, dismantled, roofless cabins, lone chimneys, and the graveyards on the hillside. They hold nearly all that remain. It is quite similar with many camps in the upland dry diggings. Places formerly containing a population numbering several thousand, are now concentrated about a nucleus of a few saloons, stores, the post-office, express office and other establishments necessary to supply the wants of the sparse surrounding population. In the country deserted ranches are ominously frequent.

We believe that this condition of affairs will only be of temporary duration. These localities contain the elements of great wealth and prosperity. The production of mineral is not exhausted. On the mountains may be grown fruits and vegetables peculiar not merely to our own latitude, but to that of the tropics. These also are of superior quality. Grapes grown at the elevation found here make a wine superior in flavor and of more body than can be produced in the valleys. The mountain potatoes which are raised 15 or 20 miles east of Sonora, Tuolumne county, and which can be grown throughout the foot-hill region, rival those of Nova Scotia, the favorites of the New York market. Following up from the foot-hills the gradual elevation of the western slope, we pass through many gradations of climate. At one level are found only the wet and dry season of California. Less than 30 miles distant to the westward, and 2,000 feet of elevation, afford us a climatic alternation closely resembling spring, summer, fall and winter of the New England year.

The communication by railroad with the East being long since completed, the rush of immigration hither has been immense. Thousands upon thousands have been added to our population. They are aware that gold still exists here, and gold yet possesses for the Eastern immigrant a powerful attraction. Of course, the rich lowland valleys, capable of producing the cereals, will be filled up first, but this influx must spread to other sections. They will be forced to these mountain ranges. Land here will be cheap. The soil is generous in yielding a subsistance. Many a solitary miner supplies himself with vegetables by a few moments of labor each day, on a little plat of land. Men will buy with their acres indications at least of the presence in the soil or ledge of gold, silver, copper and other minerals. The chances of such wealth will lend additional value to their possessions. The turning up of the soil will from time to time reveal such treasure. The construction, by the miner, of the long line of ditches affords great facilities for irrigation.

Can it be that a region possessing all these and other advantages we cannot here mention should remain long unappropriated? Were it possible to transport a section of this mountain country with its soil, its equable climate, its desirable lack of long, hard winters, its prospective underground treasure, set down among the bleak barren hills of New England, it would by contrast seem, even though remaining wild and uncultivated, an earthly paradise.

The Diamond Fizzle.

Joel F. Lightner has brought suit against Wm. M. Lent, in the Fourth District Court. Plaintiff states in his complaint that shortly prior to the 30th of July, 1872, Lent represented that he had recently purchased mines of vast extent, and of almost fabulous richness, containing an inexhaustible quantity of precious stones and gems, of the value of many millions of dollars, situated somewhere in some State or Territory of the United States. Lent organized a corporation under the name of the San Francisco and New York Mining and Commercial Company, with a capital of $10,000,000. In order to inspire confidence in the corporation Lent caused A. Gausl, M. S. Latham, M. Dore, Louis Sloss, George B. McClellan, W. F. Babcock, T. H. Selby and S. L. M. Barlow to become co-directors with him. Immediately after the organization of the company, Lent offered the stock for sale in the open market at $40 per share, gold coin. That, in order to induce people to purchase the stock, Lent represented that whoever purchased any of his stock in the company would only pay the price that it cost him. During the time Lent was offering the stock for sale he kept on exhibition at his office a collection of diamonds, rubies and other precious stones, which he represented were the products of the mines, and to the value of $750,000. Lightner further says that, relying on the statements of defendant, on the 8th of August, 1872, he purchased 500 shares, and paid him through his authorized agent, the sum of $20,000. Lightner says that the precious stones exhibited to the public were procured in London, or other markets of the world, and were sent to San Francisco for the fraudulent purpose of causing it to be believed that they had been procured from the mines. That the collection did not exceed in value the sum of $5,000. That the corporation did not own any mine of precious stones, as represented, and Lent refuses to return the money. Plaintiff asks judgment for $20,000, with interest from August 8, 1872, in gold coin.

Mica.

This mineral is sometimes erroneously called "isinglass," "muscovy glass," etc. Its name signifies to shine, to glitter, from this conspicuous characteristic which it possesses; it is of common occurrence in primitive and secondary formations; is one of the chief constituents of granite, mica-schist, and, to a small extent, of gneiss. In limestone it forms masses, pockets, beds and veins, often of considerable size. In granite the plates or crystals are small, mostly under an inch in diameter, though in some coarse granitic formations a foot and upward. In Siberia plates have been met with as much as five and seven feet across.

The group of micas may be classified in two divisions. Those which are silicates of alumina and alkalines, as muscovite, lepidolite, and the magnesian micas, as phlogopite, biotite, etc. All are readily distinguishable for their brilliant lustre or glitter, whence the name, as well as for their very distinct cleavage in one direction and tough foliaceous structure, which permits of separation into very thin sheets. The two species described below are very valuable in commerce.

Muscovite is essentially a silicate of alumina and potash, with occasionally a small and varying quantity of iron, traces of fluorine, and in some of the green varieties chromium; crystallization, trimetric, usually six-sided tables; color, black, brown, silvery-white, gray, green, with pearly, pseudo-metallic lustre; not attacked by acids; refractory, only fusing on thin edges before blow-pipe; laminæ very tough and flexible.

Phlogopite. — Magnesian mica; composition, silica, alumina and magnesia, with traces of iron, potash with soda and fluorine; crystallization similar to the foregoing; color, brown, reddish-brown, yellowish-brown, olive-green, gray, with pearly lustre; whitene in blow-pipe flame and melts on thin edges; when reduced to a fine powder, attacked by hot sulphuric acid, the silica separating in thin scales; also like muscovite, so tough and elastic that it can be split into sheets of extreme tenuity. This species is mostly found in limestone.

The early history of mica and its uses are obscure. But the researches of Professor Kerr in North Caroline have brought to light very ancient and probably the remains of the most extensive mica mines that are known in any country. These operations were invariably in ledges of coarse granite which contain nothing but patches of mica. The size and number of these mines are said to be remarkable; some of the open cuts are 100 feet in diameter and 30 feet deep. Tunnels also of considerable length exist, though too small to permit an ordinary-sized man to work in, but showing distinct marks of a chisel-shaped tool about an inch in breadth in the granite wall. A quantity of mica platee have been found in these works; some trimmed to particular shapes have led to the conjecture that the uses to which it was applied was for windows, mirrors, ornements, etc. The magnitude of the operations excites surprise, and shows that a large demand must have then existed.

In more modern times the use of mica was chiefly for windows of war-ships, lanterns and other conditions liable to concussion; but recently it has been applied to a variety of useful purposes and has acquired a very considerable value, so that in times of scarcity good qualities have sold as high as $10, $15 and even more per pound. The value of mica is determined by the color, size, soundness and toughness; the most transparent, large, sound sheets being in highest estsem. The chief consumption at present is for stove glass. Without mica we should lack the cosy, ruddy, genial glow of the base burning and other illuminated stoves. The quantity consumed annually in this branch it is difficult to ascertain, but it is necessarily very large. Coarsely pulverized, it is found to be an excellent roofing meterial (far superior to ordinary gravel), to which use it is also applied in the same manner as slate. It makes, when finely ground, a good lubricant for certain purposes. It is superior to card-board for marine compass dials. Formerly it was largly used as a filling for fire-proof safes. It is also used in the lettering of fancy signs. When very clear, it forms a better protection to photograps then enamel. But by far the most artistic application is in the manufacture of lamp shades. With the aid of chromo-lithography exquisite pictures are printed on sheets of mica, three or four of which are tastefully joined together, and form a really beautiful design.

Mica now is eagerly sought for to supply the large and increasing demand. Active operations are being carried on in various places, particularly in North Caroline, New Jersey, etc.; also in several places in Canada.—*Paint and Oil Trade.*

San Francisco district, adjoining Star district, Utah, is looking up. Parties are starting in to work their claims; there is a good character of ore, free gold, copper and plenty of silver; but it needs capital to take it out and work it.

Mining prospects from all parts of Utah Territory are very promising. The *Mining Gazette* says: "The various reports from Bingham, Dry Canon and Ophir, all betoken a revival of interest in Utah mines, some of the reported developments being of extraordinary character."

Another water ditch is being constructed from Santa Ana to Riverside.

Bullion from Eureka.

The *Sentinel* of the 19th says: The bullion produced for the week ending last night was as follows: At the Richmond, 2 furnaces, 244,190 pounds; Eureka Consolidated, 2 furnaces, 160,000 pounds; Ruby Consolidated, 82,963 pounds; Hoosac, 4 days' run, 40,000 pounds. Total, 527,153 pounds. Besides these amounts, there is a surplus, smelted during the month: At the Richmond, 360,000 pounds; Eureka Consolidated, 64,495 pounds; Ruby Consolidated, 126,619 pounds; Hoosac, 20,000 pounds. Total 571,564 pounds.

The bullion shipments during the past week were: Richmond, 520,945 pounds; Eureka Consolidated, 160,390 pounds; Ruby Consolidated, 94,668 pounds; Hoosac, 20,024. Total, 796,027 pounds; which, owing to the stoppage of three furnaces during this time, is not an average week's business. The furnace of the Hoosac company was shut down on Thursday last for the purpose of re-lining, and will not be started up again until Saturday next. Two others, one at the Richmond and the other at the Eureka Consolidated, were not in operation until yesterday. The Ruby company's furnace closed last night for six weeks, during which time the place will be overhauled and the furnaces refined. At the Silver West furnace, recently re-leased by the K K Con. company, the machinery, engine and stock are being cleaned up and put in repair preparatory to starting up on or about the 1st proximo. At present there are six furnaces in full blast, which number will be increased to ten in a short time.

Belmont Mining Items.

The Belmont *Courier* says: The mining interests at Jefferson are daily improving and business of all kinds increasing. The Prussian South mine is showing better ore as depth is attained. It is increasing in richness to such an extent that a statement of the actual value of the ore, per ton, now being extracted, would be discredited. The property is destined to become of immense value before long. The Prussian is looking splendidly also. In fact, every location in the district, and particularly on that belt, now being worked, is affording flattering prospects for the owners. There has been quite an accession to the population within ten days past. Once the machinery for the mills and hoisting works begins to arrive, Jefferson will present life and activity.

The machinery for the mill and hoisting works for the Prussian South mine company, at Jefferson canon, has been purchased in San Francisco, a portion of which has been shipped. In consequence of the great rush of work at the foundries in San Francisco, the company will probably be delayed somewhat in having their order filled. The delay will be of short duration, however.

Of the Belmont mine there is nothing to report, further than drifting is progressing north toward the Moore & Martin ground on the lower level. The building over the new perpendicular shaft is nearing completion. The boiler is set and the shaft about completed. It will be but a short time before the machinery will all be in order and the new shaft in use.

Heat on the Comstock.—The Virginia *Enterprise* says: Since the setting in of hot weather the heat in the lower levels of our mines has been much intensified. One would not suppose that there would be much difference in the temperature, winter or summer, at the depth of 1,500 or 2,000 feet below the surface, but there is in reality a vast difference. This, however, is probably more owing to the difference in the temperature of the air pumped into the mines than to a difference in the heat of the mines themselves. The surface air now pumped into the lower levels being of a temperature of 80 to 90 degrees, it cannot be expected that it will cool off the sweltering lower regions to the same extent as air of the winter temperature—30 or 40 degrees. At present it is pumping air standing at 80, 90 or 100 degrees into an atmosphere heated to about 110 degrees, therefore the air introduced from the surface is able to but slightly reduce the temperature in the lower levels. Large air shafts, similar to that being constructed by the Belcher company, are what are needed. There should be several of these along the lead, with connections running through all the mines between them.

Collapse of a Miners' Bank.—The Trinity *Journal* says: Miners living remote from banking-houses or other depositories are in the habit of burying their gold dust and money, not considering it safe to leave it in their cabins while they are away at work. Jack Reed, living on Buckeye creek, had more money than he cared to carry about in his pocket, so he pieced it in a yeast-powder can and buried it a short distance from his cabin. Several times Jack had occasion to visit his deposit—sometimes adding to his store, at others taking therefrom, but always placing it in exactly the same spot. A few days ago he went to get it, but the can and contents were gone, although the hole had been filled and the ground leveled as when he left it. Calling friends to his assistance, a vigorous search was instituted, the ground dug up for several feet around, but to no purpose. Mr. Reed and his friends are of the opinion that some one accidentally saw him bury the can, and as soon as he was gone, dug it up. The can contained 18 ounces in gold dust and $100 in coin—about $415 in all.

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25v20-qy

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Dress Circle and Orchestra	$1 00
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LIVE AND DESIRABLE SHEET.
Its immense circle of readers will include all adult visitors at the Fair, embracing during the exhibition a large proportion of the most intelligent, energetic and influential citizens throughout the Coast.
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24v22-3m JOSEPH MOORE, Superintendent.

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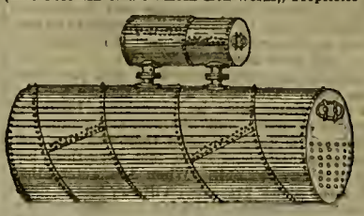

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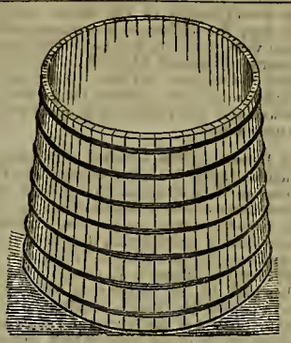

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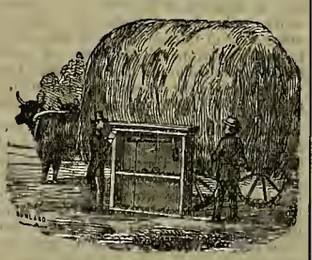

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WILL LAST THREE TIMES AS LONG as the best lead and oil, without CHALKING; is of any desired color. It is prepared for immediate application, requiring no Oil, Thinner or Drier, and does not spoil by standing any length of time. It is equally as good for inside as outside work; over old work as well as new; in fact, where any paint can be used the AVERILL CHEMICAL PAINT will be found superior to any other. Any one can apply it who can use a brush, which truly makes it the FARMER'S FRIEND.
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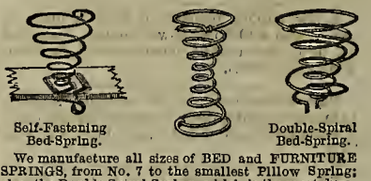

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THE ECONOMY HYDRAULIC HOIST FOR STONES,
And General Machinists. 25v28-3m

[Continued from Page 69.]

conntv lying across the range, and contiguous dietricts heyond, continues.

THE reason no reports of bullion shipments have been made for two weeks from Stewart's is becanse the worka have heen undergoing the "cleaning up" process. They are in full hlsst again, and the usnal shipments will soon grace the head of this colnmn.

A MILL run of nearly four tons of ore from ths lower leval rnn from the hottom of the Weaver shaft in the Colorado central lode, 135 feet from the snrface, gave 637 onnces of silver to the ton, and 46 per cent. lead.

Oregon.

ELK CREEK DISTRICT.

ELK CREEK—GOLD BAR.—Bed-rock *Democrat*, Jnly 22: On Monday last we were shown a gold bar, assayed at the hanking honse of J. W. Virtne, of this city, for Mr. John Roy & Co., of the Cahell ledge, sitnated on Elk creek. This is the hig ledge spoken of in onr last issue. The har is worth $2,000, and is the result of one and a half days' rnn with an 8-stamp mill, crushing nins or ten tons of rock. The Cahell ledge on the top of the gronnd presents one mass of rock ahont three hundred feet in width. The rock is crushed at Dr. F. C. Horsley & Co.'s mill, within one-quarter of a mile of the ledge. The cost of getting out and delivering the rock to the mill does not exceed $2 per ton. There is hnt little donbt but what, with proper development, the Elk creek district will nltimately prove itself to be one of the richest on that coast. There are ahont 30 persons working on Elk creek and vicinity, prospecting and developing ledges. The place where the mill is located is called Goldville, at the old site of Grant city, between this and Cañon city. There are five or six placer mines now heing worked there, and gold is coarse, and gronnd inclined to he spotted. Rock was crushed at the mill, last fall, for Cressup, which paid $21 per ton.

Utah.

AMERICAN FORK DISTRICT.

THE MILLER MINE.—Cor. Salt Lake *Tribune*, July 23: Thie mine is and always has been the leading mine of the camp, bnt the old Miller ground property is lying idle, and the company is now working oo the Wyoming gronnd, they having bought it some time last winter.

THE Wild Dutchman, under the charge of Mr. Haskins, not long since "got in" on another big body of rich ore. Last summer a deposit was taken out amounting to several thousand dollars, and shipped to the Snltaua works; but the present one discounts that all to pieces.

THE Sierra mine, on Miller hill, lately strnck some good ore in the main tunnel. It is one of the few trne veins of Utah. A straight tunnel has been run on the vein 130 feet, showiug ore all the way—sometimes hut a few inches, and then epreading over two feet.

THE Mary Ellen and Live Yankee, the property of Col. Nuckolls, Gilman & Co., have heen working a large force, and hringing forth ore with a good sprinkling of gold through it. Rnmor hae it that these two mines, with the Pittsburg, are ahout to transfer to an Eastern company.

THE Snltana smelter, at Forest City, is in full blast, that is, two of the three fornaces, on Miller and Wild Dntchman ore. Several tons of bullion are daily tnrned out, and shipped per American Fork narrow gauge.

AT the Crown Point mine entirely new machinery has heen put in for hoisting throngh the main incline. This machinery is now nearly completed, and is second to no hoisting machinery in the State.

IMMENSE businsss is now being done in the canning of salmon among the fisheries on the lower Columbia. The warehouse at Astoria is jammed full of cases, ready for shipment.

THE furnace at the Brownlie mine, near Vallejo, is completed. The company will soon be making regnlar shipments of qnicksilver to market.

A SUFFICIENT amonnt of ore will be hoisted from the Crown Point mine, pending the introduction of the new machinery, to keep the Mexican mill running.

A NEW oupola furnace of 4,000 pouads capacity, and a 10-horse power engine, have heen pnt up in the molding department of the Napa Plow Co's worke.

THE Wilson hrothers, of Shingle Springs, El Dorado connty, design estahlishing in Chico a mammoth sash, hlind and door manufactory.

THE reducing works of the Cerro Benito quicksilver mine, Fresao connty, resumed operations last week.

THE Redington Qnicksilver Mining Co. have declared a dividend of $20 per shara, payahle on the 31st.

THE 1,400-ft. level of the Crown Point mine continues to open np freely, and promises a free yield of rich ore for months to come.

A SIXTY-OUNCE chunk of gold was found recently in the Bald Mountain mine, Sierra county.

WOOD is retailing in Austin at $10 to $11 per cord.

General News Items.

THE CLOUD-BURST AT EUREKA, NEVADA, was one of the most disastrons occurrences of the kind ever noted on this oosst, and needed only the necessary improvements and popnlation along its path to have fully eqnalled the horrors and destruction witnessed at Pittsbnrg, or the Mill river disaster. The fnry of the storm seems to have concentrated at and jnst above the town. Ths main street of Enreka was, for a short time, filled by a rnshing, turhnlent stream of water, and wheraver any temporary obstruction was interposed, there was soon snch an accnmulation of force that everything had to give way before it. When the water subsided, the scene presented a dreary tale of desolation and misery. Articles of furnitnre, portions of dwellings, trunks, heds and hedding were mlxed with a perfect sea of wood, rocks and sand. The presence of thieves and plnnderers also added their atrocitiee to the calamity. The following lives are known to have been lost: Mrs. Charles Bray, A. C. Latson, John Tnrner, Roger Rohinette, James Galvin, J. W. Talbot, Jean Dorney, John Ranfts, W. J. McGeary, Wm. Smith and five Chinamen. There is no donht bnt that several more bodies will be fonnd bnried in the debris. It is reported that the bodies of a woman and two children were found on Sunday. The damage to property will exceed $150,000. The general hnsiness of the town will also he diminished, and it will he at least a month hefore hnsiness is renewed and everything in proper working order once more.

THE Beecher-Tilton scandal still "drags its slow length along." Nothwithstanding all that has heen pnhlished up to the present time, pnblic opinion is quite as much divided as ever. A contemporary enms up the whole matter as follows: Tilton says Beecher did; Beecher denies, and says he didn't; Mrs. Tilton says that Beecher didn't. There is an awful lia out, and who hss told the lie remains to he seen. It seems to us that Mr. Frank Moulton, who wae the mutual friend of the Tiltons and of Beecher, during the whole of the scandal talk, can settle the question and saddle that lie on the hack ou which it helongs.

RAIN AND RUIN.—Fearful storms and cloudhnrsts have occnred in various sections of the country during the past week. The most disastrous one occurred near Pittshurg, Penn., where it is reported nearly 200 lives have heen lost. Several lives were lost at a similar occasion at Eureka, in the State of Nevada. Another took place at about the ssme time four miles west of Carson. Heavy rains have fallen in many portions of Arizona. A water spout hurst in the Colorado desert, in San Diego Co., which came near sweeping to destruction the mail carrier with his team and the mails.

THE matter of protecting the Yuha river from overflow is now heing discussed hy the farmers on hoth sides of the river. The residents of Linda township, affected hy the overflow from the Yuha river, are ahout calling a public meeting in their township to take into consideration the qnestion of preventing further damage to their farms. They propose to appoint a committee to consnlt with the hest legal talent in the State and obtain their opinion as to their rights in the matter.

THE flax mills of the north of Ireland, generally, have snspended mannfactnring linen, and thonsands of weavers and other hands are thrown ont of employment. The market for Irish and Holland linen has become much depressed. It is stated the flax-growers of Ireland are ahout giving attention to the growth of the ramie plant, which on the low lands and river hottom lands is snpposed to be well adspted to the climate of Ireland; possibly to snpercede the cultnre of flax altogether.

THE STATE UNIVERSITY—IMPORTANT AOTION OF THE REGENTS.—The Board at their meeting, July 24th, appointed Wm. Ashbnrner, Professor of Mining, and decided to appoint eight lecturers on topics relating to agriculture—four to he chosen from California, who are hest informed npon local vegetation and culture, and four from eminent scientific men connected with the hest agricnltural schools in the United States.

THE CARLIST WAR—REPRISALS.—It is reported that the Carlists have again heen hadly heatsn by the Republican troops, and snstained very heavy losses. Two companies of Carlists, who refused to snrrender, were cut in pieces. Forty-one Carliste, mostly members of the nobility, have heen arrested at Barcelona, by way of reprisal against the inhuman conduct of the Carliste.

THE WASHINOTON MONUMENT.—Ex-Governor Shepherd hae resigned his position as Director of the Monument Association. Subscriptione tofinish the monument under the new plan are coming in with gratifying rapidity. Preparations are making, however, to renew the demand on Congress for aid at the next sessiou, in the event that the new plan is not entirely snccessful in eecuring sufficient fnnds.

WHAT NEXT?—And now Sonth Carolina has its plague—caterpillars. Fears are entertained that they will sweep the State of its cotton crop. Hydrophohia, grasshoppers, Plymouth church scandal, Indians, lightning, floods, marine disasters without number, disastrous fires, etc.—the list is growiug lengthy, and the question naturally arises, what next?

A NEW town is heing laid out on the Cucamongo ranch, Los Angeles county.

MELANCHOLY SUICIDE.—A melancholy enicide occurred in this city on Satnrday last. Mr. Wm. B. Bonrne, an old and well-known citizen and large capitalist, shot himself dead in his house on Taylor street. The act was supposed to have been done in a fit of temporary insanity. Mr. B. left property to the amonnt of over one million dollars.

NEWSPAPER ENTERPRISE.—The London *Daily Telegraph* announces that arrangements have been concluded hetween the proprietors of that paper and Mr. Bennett, of the New York *Herald*, nnder which an expedition will at once be dispatched to Africa, with the object of pnrsuing the fulfillment of the magnificent discoveries of the great explorer, Dr. Livingstone.

PHENOMENON IN WASHOE LAKE. — All the fish in Washoe lake appear to have died, and the shore is lined with their decomposing remains. It is sunposed that the phenomenon has been cansed hy the eruption of some poisonous gas from the bottom of the lake.

EASTERN capitalists pnrpose establishing a cheese factory in Del Norte county. The Crescent City *Courier*, of July 18th, states that nearly 1,000 cows have heen promised to the proprietors, if they will estahlish snch an enterprise.

THE vineyard of Gnstave Mahe, a mile out from the town of San Mateo, contains 70,000 vines. Last year Mr. Mahe made almost 5,000 gallons of wine, and this year he expects to make 7,000 gallons.

THE Napa *Register* says a pretty young miss of Napa city is wearing a straw hat, the prodnct of her own skill and taste, the raw material of which is of California growth.

RUSSIA ANN CHINA.—Prussian jonrnals say that a war between Russia and China is inevitahle, in consequence of the designs of the latter on Kassgar.

A heet-sngar factory, similar to that in Sacramento, will probahly be erected near Davisville, as a company is forming for that purpose.

IN Arkansas much damage has bsen done hy drouth. Wheat turned ont well; oats moderate; corn tolerahle; cotton small and clean.

SUN-STROKE.—Ahout 20 cases of sun-stroke have occurred in St. Louis since Saturday, one-half proving fatal.

ANOTHEA ROTHSOHILN GONE.—The telegraph reports the death of Anselm Rothschild at Vienna, on Monday last.

BISMARCK.—A dispatch saye Bismarck is improving, but the wound unhealed; the Prince cannot write.

PROSPECTING on the 1,500-ft. level of the Beloher will he commenced in a very short time.

WATERMELONS weighing as highas 60 ponnds have appeared in the Marysville market.

THE wharf and warehonse facilities of South Vallejo are to he increased.

A CAR-LOAD of Vermont sheep arrived at Marysville on Monday.

WILN coffee trees are thriving finely on the shore of Clear lake.

FARM laborers are in demand in Elko county, Nevada.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIO PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Speoial Diapatch, Dated Washington, D. C., July 28th, 1874.

FOR WEEK ENDINO July 14th, 1874."

BILGE WATER GAUGE.—Wm. G. Conkling, Washington Territory.

PROCESS AND APPARATUS FOR MANIPULATINO THE ORES OF MERCURY.—Henry H. Amss and Russell D. Walbridge, Oakland, Cal.

OIL CAN STOPPER.—Joseph F. Donkin, Grayson, Cal.

MILK STRAINER.—Joseph F. Donkin, Grayson, Cal.

PROCESE OF REFININO ANN PURIFYINO LEAN.—Alex. H. Everett, S. F., Cal.

CHILDREN'e CARRIAOE.—Adam Heim, S. F., Cal.

GANO PLOW.—Wm. O. M. Berry, S. F., Cal.

MEDICAL COMPOUND.—Henry M. Hoyt, Koight's Landing, Cal.

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*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possihle (by telegraph or otherwise) at the lowest rates. All patent business for Pacifio coast inventors transacted with perfect secnrity and in the shortest time possible.

THE SCIENTIFIO PRESS.—This valuahle journal entered upon the seventeenth year of its publication on the 4th of July. The steady advance in character, that every reader has noticed in the paper, renders it unnecessry to make any splurge of improvement, and the pnhlishers simply content themselves with the announcement that they will continue to make their paper as interesting as possihle, That it is interesting to a large class of readers, the wide circulation and extensive influence of the PRESS, is sufficient evidence.—*Placer Argus.*

The Mining & Scientific Press,

Started in 1860, is one of the oldest weekly journals now published in San Francisco. It has been conducted by its present proprietors for ten years, during which period it has heen repeatedly enlarged and constantly improved. The active and steadfast efforts of its publishers have gained for its conduct an amount of practical experience greater than any other publishers have accumulated on this coast, of a weekly journal.

The sum paid by us for the hest editorial talent obtainable for our special class journal; for engravings, for interesting news and correspondence, and for printing a large-sized, handsome sheet, is unequalled by that of any other American weekly west of the Mississippi.

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ining Engineers, Superintendents, Metallurgists, Mine Owners and Mine Workers throughout the world should profit hy its illustrations and descriptions of New Machinery, Processes, Discoveriee and Record of Mining Events.

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The best, speediest, and surest method for you to obtain patents, file caveats, or transact any other important business with the Patent Office at Washington, or with foreign countries, is through the agency of DEWEY & CO., PUBLISHERS OF THE MINING AND SCIENTIFIC PRESS, SAN FRANCISCO, an ahle, responsible, and long-established firm, and the prinoipal agents on this side of the continent. They refer to the thousands of inventors who have patronized them, and to all prominent business men of the Pacific Coast, who are more or less familiar with their reputation as straightforward journalists and patent solicitors and counsellors.

We not only more readily apprehend the points and secure much more fully and quickly the patents for our home inventors, but with the influence of our carefully read and extensively circulated journals, we are enabled to illustrate the intrinsic merits of good patents, and secure a due reward to the inventor, hesides serving the public who are more ready to give a fair trial, and adopt a good thing, upon the recommendation of honest and intelligent publishers.

To Obtain a Patent,

A well-constructed model is generally first needed, if the invention can well he thus illustrated. It must not exceed 12 inchee in length or hight. When practicahle, a smaller model is even more desirahle. Paint or engrave the name of the article, and the name of the inventor, and his address upon it.

Send the model (hy express or other reliable conveyance), plainly addressed, to "DEWEY & Co., MINING AND SCIENTIFIO PRESS OFFIOE, SAN FRANCISCO," At the same time, send a full description, embodying all the ideas and claims of the inventor rsspecting the improvement describing the various parts and their operations.

Also send $15 currency, amonnt of first fee of the Government. The case will be placed on our regular file, the drawings executed, and the documents mads np, and soon sent to the inventor for signing.

As soon as signed and returned to ns with the fees then due ns, it will he sent straightway to the Patent Office at Washngton.

For designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should he made np with care and accuracy. In some instances for design patents two photographs, with the negative, answer well instead of drawings.

For further information, send a stamp for our illnstrated circular, containing a digest of PATENT LAWS, 112 illustrated mechanical movements, and HINTS and INSTRUCTIONS regarding the RIOHTS and PRIVILEGES of inventors and patentees, which will be furnished post paid. Also a copy of NEW PATENT LAW of 1870.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and aleo of the manufactured article itself, must be furnished, with full description of the entire preparation.

For Processes, frequently no model or drawinge ara necesaary. In such case, the applicant hae only to send us an exact description, and what is desirable to claim.

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PUBLISHERS, PATENT AGENTS AND ENGRAVERS,

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New Inventions!

Of real merit, if brought plainly before the pnblic when fresh, are most likely to become profitable to the patentee. For this reason, patentees (of worthy devices) should have the best of Engravings Made, and published in the PRESS. Superior Engravings Made, at reasonable rates, hy artists in this office. hp-tf

The MINING AND SCIENTIFIO PRESS, San Francisco, Cal., Dewey & Co., is a rich *placer*, wherein golden information may be found, valuable to any searcher after knowledge.—*Newark Manufacturer.*

METALS.

WEDNESDAY M., July 29, 1874.

Quicksilver is firm at $1.35. The Metal Market is otherwise dull.

American Pig Iron, ₱ ton	—	@	40 00
Scotch Pig Iron, ₱ ton	—	@	40 00
White Pig, ₱ ton	—	@	50 00
Refined Bar, bad assortment, ₱ lb	—	@	3½
Refined Bar, good assortment, ₱ lb	—	@	4
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Shaat, No. 10 to 13	—	@	5½
Shaat, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	—	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	—	@	9½
Nurw	—	@	—
Rollad Iron	—	@	4½
Othar Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Brazier's	—	@	32
Copper Tin'd	—	@	—
O.Niel's Pat	—	@	—
Sheathing, ₱ lb	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	—	@	—
Composition Bolts	—	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	—	@	16 00
Plates, I Charcoal	14 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ lb	—	@	37
SHEET.—English Cast, ₱ lb	—	@	25
Anderson & Woods' American Cast	—	@	17
Drill	—	@	22
Flat Bar	—	@	22
Pinngh Points	—	@	17
ZINC.—			
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	—	@	8
LEAD.—			
Pig, ₱ lb	—	@	6
Bar	—	@	7
Sheet	—	@	9
Pipe	—	@	8½
QUICKSILVER, per lb	—	@	1 35

GENERAL MERCHANDISE.

WEDNESDAY M., July 29, 1874

Bags are in good demand at noted quotations. Large arrivals have recently been made, but the market continues strong. Coal is unchanged. Coffee is firm. The great excitement of the week has been the upward tendency in the price of Sugar and Syrups; the former have been advanced to ₱ lb all around, and the latter about 70 per cent. The rise is not unexpected, but is rather larger than was thought would be the case.

BAGS.			
Eng. Stand Wht..—14	@	14½	
Detrick's Machine			
Sewed, 2lb to F —	@	13½	
do 22x36, do E W —	@	14	
do 20x40, do A —	@	14½	
Flour Sacks ½s, 10½	@	12½	
" ¼s, 6½	@	7½	
Stand. Gunnies			
double seam	—	@	18
single seam	—	@	13
" Wool Sacks, 65	—	@	—
Barley Bags 24x35	—	@	15½
do 23x40	—	@	15½
do 24x40	—	@	16½
do 28x36	—	@	17
Oat Bags, 21x40	16	@	16½
do 28x36	—	@	17
Hessian 40-in.gds	9½	@	10
do 45	10½	@	11
do 60	—	@	16
CANNED GOODS.			
Assorted Fruits			
in 2½ ℔ cans. 2 75	@	3 00	
do Table do —	@	2 75	
Jams & Jellies 3 75	@	4 25	
Pickles ½ gl	@	3 50	
Sardines, qr box 75	@	—	
do hf boxes 3 00	@	—	
COAL—Jobbing.			
Australian, ₱ ton 10 00	@	—	
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11
Cumberl'd, cks	22 00	@	23 00
do bulk	18 00	@	20 00
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	19 00
Liverpool	11 00	@	12 —
West Hartley	12 50	@	—
Scotch	9 50	@	10 00
Scranton	15 00	@	17 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ sk	75	@	—
Coka, ₱ bbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Central Americ'n	22	@	23
Costa Rica per ℔	23½	@	24
Guatemala	21	@	22
Java	28½	@	30
Manilla	22	@	—
Ground in cs	—	@	30
Chicory	10	@	—
FISH.			
Pac. Dry Cod, new	5	@	6
casee	6	@	7
do honelesa	11	@	12
Eastern Cod	7	@	8
Salmon in hhls	8 00	@	—
do ½ bbls	4 50	@	—
do 2½ ℔ cans	—	@	3.00
do 2lb cans	2 65	@	2 75
do 1lb cans	1 75	@	—
Do Col. R. ½lb	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No.1, ½bls	40	@	50
Extra	—	@	00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½bs	—	@	2 00
Sm'k Her'g, ½s	60	@	65
OILS.			
Assorted elze, ℔	4½	@	7
OILS.			
Pacific Glue Co.			
Neat F't No. 1	—	@	1 00
Parat	1 25	@	—
Castor Oil, No. 1	—	@	75
do do No. 2	—	@	60
Cocoanut	45	@	50
Olive Plagenil	5 00	@	—
do Poseil	4 75	@	—
Palm	9	@	—
do Bagicalupi	—	@	—
Linseed, raw	—	@	1 02
do boiled	—	@	1 07
China nut in oe	—	@	82½
do bulk	70	@	72
Sperm, crude	—	@	1 40
do bleached	—	@	2 00
Coast Whales	35	@	40
Polar, refined	50	@	55
Sperm	1 40	@	50
Lard	95	@	1 05
Coal, refined Pet	37½	@	40
Cleophine	—	@	24
Devoe's Bril't	26	@	29
Long Island	—	@	34
Eureka	37½	@	40
Devoe's Petro'm	26	@	29
Sarrel kerosene	—	@	26
Olive	4 00	@	9 50
Downer Kerose'e	—	@	42½
Gas Light Oil	—	@	34
PAINTS.			
Atlan. W. Lead	7½	@	12½
Whiting	—	@	2
Putty	4	@	4½
Chalk	—	@	1½
Paris White	2½	@	—
Ochre	—	@	3½
Venetian Red	3½	@	5
Rod Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	1 00	@	1 25
RICE.			
China No. 1, ₱ lb	6½	@	6¾
do 2, do	5½	@	5¾
Japan	5¾	@	6
Siam Cleaned	7	@	—
Patna	—	@	6¾
Hawaiian	7	@	7¾
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	20 00	@	23 00
do coarse	15 00	@	20 00
SOAP.			
Castile ₱ lb	10	@	12
Local brande	5	@	8
SPICES.			
Allspice, per lb	15	@	16
Cloves	45	@	47½
Cassia	22½	@	25
Citron	—	@	30
Nutmegs	—	@	87½
Whole Pepper	17	@	17½
Pimento	—	@	15½
Gr'nd Allep'p'd'r	—	@	00
do Cassia do	—	@	50
do Cloves do	—	@	50
do Mustard do	—	@	25
do Ginger do	—	@	00
do Pepper do	—	@	00
do Mace do	—	@	60
SUGAR.			
Cal. Cube per lb	11½	@	—
Partz' Pro. Cube			
hhl or 100 ℔ hxe	—	@	11¾
do in 50 ℔ hxs	—	@	12
do ½ bls	—	@	12¾
do in kegs	—	@	13
Cirole A crushed	—	@	13½
Powdered	—	@	13¾
Granulated	—	@	14
Dry granulated	—	@	13½
Hawaiian	6	@	10
California Beet	—	@	13½
Golden C	—	@	10½
do Rey'g grade	—	@	6¾
Cal. Syrup in bls	—	@	53½
do ½ bls	—	@	53
do in kegs	—	@	60
Hawaiian Molasses	10	@	20
TEA.			
Oolong, Canton, ₱ lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pinguey	45	@	50
do Moyune	60	@	90
Gunpo'der, Cant.	30	@	42½
do Pingeuey	50	@	90
do Moynne	65	@	85
Y'ng Hyson ₱ lb	30	@	75
do Pingeuey	40	@	70
do Moyune	65	@	85
Japan, ½ chests,			
½ chests	30	@	75
Japan, lacquered			
hxs, 4½ and 5 lbs	45	@	67
Japan do, 3 ℔ hxs	45	@	90
do pl'n hx, 4½ lb	35	@	65
do ½ ℔ hx paper	25	@	35
TOBACCO—Jobbing.			
Bright Navya	50	@	60
Dark do	45	@	55
Dwarf Twist	57	@	62½
12 inch do	57	@	62½
Light Preseed	65	@	75
Hard do	60	@	70
Conn. Wrap'r	40	@	60
Penn. Wrapper	20	@	30
Ohio do	7	@	15
Virgi'a Smok'g	60	@	95
Fine ot che'g, gr	3 50	@	9 25
Fina ours chew-			
ing, hx'ts, ₱ lb	75	@	90
Banner fine cut	—	@	90
Eureka Cala	3 75	@	9 00
TURPENTINE.			
Eastern	60	@	65

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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HOOD ALSTON—San Luis Obispo, San Bernardino and San Diego Counties.

B. GOODWIN—California.

S. G. CRAWFORD—California.

LEATHER.

WEDNESDAY M., July 29, 1874.

No further advance have taken place in Leather. The market continues very quiet for all kinds of domestics.

City Tanned Leather, ₱ lb			25@28
Santa Cruz Leather, ₱ lb			25@29
Country Leather, ₱ lb			24@28
Stockton Leather, ₱ lb			25@27
Jodot, 8 Kil., per doz	55 00	@	64 00
Jodot, 11 to 19 Kil., per doz	66 00	@	90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55 00	@	72 00
Cornellian, 12 to 16 Ko	57 00	@	67 00
Cornellian Femalas, 12 to 13	50 00	@	64 00
Cornellian Females, 14 to 16 Kil	68 00	@	74 00
Beaumerville, 15 Kil	80 00	@	—
Simon, 13 Kil., ₱ doz	61 00	@	63 00
Simon, 20 Kil. ₱ doz	65 00	@	67 00
Simon, 24 Kil. ₱ doz	72 00	@	74 00
Robert Calf, 7 and 9 Kil	35 00	@	40 00
French Kips, ₱ lb	1 00	@	1 15
California Kip, ₱ doz	40 00	@	50 00
French Sheep, all colors, ₱ doz	8 00	@	15 00
Eastern Calf for Backs, ₱ lb	1 00	@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00	@	13 00
Sheep Roans for Linings, ₱ doz	5 50	@	10 50
California Russet Sheep Linings	1 75	@	3 50
Best Jodot Calf Boot Legs, ₱ pair	5 00	@	5 25
Good French Calf Boot Legs, ₱ pair	4 00	@	4 75
French Calf Boot Legs, ₱ pair	4 00	@	—
Harness Leather, ₱ lb	30	@	37½
Fair Bridle Leather, ₱ doz	48 00	@	72 00
Skirting Leather, ₱ lb	34	@	37½
Welt Leather, ₱ doz	30 00	@	50 00
Calf Leather, ₱ foot	18	@	21
War Side Leather, ₱ foot	17	@	19
Eastern Wax Leather	—	@	—

PACIFIC RURAL PRESS,

A first-class 16-page Agricultural Home Journal, filled with fresh, valuable and interesting reading. Every farmer and ruralist should take it. It is immensely popular. Subscription, $4 a year.

DEWEY & CO., Publishers,

No. 224 Sansome street, - - SAN FRANCISCO.

Removal.

July 13th, 1874, the business office of this Journal was removed just one block east of our former location, to No. 224 Sansome Street, southeast corner of California, over the Bank of British Columbia, where we have secured large and elegant quarters. This removal is made in consequence of the sale of the building which we formerly occupied, to parties who will procead immediately to demolish the present structure and erect a new and magnificent block in its place.

[Diagram Showing Location of Dewey & Co.'s New Offices.]

SOUTH
FIREMAN'S FUND INS. CO.
BANK OF CALIFORNIA
CALIFORNIA ST.
SANSOME ST.
DEWEY & CO. PACIFIC RURAL PRESS. MINING & SCIENTIFIC PRESS. PATENT AGENCY. ENGRAVING
NATIONAL FORMERLY FRIEDLANDER'S BUILDING.

THE NEW WINCHESTER REPEATING RIFLE,

(Model of 1873.)

San Francisco Agency

NO. 108 BATTERY STREET, SAN FRANCISCO.

The Winchester Repeating Arms Company, of New Haven, Conn., have recently made still further valuable improvements on the celebrated Henry Rifle, which now make it, beyond doubt, the most magnificent weapon in the world. They have just introduced this beautiful arm upon the market, and their San Francisco Agency is fully supplied with all the various styles, together with cartridges for the same.

In the manufacture of the new gun, iron mountings (blued or case-hardened) have been substituted for gun metal or brass, thus increasing the strength of the arm and decreasing its weight. It is also now constructed as to carry a Central Fire Cartridge holding one-third more powder than used in the cartridge of the model of 1866, thereby greatly augmenting the power and accuracy of the weapon.

THE SPORTING RIFLE.

Has a Set or Hair Trigger which can be used at will—set or not set, as preferred. All the arms have a sliding lid which covers the opening in which the Carrier Block moves up and down. This lid, by the action of the Carrier Lever, is always open when the gun is fired, and closed by hand when the firing ceases, thus protecting the lock and inside works of the gun from dust and rain.

Various other improvements, which it is not necessary to mention in detail, by which the strength of the several parts is increased and the general appearance of the gun improved, have also been made.

There is now a greater variety of the Sporting Rifle than heretofore. They can be had with a length of barrel (round or octagonal) ranging from 21 to 30 inches, fitted with Globe and Peep Sights, or any other kind in use.

The Carbine is now made with all the improvements above referred to, except the set trigger.

The Sporting Rifle and Carbine will also be made as Extra Arms, Gold, Silver or Nickel Plated, plain or beautifully engraved.

MILITARY ARMS.

Still further improvements have been accomplished which overcome all objections heretofore raised against the Repeating Rifle as an army gun. It is safe, certain and effective in fire, whether used with deliberation or during excitement in action, and no more motions are required than in operating the old model gun.

More extended and minute particulars concerning the new gun can be had by writing or applying to the San Francisco Agency for circular.

CARTRIDGES.

The trade is notified that the Shells of the Central Fire Cartridge for the new gun can be reloaded, and that the Winchester Repeating Arms Company are manufacturers of every description of Cartridge used for Carbine, Rifle and Pistol of any make, and that the Company have a full stock constantly on hand at their San Francisco Agency.

JOHN SKINKER,

Sole Agent for Pacific Coast,

NO. 108 BATTERY STREET, SAN FRANCISCO.

NOTE.—Also Agent for the Dupont Powder Company and Eagle Safety Fuse Manufacturing Company.

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notices under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Eagle Quicksilver Mining Company.—

Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—Is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of July, 1874, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 6, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessment shall remain unpaid on Monday, the 21st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Saturday, the 26th day of September, 1874, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 28th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H WATSON, Secretary.

Office, Rooms 5 and 6, No. 302 Montgomery street, San Francisco. jy-25

South Fork Mining and Canal Company.

Location of principal place of business, San Francisco, California. Location of works, Placer County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 30th day of May, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificats.	No. Shares.	Amount.
James Adams	8	1,000	$50 00
H B Congdon	9	2,000	100 00
J W Nye	10	2,000	100 00
P H Blake	11	2,000	100 00
S H Mather	12	2,000	100 00
S Harris	14	2,000	100 00
M Shick	15	4,000	200 00
J J Walker	15	2,000	100 00
Smith	17	2,000	100 00
G E Hinckley	18	1,000	50 00
Hamm	19	1,000	50 00
E J Elzy	21	1,000	50 00

And in accordance with law and an order of the Board of Directors, made on the 30th day of May, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, No. 306 Montgomery street, San Francisco, California, on Monday, the 27th day of July, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

P. H. BLAKE, Secretary.

Office—316 Montgomery street, San Francisco, Cal.

POSTPONEMENT.—The above sale is hereby postponed until Saturday, the eighth day of August, 1874, at the same hour and place. By order of the Board of Directors. P. H. BLAKE, Secretary.

Electric Mining Company—Location of

principal place of business, San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of June, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificats.	No. Shares.	Amount.
G W Haskell	29	500	$50 00
G W Haskell	30	500	50 00
G W Haskell	31	500	50 00
G W Haskell	32	500	50 00
G W Haskell	33	500	50 00
G W Haskell	208	375	37 50
Wm R McCaw	18	2500	250 00
Wm R McCaw	55	300	30 00
Wm R McCaw	203	435	43 50
J B Houghton	15	1168	116 80
J B Houghton	90	50	5 00
J B Houghton	91	25	2 50
J B Houghton	92	41	4 10
J B Houghton	93	600	60 00
J B Houghton	201	272	27 20
Wm H Baker	7	500	50 00
Wm H Baker	8	2000	200 00
Wm H Baker	200	375	37 50
G W Terrill	47	600	60 00
G W Terrill	48	500	50 00
G W Terrill	49	500	50 00
G W Terrill	50	500	50 00
G W Terrill	51	500	50 00
G W Terrill	212	390	39 00
Wm H Sparks	64	500	50 00
Wm H Sparks	219	75	7 50
M Ellsworth	9	250	25 00
M Ellsworth	213	37	3 70
A C Knox	71	100	10 00
A C Knox	222	15	1 50
Anna Woods	75	100	10 00
Anna Woods	131	500	50 00
Anna Woods	223	90	9 00
G S Eston	132	25	2 50
G S Eston	133	50	5 00
G S Eston	134	25	2 50
G S Eston	135	60	6 00
G S Eston	232	24	2 40
Maria Foley	136	50	5 00
Maria Folsy	233	7	70
Maria Folsy	234	½	05
Louisa Thompson	151	400	40 00
Louisa Thompson	238	60	6 00
Henrietta Grant	152	400	40 00
Henrietta Grant	240	60	6 00
Wm H Sharp	163	100	10 00
Wm H Sharp	241	15	1 50
M G Rader	182	200	20 00
M G Rader	244	30	3 00
M G Rader	249	157	15 70
M G Rader	250	23	2 30
M G Rader	251	½	05
Geo W Mullen, Trustee	126	1000	100 00
Geo W Mullen, Trustee	129	500	50 00
Geo W Mullen, Trustee	153	300	30 00
Geo W Mullen, Trustee	104	500	50 00
Geo W Mullen, Trustee	168	250	25 00
Geo. W Mullen, Trustee	252	547	54 70

And in accordance with law, and an order of the Board of Directors, made on the 10th day of June, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 326 Pine street San Francisco, California, on the 5th day of August, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—No. 318 California street, room 13, San Francisco, Cal. jy18

Enterprise Gold and Silver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, Meadow Lake District, Nevada County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 13, levied on the 22d day of June, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Battersby, Jas	173	3	30
Battersby, M A	351	7	70
Coll, Tracy	254	8	80
Coll, Tracy	278	40	4 00
Coll, Tracy	308	40	4 00
Coll, Mrs P M	337	24	2 40
Campbell, David	263	20	2 00
Davis, E	204	40	4 00
Davis, E	252	4	40
Flynn, P R	319	100	10 00
Freeman, J E	380	40	4 00
Fenton, D W	178	150	15 00
Fenton, M P	181	50	5 00
Fenton, S H	238	20	2 00
Furrey, Wm C	381	4	40
Goddard, S	369	40	4 00
Goddard, S	370	20	2 00
Goddard, S	372	20	2 00
Goddard, S	374	10	1 00
Goddard, Fred	3	40	4 00
Heathfield, E	212	24	2 40
Hall, Thomas	331	4	40
Hall, Thomas	332	4	40
Hall, Thomas	333	4	40
Havens, Howard, Trustee	382	20	2 00
Jones, J W	355	20	2 00
Locke, S M	110	40	4 00
Locke, S M	Not Issued	20	2 00
Leet, A	295	12	1 20
Mathews, M R	144	4	40
Mathews, E G	27	40	4 00
Mathews, E G	28	40	4 00
Mallory, A P	298	4	40
Nelson, A T	14	4	40
Phillips, David	388	20	2 00
Pomeroy, H	149	20	2 00
Pope, J A	375	80	8 00
Pope, J A	375	10	1 00
Thompson, J P	240	4	40
Toudy, J C	363	5	50
Warren, Bessie	Not Issued	12	1 20
Woodward, E F	295	8	80

And in accordance with law, and an order of the Board of Directors, made on the 23d day of July, 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction at the company's office, 411½ California street, Room 3, San Francisco, on Saturday, the 15th day of August, 1874, at the hour of 2 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of the sale.

E. E. RICE, Secretary.

Office—Room 3, 411½ California street, San Francisco, California.

Annual Meeting—Hasloe Mill and Mining

Company. Location of principal place of business, San Francisco, California. Location of works, Mariposa County, State of California.

Notice is hereby given that the annual meeting of the stockholders will be held at the office of the company, 408 California street, room 14, San Francisco, California, on the 12th day of August, 1874, at 12 M., for the purpose of electing Trustees for the ensuing year. By order of the Board of Trustees. J. W. TRIPP, Secretary.

Land Purchasers' Association—Office, No.

425 Kearny street, San Francisco, Cal.,

There are delinquent upon the following described stock, on account of assessment (installment No. 41), levied on the 9th day of June, A. D., 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J L Beyss	72	1	$10 00
V Chevallier	93	1	10 00
T A Lord	68, 99 and 177	3	30 00
W E Mayhew	23, 24 and 157	3	30 00

And in accordance with the law and an order of the Board of Directors, made on the 9th day of June, A. D. 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Secretary, 425 Kearny street, (up stairs,) San Francisco, Cal., on Tuesday, the 4th day of August, 1874, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. S. WRIGHT, Secretary.

Office, No. 425 Kearny street, up stairs, San Francisco, California.

Providence Gold and Silver Mining Com-

pany—Location of principal place of business, San Francisco, State of California. Location of works, Hayden Hill, Lassen County.

Notice is hereby given, that at a meeting of the Directors, held on the 10th day of July, 1874, an assessment (No. 1) of Ten Cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 331 Montgomery street, room 18, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 17th day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the seventh day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. H. KNIGHT, Secretary.

Office—No. 331 Montgomery street, room 18, San Francisco, California. jy18

Taylor Mill and Mining Company—Loca-

tion of principal place of business, City and County of San Francisco, California. Location of works, Garden Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the first day of July, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 607 Montgomery street, in the City and County of San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the eighth day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the twenty-eighth (28th) day of August, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. SAMUEL S. MURFEY, Secretary.

Office, 607 Montgomery street, City and County of San Francisco, California. jy4

Stockholders' Meeting—Tolman & Miller

Mill and Mining Company. Principal place of business, San Francisco. Location of works, Calaveras County, Cal.

Notice is hereby given that a meeting of the stockholders of the above named company will be held at the office of the company, 306 Montgomery street, on the 10th of August next, at 2 o'clock P. M., to adopt a code of By-Laws for the company.

D. A. MILLER, Act. President.

2t JAMES L. TRASK, Secretary.

Machine Builders.

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PACIFIC IRON WORKS,

First and Fremont streets,

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Steam Engines and Boilers,

MARINE AND STATIONARY,

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Mining Machinery of Every Description

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☞ Particular attention paid to Jobbing Work and Repairs.

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MANUFACTURERS OF

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Iron and Locomotive Works,

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CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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James D. Walker.

WM. H. TAYLOR.....President
JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary

24v17-qy

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Rolling Mill Company,

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Established for the Manufacture of

RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON

Of every description and size.

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☞ The highest price paid for Scrap Iron.

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Dunbar's Patent Self-Adjusting Steam Piston PACKING, for new and old Cylinders.

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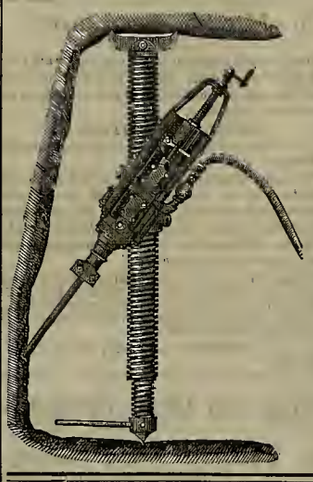

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The only Drilling Machinery that has ever done any successful Tunnel work in America, is being used upon the largest tunnels and mining operations on the Comstock lode; also in Placer, Mariposa and Nevada Counties, Cal.

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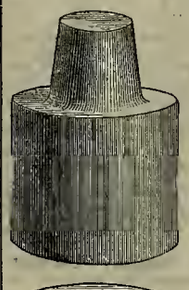

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Cast Steel Shoes & Dies for Quartz Mills.

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An improvement greatly needed, being stronger, more durable and economical than iron.

We guarantee the STEEL SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper. Price, 20 cents per pound, shipped from San Francisco. It takes 40 days to fill orders from the manufactory East.

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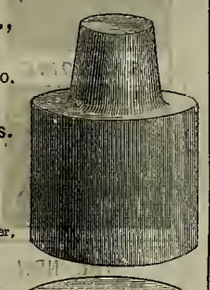
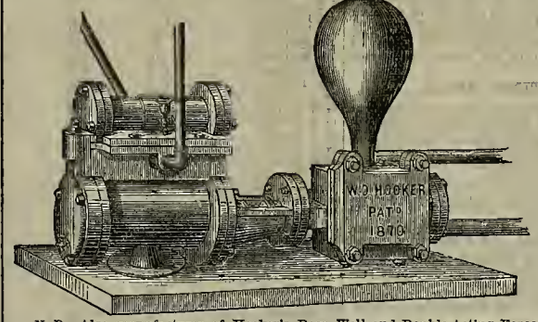


Hooker's Patent Direct Acting Steam Pump.



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SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.

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IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the **Hepburn Rolling Pan** and **Callahan Grate Bars**, suitable for Burning Screenings.

NOTICE.—Particular attention paid to making Superior Shoes and Dies. 20v26.3m

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Machinery and Castings of all kinds.

CALIFORNIA BRASS FOUNDRY,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

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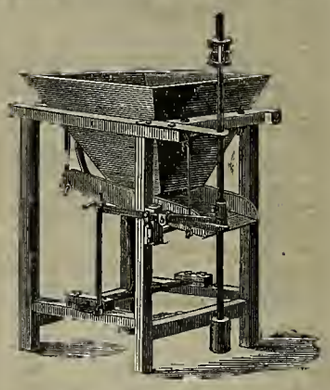
Tulloch's Automatic Ore Feeder.



At the request of Mr. Jas. Tulloch, we have carefully examined his patent Ore Feeder for Quartz Mills, now on exhibition in this city at the Pacific Foundry, and in view of its simplicity of construction, directness of action, durability and compactness, as well as its small weight and the low price at which they are held by the patentee, so as to place them within reach of all mill owners, are free to state our unqualified opinion that we regard it superior to any Ore Feeder of which we have any knowledge in actual work. We are confirmed in this opinion by the severe tests to which it has been put, doing its work thoroughly well on ores of all kinds. We find the delivery to the mortars of the ore-stuff, whether dry, damp or wet, to be entirely uniform and regular, and that even slimes and slush can be worked in them under perfect control.

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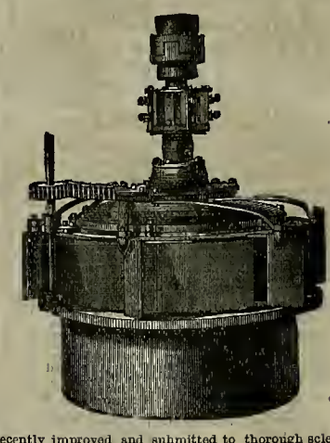
GEO. A. TREADWELL,
GEO. MURCKTON,
JAMES G. HUNTER,
FRANCIS H. HILL.

San Francisco, July 3, 1874. 2v29-1m

THE

AMERICAN TURBINE WATER WHEEL.



Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ⅝ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "**These are the best average results ever given by any Turbine Wheel in my experience.**"

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Sole Agents for the Pacific States and Territories.
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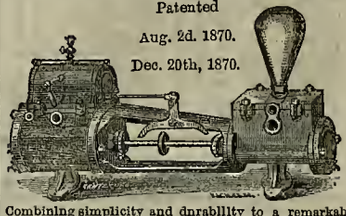
THE SELDEN

DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

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STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

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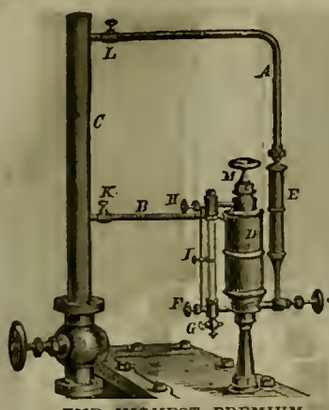

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These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stoppa; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; werranted t give satisfaction. Patented February 14, 1871. Man ufactured by California Brass Works, 125 First street, S F. — 24v23tf

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Die. Shoe.

Will wear three times longer than any iron Shoes

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EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

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The Cheapest and Most effective Furnace now in use Parties desirons of building above furnace, or for any information on same, addrcss,

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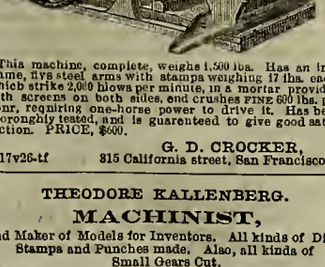
CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stampa weighing 17 lbs. each, which strike 200 blows per minute, in a mortar provided with screens on both sides, and crushes FIVE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guarenteed to give good satisfaction. PRICE, $600.

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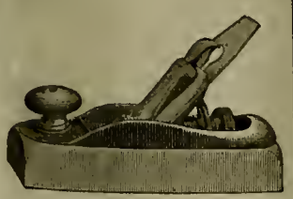

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DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent, 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	5	6	6	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches	2	2¾	3¼	3¼	3¾	4	5	6	7	9	10¾	12
Stroke of Piston, in inches	6	6	7	7	7	10	12	12	12	15	15	18
Capacity per double Stroke, in gallons	1-6	¾	7-10	7-10	9-10	1 1-6	2 1-6	3¾	4¾	9	12	19
Capacity at ordinary Speed, per minute	10	15	25	35	45	60	80	110	140	270	385	400
Maximum Capacity	30	45	80	100	135	165	240	330	420	675	900	1200
Boilers in horse power they will supply	25	40	80	120	150	225	350	500	600	...	...	...
Size of Steam Pipe, in inches	¾	¾	¾	¾	¾	1	1¼	1½	2	2	3	2¼
Size of Exhaust Pipe, in inches	¾	1	1	1	1¼	1¼	1¾	2½	2½	3	3	...
Size of Suction Pipe, in inches	1	1¼	1¼	1¼	1¼	2	2¾	3	3	3	4	...
Size of Discharge Pipe, in inches	¾	1	1	1	1¼	1¼	1¾	2	2	3	3	2¼
Weight of Pump, in pounds	150	235	400	425	810	875	1180	1500	1620	2400	3375	4800
Length over all, in feet and inches	3-4	3-10	3-10	2-3	3-11	3-11	4-3	4-3	4-3	4-7	5-7	6
Height over all, in feet and inches	1-6	1-9	1-3	1-1	1-3	1-1	1-6	1-10	1-10	2-1	2-9	2-10
Width over all, in feet and inches	9	10	1-1	1-1	1-3	1-4	1-6	...	...	...	...	...
PRICE	$	$	$	$	$	$	$	$	$	$	$	$

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS { No. 4, 24-in. Stroke, $ / No. 5, 24-in. " $ / No. 6, 30-in. Stroke, $ / No. 7, 30-in. Stroke, $ / No. 8, 36-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

TO HYDRAULIC MINERS.

I warn Hydraulic Miners not to be misled by the advertisement of Mr. F. H. Fisher. Said Fisher has been beaten in every suit to which he has been a party (respecting Patent Rights on Hydraulic Machines), whether as plaintiff or defendant.

His patrons have already paid over Five Thousand Dollars for license to use machines purchased of the self styled

"Only Reliable Party in the Business Who Protects His Customers."

Fisher's Machine is worthless unless the discherge pipe is furnished with appliances, the patent for which is owned by Messrs. CRAIG, and which Fisher is enjoined from making.

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I am sole LICENSEE to sell Machines manufactured under Craig's, Rice's, Macey's and Hoskin's patents.

I Guarantee Full Indemnity to all my Customers.

Machines of all sizes always on hend

If you want a Mechine that will give satisfaction, and do not want to pay for it twice over, buy an Improved LITTLE GIANT.

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WILLIAMSON & CORY, Marysville. }

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Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing end amalgemating oras, they heve no eqnal. No effort has heen, or will he spared to have them constructed in the most perfect manner and of the great numher now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pen being filled, the motion of the mnller forces the pulp to the center, whera it is drawn down throngh the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thns it is constantly passing a regular flow hetween the grinding surfaces and into the quicksilver, until the ore is redneed to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all othera They hring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-menara invited to examine these pans and setlere for themselves, at the office, 229 Fremont Street, San Francisco

Morris' Settler and Amalgamator.

PATENTED MARCH 25, 1873.

An important improvement in milling. Cheap, light, efficient and durable. Oains Quicksilver on working tailings. Is discharged from the surface in the center instead of the side, by means of a Syphon which extends to near the center of the Settler. Heaviest casting weighs only I35 pounds. The sides and hottom of the Settler are made of wood, as also Mullers, placed vertically—the friction of which brightens the quicksilver.

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616 Merchant St., S. F.

Ores Assayed and Amalgamsted. 8v28-3m

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Sampler and Crusher of Ores,

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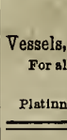
Silver-Plated Copper Amalgamating Plates, for Saving Gold.



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STRONG & CO.,

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Platinum Screp end Native Platinum purchased.

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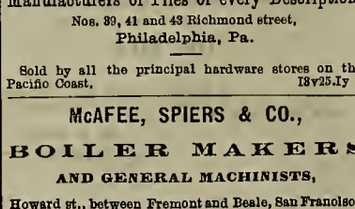

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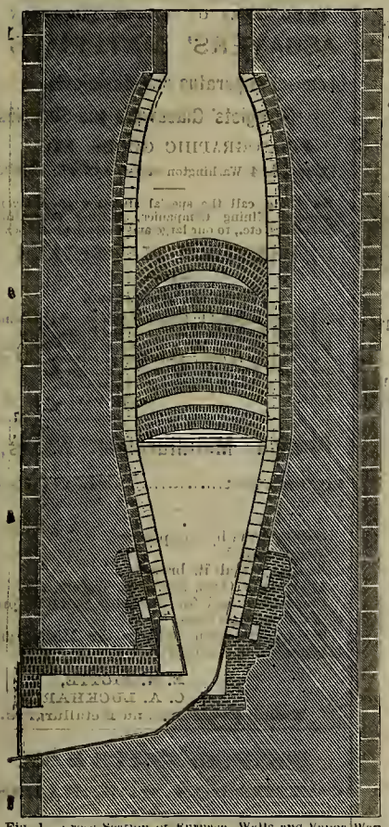

Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches.

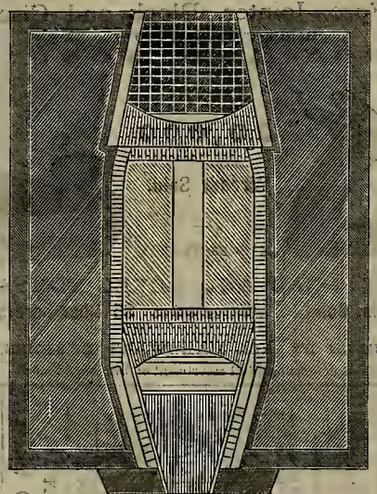

Fig. 3.—Horizontal Section at Fire-Grate Level.

THIS FURNACE REDUCES CINNABAR, AND

WORKS CLOSER TO AN ASSAY

And at **LESS COST** per ton than any other furnace. It will work continuously Twelve to Twenty-four months without stopping.

No Man Has Ever Been Salivated

Or otherwise affected by the mercury about the furnace, either in operating it or making repairs. For full particulars, plans, etc., apply at

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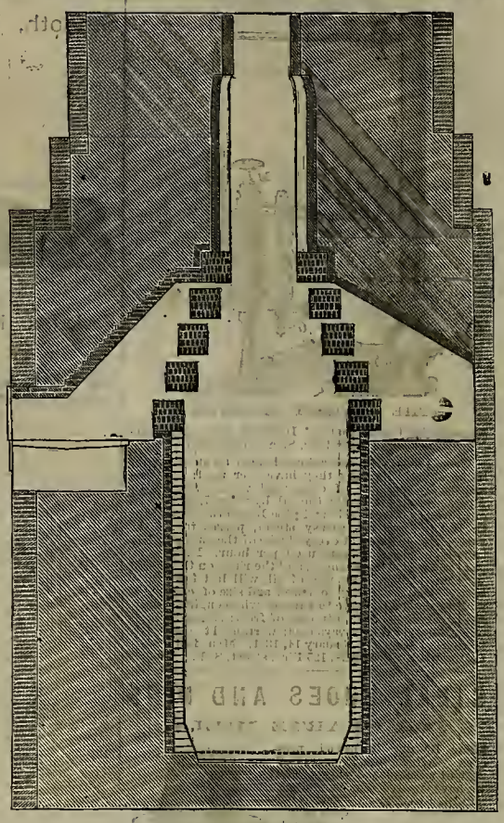

Fig. 2.—Cut Transversely from Fig. 1.

W. T. GARRATT.

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Brass and Bell Founder,

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MANUFACTURER OF

Brass, Zinc and Anti-Friction or Babbet Meta

CASTINGS,

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FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

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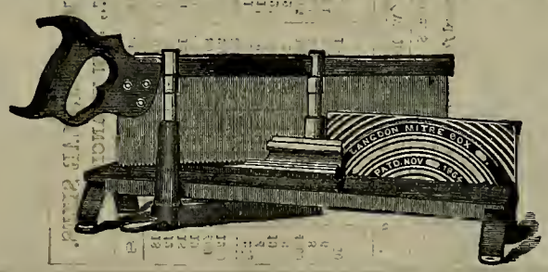
LANGDON'S ADJUSTABLE MITRE BOXES.



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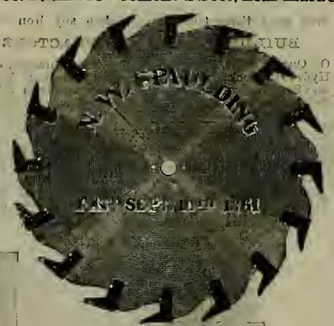

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For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.

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For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.

☞ The only Blasting Powder used in Europe and the Eastern States.

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v22-3m16p General Agents, No. 210 Front Street.

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Separates in one and the same operation—1. galena and sulphide of silver; 2. pyrites or blende; 3. tailings, containing no valuable parts; or, 1. gold; 2. pyrites; 3. tailings (quartz, etc.) containing no valuable parts; or, 1. copper; 2. tailings, containing no valuable parts. The One-Plunger Jig can be combined with existing stamp-mills with highly important advantages, as after amalgamation it will recover completely all fine metal and all base ores and all mercury out of tailings. It concentrates all fine metal ores to such cleanness that low grade ores can be shipped, after concentration, as first-class ores. Its feed and discharge are automatic. Its construction offers better guarantee against loss and repairs than any other apparatus in use. For particulars, apply to the inventor, F. CAZIN,

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ANDERSON & WOODS'

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Every Bar Warranted and Guaranteed equal to any English Brand.

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One 20 and one 10-Stamp Quartz Mill with Hoisting and Pumping Engines, Pumps, Columns, Tubs, Cars, &c., good as new.

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MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, AUGUST 8, 1874.

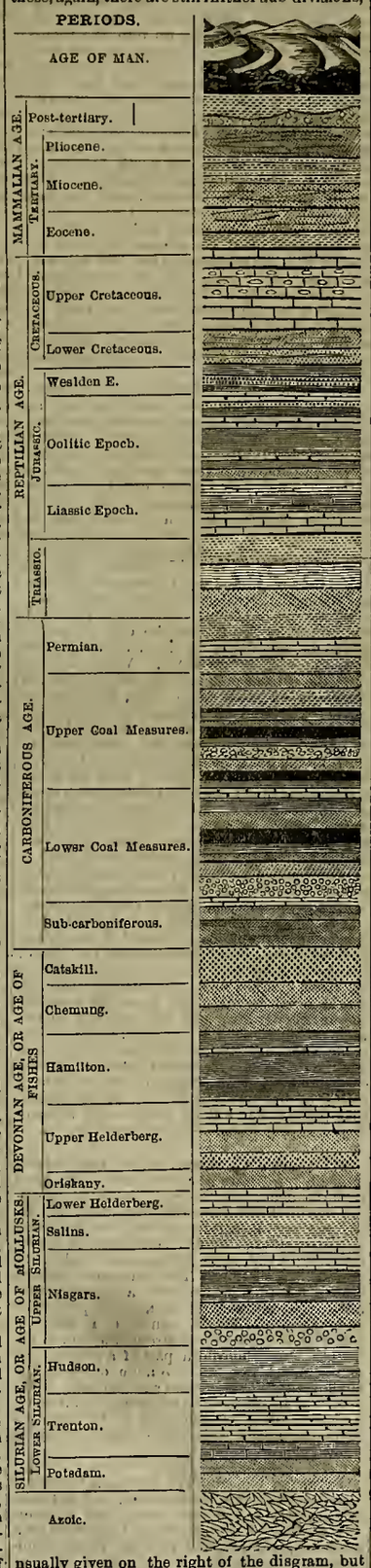
VOLUME XXIX Number 6.

The Earth's Crust—How Made Up.

By the "earth's crust" is meant that small portion of the exterior of our planet which is accessible to human observation. Our research of course, is confined to only such observations as can be made in deep mines, or in valleys which have been excavated by natural means, such as the attrition of icebergs, or the action of water. The object of this present article, and the accompanying diagram, is to give such of our readers as have not ready access to scientific works some idea of what has been learned in this direction. Those who are familiar with the principles of geology will, of course, excuse the elementary facts here given for the benefit of others. The illustration is taken substantially from Dana's Manual of Geology, and gives an ideal vertical section of the earth's crust, as it would appear at some locality where all the various deposits might be found, regularly imposed, without any disturbance from upheavals or erosions. Of course, no such place exists, for evident reasons; but all the deposits shown are found in some one or more places on the earth, and always in the precise relative order as shown. Of what materials the earth is composed, and the manner in which they become so peculiarly and regularly arranged, seems only until quite recently to have formed the subject of special inquiry and study. It has ever been apparent that the solid parts of the earth consist of distinct substances; such as loam, clay, sand, slate, granite, lime, etc.; but, for long ages, and indeed until within a very brief period, it has been supposed that all these various substances came from the hand of the Creator, in substantially the same form as we find them. As soon, however, as scientific men began to turn their attention seriously to the study of the phenomena connected with the surface of the earth, it was found that among the rocks the remains of animals and plants were found in great variety, and always arranged in a certain uniform manner, with regard to their superposition, any particular variety which was found below another in one locality was sure to be found in the same relation in every other. This discovery naturally led to inquiry as to the cause of such uniformity; and the result of these studies has been the building up of the modern science of geology. The diagram not only shows the different deposits in their chronological order, but the comparative thickness, also, of the various beds or layers.

All the remains of animals and plants are found above what are termed the crystalline rocks, such as granite, gneiss, etc. No matter how far we go down into the granite, we nowhere find any remains of life, either animal or vegetable, or any change in the character of the rock structure; hence the whole geological structure, so far as known, is superimposed upon the crystalline rocks, which are called "azoic," a term meaning without life. Starting then, from this point, at the bottom of our diagram, and going upwards, we immediately find evidences of life with the first change in the character of the rocks. In the animal kingdom we here first find the remains of three orders of animals—the *radiates*, the *mollusks*, and *articulates* (as crustaceans and worms)—in the vegetable kingdom we find only the *algæ*, or sea plants. Other kinds of animals and plants appear in succession as we move upward along the diagram, until we finally arrive at the age or period of man, and the most perfect forms in the vegetable kingdom.

It will be observed by looking at the left hand side of the diagram that the entire time in which life has existed upon the earth is divided into six great periods or ages—the age of mollusks, the age of fishes, the carboniferous age, the age of reptiles, the mammalian age and the age of man, or mind. The first grand division is sub-divided, for the convenience of scientists, into two—the upper and lower silurian; the fourth grand division—the age of reptiles—is separated into three sub-divisions—the triassic, jurassic and the cretaceous; the mammalian age is also sub-divided into tertiary and post-tertiary. In addition to the sub-divisions already mentioned, there are a great number of other sub-divisions, as given in the column next adjoining the diagram. In addition to these, again, there are still further sub divisions,



usually given on the right of the disgram, but which we have omitted altogether from our diagram, as they would here only serve to confuse the reader.

The azoic rocks—granite, gneiss, etc., rocks in which no remains of life are found—constitute the only formation which is continuous, at a certain depth, all over the earth. They form the floor of all other deposits, and were the first rocks which emerged from the primeval ocean, which no doubt at one time enveloped the entire earth. As sections of these rocks were pushed up, the air, rains and moving waters commenced wearing them away, and re-depositing them in still water. From this source we have the earliest stratified sand or mud, which subsequently hardened into rock, and formed the various layers of the lower silurian rocks. They in their turn were again worn away, mixed with more debris from the underlying granite and again deposited, forming at certain points certain other deposits or layers. It has been by such and similar action of wearing away and re-depositing, that one layer after another has been created and deposited as we now find them, through the four or five miles' thickness of what we know of the crust of the earth. In some places the original granite still appears. In others it is buried to depths greater or less, as the elements, upheavals, depressions, etc., have been more or less active in their operation. This system of arrangement in the earth's features is every way as marked as that of any of the species of animal or vegetable organisms. It might be interesting in this connection to mention that the portion of the earth which is supposed to have been the first to have been lifted from the primeval ocean, was that to the north of the St. Lawrence river, extending north-eastwardly from Lake Superior to the Atlantic ocean, and north-westerly from the same point to the Arctic ocean.

The three first great divisions as shown are more perfectly represented in America than any other part of the world. Hence the reader will find the names of American localities generally applied to their more minute sub-divisions, as given in the diagram. The later formations, including the reptilian age, are better represented in Europe than in America, as is seen by the European terms more generally given to the subdivisions—not however given in our diagram.

As already intimated, it should be borne in mind that there is no one place on the globe where all these formations are perfectly represented. In many portions of the world only one or more of the geological divisions are represented. This is explained by the fact that such portions of the earth's crust were first elevated above the ocean bed during the epoch to which the division is assigned. Consequently none of the earlier stratified beds could be found there—they could not have been formed beneath the ocean. We will give in a future issue a diagram showing the progress of life—animal and vegetable—from the silurian age to the present time, which forms the basis of the subdivision of the earth's crust as herewith shown, into geological ages.

THE CALISTOGA SILVER MINE.—We understand that the machinery for this mine is now on the ground, and will be erected and put in operation within thirty days. The mine is well opened, and is said to have many months' supply of rock in sight. The probable cost of milling and mining will be about $10 per ton. The rock is a gold and silver-bearing ore, similar in its characteristics to that of the Chollar mine on the Comstock lode, and quite unlike anything hitherto found in California. We are assured by an expert who has recently visited the mine that, although but little credence should be given to the many exaggerated reports that have been circulated with regard to the richness of this mine, founded upon exceptional assays, the mine bids fair to yield a remunerative profit to its promoters. The bullion assays $12 of silver to $20 of gold.

THE SUTRO TUNNEL.—On Tuesday of last week the main header of the Sutro tunnel was in a distance of 6,356 feet; progress for the week, 60 feet.

NEW HOISTING MACHINERY.—The new hoisting machinery at the Crown Point mine was started last Saturday morning, and the company are now shipping ore as usual.

From the Quicksilver Mines.

Much activity is reported among the quicksilver miners to the north of the Bay. The discovery of new indications is reported at the upper end of Pope valley, Napa county. The quicksilver is found in the surface dirt, and is obtained by simply panning—a large amount of the pure article being obtained from every panful. Colusa county is also putting in her claim as a quicksilver yielding district. The Colusa *Sun* of Saturday last says: Both the Buckeye and the Elgin continue to take out quicksilver with their retorts. The latter sent down eight flasks last week. The castings for the furnace of the Abbott mine have all been made, and most of them will be at the Colusa wharf by the time the *Sun* goes to press. The brick will be ready for delivery by the 10th of the month, and by the 10th of September, the furnace will be ready to turn out from five hundred to a thousand pounds of quicksilver a day.

The Lake County *Bee*, of July 30th, says: There are 150 men, mostly Chinamen, now employed at the sulphur banks by the California Borax company, mining for quicksilver. The new reduction works are nearly completed, being situated on the site of the old sulphur works of this company. A large force of men are making bricks out of the soil which contains the quicksilver, which are hereafter to be burned for the extraction of the metal. Superintendent H. L. Lightner contemplates shortly increasing his force of men to 200.

The new furnace of the Great Western mine, Lake county—the Luckhardt furnace—with a capacity of thirty tons, started on Saturday last. They are also constantly running their 10-ton furnace, the product of which last week was 27 flasks. We are credibly informed that this company is reported to have a large supply of ore in sight, and may reasonably expect a product of from 400 to 500 flasks per month.

The St. John quicksilver mine, near Vallejo, is now producing from 150 to 200 flasks per month. This mine is quite exceptional in its character from such mines generally. It presents well-defined walls, with "slickensides," in connection with the hanging wall. The gangue is found in serpentine, in connection with metamorphic sandstone and clean quartz. This company has opened its ground by a well-arranged system of tunnels and cuts, seventeen in number. The greatest depth reached is 200 feet.

LIGHTING GAS BY ELECTRICITY—A HINT TO INVENTORS.—Most of our readers are familiar with the term "electrophorus"—a term denoting any instrument for exciting electricity in small quantities. The point we wish to make is the application of some device of this kind which may be attached to an ordinary gas-burner, so that when the gas is turned on, the instrument may generate an electrical discharge of sufficient intensity to light the gas without the inconvenient and offensive necessity of employing a lucifer match, or some equally inconvenient device. The instrument might be operated by the simple act of turning on the gas, or it might be made to act the part of a stop-cock to turn it off, and an electrophorus to light the gas when removed. Something of this kind was exhibited before the British Society of Arts some ten years ago; but we do not learn that it was either patented or introduced into use, although the Society's journal stated, at the time, that it was simple, cheap and effective. It was not fully described, but appeared to have consisted of some form of a stopper of vulcanite, the friction of the removal of which, from an ordinary burner, generated an electric discharge which ignited the gas. If some person should turn his inventive genius in this direction, there is a possibility that the public might be placed in the possession of an important desideratum, and the inventor on the high road to fame and fortune.

NEW MINES REPORTED ON THE NORTH FEATHER RIVER.—Considerable excitement exists in the northeastern portion of Tehama county, over the report of the discovery of new and extensive mines somewhere on the head branches of North Feather river.

Cherry Creek.

The editor of the White Pine *News* is examining the mining districts of his part of ths country, snd he givss the following about some of ths mines in Cherry Crsek district:

The third dey of our visit wss devoted to looking at the property known as the Cherry Creek mill and mining compauy, embracing locations called the Tea-cnp and Gsneva, respectively. The minerel helt whereon these mines are found is the same as that described in a former lettsr ss cheracterizing the Chances mine, and a careful survey reveals an extension of the same chsracter of walls, both hsnging snd foot, as fonnd at the locality mentioned. More work has besn done on ths Tea-cup mine thsn on any otber in the district, the result of which has been to raise large qnantities of good pay ore from a sheft or incline now nearly 135 feet in depth. In the temporary absence of supsrintendeut Stanford, we were shown around both above and below ground, by Mr. Kimball, who is interested largely in the property himself. We were indeed surprised at the large amonnt of really rich rock in view, and must confess onr admiration of the prospect, now reduced to a certainty. The ore is of a free-milling character, and can be treated with perfect ease and facility, withont roasting, and can be obtsined, jndging from present appearances, in almost inexhanstible quantities. The company have no mill of their own, and will probably not ercct one nntil having pnt through a quantity of rock now on hand. A large force of men are constantly employed, and ore is being shipped daily to the mill to await reduction at some future time. The continuity and unbroken cheracter of the ore channel on which are located tbe mines we have attempted to describe, associeted with the fact of sucb perfect geological development of the country eround, lead one to the conclusion that Cherry Creek district must eventually be the leading mining section of eastern Nevada. In the words of a gentleman whom we met there, "if there are no mines here, I shall leave the bnsiness which has been my pnrsuit for twenty years, and commence psddling pea-nuts or hot corn." We find this the general expression of confidence in the permanency of the district.

E. B. Diokenson, superintendent of the Midas and Steptoe Consolidated Co., accompanied us from the Teacup to his location, situated a short distance, in fact, adjoining the last named on the south. Here again was presented to our view the prodigality with whioh nature had scattered boulders of pay ore on the surface. We are informed that from 50 to 200 tons of good rock will be sacked and sent to mill from the croppings over the Midas mine. Work has been commenced here by means of a tnnnel driveu into the western slope of the monntain, and already 100 feet has been attained, where a crosa drift will he run to strike the ledge. Every indication proves to us the existence of a fine ore-hearing vein, which all heartily wish may be permanent. The superintendent informs us that he is working now only a small force of men, but will soon extend his operations very materially. We are impressed with the confidence expressed by all in the future of the whole country, by precticel and interested miners who have faith enough in their belongings to stick to them through thick and thin, nntil they oan be developed hy aid of capital. Beside the mines described in tbese letters, we were shown several other locations which we had not the time to visit. In our next we shall give an account of the Gray Eagle aud Star mines.

Miner's Luck—Nevada.

About Randolph Hill, a short distance from Grase Valley in the direction of Rough and Ready, were once very rich surface diggings. Years ago A. W. Ress worked his diggings up toward the hill until stopped by a cabin just ahead, the owner of whioh protssted against being undermined. The clean-ups did not justify the payment of damages, and so the claim was abandoned. A year and a half or two years ago, the cahin having heen long abandoned and fallen to ruin, and miners being content with less wages than in flush times, Rees and a partner went to work in the old claim and for a long time were rewerded with very indiffsrent success. The clean-nps only paid grub bills and the pertner often threatened to throw up the cleim. One clean-up day the pan showed only six bits as a return for many hard knocks, and at noon the partner began packing his blankets. Rees qnietly remarked that as they would have to pay for a whole day's water they had better work the day ont and perhaps their luck would turn. They did work tbe day out and luck did favor them. That night they had nineteen onnces to divide; and since that the claim which so narrowly escaped degradation by abandonment has cleared the fortunate owners many thousands of dollars. They had struck a decomposed quartz ledge and have from that day to very recently worked it with great profit. One pan taken from a pocket turned out over $1,800 in gold, and $50 a day has been no nnusual average yield. The claim has been quietly worked, by hand pump and hoisting, to a depth of 80 feet; and wonld he turning out now bnt for an accident to the ditch, which flooded the works and necessitated some dead work, now being done. How meny jnst as good mines exist with six miles of the center of Grass Valley? Who knows? It might pay some hundreds of able bodied men to pitch in and find out a few of them.—*Foothill Tidings.*

Fire in the Belcher.

The Gold Hill *News* of ths 30th ult. says: At about sight o'clock lsst night the town wes startled by the report that the Belcher mins wss on fire, and in lss than five minntes from the time the report was received, although no bells wsre rung or whistlss blown, the streets were deserted; and men, women and children, to the number of about a thousand, were hnrrying to the mine. Arriving thsre, their fears were shortly after qnieted, by the announcsment that the fire had been extinguished, and by seeing the miners descending to their work. The fire originated on the 1,300-foot level of the Crown Point, near the line of the Belcher, whsre some minsrs were blasting decayed timbers from an old drift.

The Miners Alarmed.

The timbers were inflammable, and took fire; but, by the prompt action of those who perceived it, the fire wss extinguished hy the aid of a Babcock fire-extinguisher, kept on the level; but not soon enough to prevent the miners smelling the bnrning wood, and stempeding like a flock of frightened sheep. The word passed from drift to drift, and from level to level, like wild-fire, that the mine was on fire, and a rush was made for the shaft, and the giraffe was kept moving at a lively rate until the excitement snbsided. A few of the old hands took matters coolly and remained below, but they were the grand exception. In speaking to the engineer this morning, we ascertained that all those desirous to get ont reached the surface within fifteen minutes after the alarm was first given, so that in case a first-class fire had occurred no lives would have been lost.

Incidents in the Mine.

When the alarm reaohed the 400-foot level, a yonng man, about 20 years of age, a new hand, threw his pick to one side, and with a yell that would have done credit to a Sioux Indian made for the shaft, and waited for the giraffe to put in an appearance. He had not long to wait. As soon as he got on he plumped down on his knees, and like an honest miner, lifted his hands and voice in prayer for the salvation of hie wicked soul.

Two miners on the 1,200-foot level had an altercation jnst before the alarm was given, and agreed to settle it upon reaching the surface at 11 o'clock, but while waiting for the giraffe dnring the excitement, the quarrel was renewed, and one of them, a Cornishman, stabbed the other nnder the arm with the sharp end of his candle-holder. The wound inflicted was about an inch aud a helf deep, but not dangerous. Dr. Kirby dressed it last evening.

Banner District Mines.

A corrresponden of the San Diego *Union* thns writes concerning the mines of the Banner district:

Prominent among the mines of this district is the Chariot Mill mine, owned by a San Francisco corporation and managed by F. L. Perkins, an old and experienced mining superintendent of Amador and El Dorado counties. The company's new hoisting works and 10-stamp mill are both running in perfect ordsr. The amalgemation of the ore is perfected end the entire mining and milling is second to none. Enough has been said before concerning this mine, so I will proceed to the Ready Relief mine, owned by Messrs, Neyhart & Schuyler, who have just purchesed it from Bailey Brothers & Co., for the snm of $45,000. Admirably located, it can be worked hy tunnels to the depth of 600 feet on the inclination of the ledge, and at less expense than any other mine in the district. The pay chimney or the chute promises to be a long one, and as the ore has been yielding an average of $50 per ton, the vein averaging eight feet in thickness, it is no hard mathematical calculation to prove to the disposers of the property that they made a bad speculation in selling a twenty-dollar piece for one. Rnmor has it that the fortunate pnrchassrs are going to work the mine as a mine ehould he worked, by shortly erecting a 20-stamp mill and opening ont at a lower depth the immense chimney of ore exposed in the upper levels; without doing this the new mill could be kept running three years on ore sunk and drifted through. Apparently on the seme ledge lying northerly from the Ready Relief miue is the Hidden Treasnre miue, owned by Messrs. Ross & Putney. The last month these gentlemen have teken out $700 worth of ore with tbeir own labor, besides $300 in specimens, which they crushed in hand-mortar.

The Young mine, sonth of the Chariot, will make a mine. The Golden Rule is a first-class location, and will nndonbtedly yield handsomely for working. Tbe Poorman, lately purchased by F. L. Perkins, snperintendent of the Chariot Mill mine, although not opened to any great depth, promises to be one of tbe hest mines in the district. Among the other mines I have visited are the Cable, Kentuck, Madder, Beaver, Empire, Hubbard, Redmoud, and many others, each one a fortune for several if properly worked and manged.

From Robinson.—We are informed by private letter that the mines bonded to the Watson company, and sitnate in Nevada district, named respectively the Sumner and Portland, are looking extremely well. Superintendent T. D. Elmore sends us, as the resnlt of three assays, $1,112, $1,240 and $1,144, all of which we regard as highly satiefactory. The furnace being erected by tbe Canton company is rapidly approaching completion, and will be started on tbe first proximo.—*White Pine News.*

Eberhardt and Aurora Mine.

Our visit last week was of such a hnrried neture that it was impossible for ns to give more than a pssing description of the appearance of the justly cslsbrated mines of the company whose name heads this itsm. On Mondey last, while ths minsrs were busily engaged at ths polls, we accepted an invitation from foreman William Maxwell to explore the depths undergrond. Passing in through the South Aurora tnnnsl, which commences on the eaat side of ths hill, we were couducted along a distance of some 750 fest to ths opening lately made into the Wyon chamber.

We heve attsmpted heretofore an imperfect sccount of the wondsrful body of ore coutained within the walls of this new discovery, snd are even now at a loss how to commence anything approaching a competent description of the seme. The level on which we first entered the immense excavation is abont 150 feet from the snrfece, and since onr lest visit a shsft hss been sunk down a distance of 60 fest, at which depth another huge body of ore has been enconntered, soon to be connected with the upper workings, making a chamber of almost solid mineral, measuring, approximately, from 90 to 100 feet in hight and of as yet unknown length. Some specimens taken by ns from the walls are exceedingly rich, going up into the thousands, and the general average, we are told, will be from $80 to $120 per ton. Some fifty tons are being daily extracted from tbis wonderful enhterranean cavern, and the quantity remaining in sight seems to be increasing instead of diminishing. The foot wall, which is found from the South Anrora on the south to tbe Hidden Treasure on the north, is here enconntered, bearing the same dip and in perfect line from end to end. All ore fonnd lies east of this north and south foot wall, approaching nearly if not quite up to the wall, and exploration has proven that no mineral is found beyond or west of the same. This fact only still further proves the truth of the theory advanced and maintained by us during the years in which we have been acquainted with tbis truly remarkable locality, and is convincing as to the existence of a true vein of mineral extending completely through the hill, rich in quality and enormous in quantity.

It is with much satisfaction that we commence to see the light, for which we have all so long waited and prayed, breaking out from the darkness and despondency of the preceding years, and tbe general feeling of confidence expressed is but a natural result of the illustration of a firm helief in the certein foture of our country. A drift running north, east of the Wyon chamber, and on tbe line with its present workings, leads directly to the central shaft, and is now hut 20 ft. from its destination. Tbis shaft will he an avenue through which the ores mined will he raised to the surface by means of a steam hoisting engine, now being put in position. The depth from the surface will be 205 ft., and the ore will he delivered at that depth hy means of oars, run from the various workiugs. While in the mine the shift of men at work had charged the varions holes reedy for a blast, and were removing the timbers preperatory to shooting them off. At a given signal, the men having retired to a safe distance, the match was applied, and shortly the earth moved and swayed with the concussion, resulting from the thundering tones of 21 shots, following each other in rapid snccession. At this time wes demonstrated another beauty of our Treasure Hill mines. The powder smoke, which sometimes lingers for a long time underground, here is borne off rapidly through the various shafts and tnnnels rnnning to the surface, thus causing bnt little delay to miners from this canse.

It is generally supposed that the old workings, such as the Risdale, Ledies', Peerless and Earl chembers, situated south from the Wyon, have been completely worked out. But this is an error, and we were convinced of this by Mr. Maxwell pointing out to us the immense amount of pay ore still left clinging to the walls on every side, but which, being of low grade, snch as $40 or $50 ore, bas not been distnrbed. When manager F. Drake has succeeded in getting his company ont of debt, a matter of hnt short time now, he informs ns that prospecting will he commenced with energy and persistence.—*White Pine News.*

A Dangerous Present.—Very few people, probably, are aware that osminm is the most powerfnl poison ever known. At a recent meeting of the Paris Scientific Academy, M. H. Sainte Claire Deville, a member of this learned assembly, offered to his colleegnes, in a perfectly tight vial, eight killogrammes—about 15 pounds—of osmium. The illustrious chemist accompauied his present with a short explanation. Osmium, he said, is the most poisonons of all poisons. Twenty ponnds of it would he sufficient to poison the entire population of the world. One thousandth part of a grain of osmic acid, set free in a volume of air of 100 cubio yards, wonld possess snch a deadly influence that all the persons respiring the air could be nearly killed. Osmic acid is so much the more dangerous that no counter poison is known against it.

Smelting Works.—The Mattison furnace is rapidly approaching completion, and will soon be reany for active operations. Mr. Prescott will at once gst his force ready to start up on a good snpply of ore, and from all present indications, a success will be the result. It is intended to make a trial of the furnace on the 1st proximo.—*White Pine News.*

Ores of Lead.

E. J. Halleck writss ss follows in the *Iron Age*: Lead ores ars found abundantly in all parts of the world, and not being difficult to work, we may suppose that lead was nsed at a very early date.

In nature lead occnrsin many different forms; its compound with sulphnr, known ss galena, is, however, the one generslly employed for obteining the metal. It contains, when pnre, 86.6 per cent. of lead, the remaining 13.4 per cent. being snlphnr. It is easily recognized by its gray color, metallic lustar, and cubical crystals. Its specific gravity is about ths same es iron, 7.2 to 7.7; and, with the exception of cinnabar, it is the hssviest of the ordinary minerals. In hardness it resembles rock salt, is scratched by a copper coin, but not scrstohed by the nsil. Gelena always contains more or less silver, the amount varying from 0.02 to three per cent.; the quantity must be determined by cupellstion, no external characters serving to distinguish the kinds that contain much, from those which contain bnt little. Galena is soluble in nitric acid, fuses on charcoal before the blow-pipe, emitting snlphnrous fnmes and yielding a globule of metallic lead.

Clausthalite is a compound of leed with selenium, similar to the above, but much rarer, being fonnd only in the Hartz, and in Saxony, Germany and a few places in Spain and Sonth America. Cerussite, or native carbonate of lead, is a valnable ore fonnd in Massachnsetts, Pennsylvania, Virginia and many Northwestern States. It contains about 77.5 per cent. metallio leed, and has a white, gray, or grayish-black color, with an adamantine luster inclining to resinous and sometimes pearly. The remaining ores of lead possess little valne in the arts. Some, however, are remarkable for beanty of colors and crystalliue form. Crocoite, or native chromate of lead, has a bright hyaointh red color, with adamantine, vitreous luster; is always found in prismatic crystals, which are very hrittle. It is easily dissolved in acids, and in hydrochloric acid gives a green solntion and crystallized needles of chloride of lead. With a salt of phosphorus it gives an emerald green bead in both flames of the blow-pipe. Anglesite is a native sulphate of lead having a white color, and is found either in prismatic crystals or lamellar masses. Pyromorphite, or native phosphate of lead, occurs in beautifully colored green, yellow and brown crystals, in the Perkiomen lead mine, near Philadelphia, and at Phœnixville; also in New York, a mile south of Sing Sing; in Davison county, N. C., and a few other localities. Lead is also found in combination with oxygen as minimum, with arsenio acid as mimetite, with tnngstic acid as stohzite, and with molybdic acid as wnlfenite.

Table Mountain Mines.

The Tuolumne *Independent* says: The Alpha gravel mine, nnder Table mountain, is now yielding good pay. Our informant states that last week he saw a smooth-washed bonlder, about the size of a man's head, taken out of the face of the drift they were working; this was covered with cement, which, when scraped off, filled half a pan, from which was obtained $25. On Thursday, of last week, he saw two-thirds of a pan taken ont of this level, which paid $20—one piece worth $7. They are now working 10 men nnderground. The gang who were running from present channel, over high ledge, have struck a back channel. This still further confirms the assertion of old Table mountain miners that there are two distinct river beds channels nnder the monntain. The one on the east side is the most ancient, and is known as the Caldwell or Saratoga channel, and carries heavy, black, coarse gold, wherever it has been struck in Table mountain. The west channel is of later formation and carries finer and brighter gold; no black gold is fonnd in this, and no pipe clay, as is the case in the other. As intimsted above, all old miners are positive there are two distinct channels, and that both have been found at the head of the mountain, at the Buckeye, and also at the Hnmbug or Blue Gravel claims, several miles apart, would seem to prove the fact. After getting on the slate ledge, in this Caldwell or Saratoga channel, a hnndred feet ie all a party needs to seonre a fortune. as it has always proved immsnsely rich. In this channel, at tbe head of the monntain, the Caldwell claim paid, in a rnn of common sluices, 14 pounds per day. Hnndreds of jnst snoh claime still lie nntouched under Table mountain. All that is necessary is capital to extend the old tnnnels, and go after the rich deposite. These were abandoned by poor men in early days who were unable to continue the work. Some of these tnnnels are probably within a few feet of the ancient channels, and will yet prove how near these poor fellows were to the fortunes they labored so long to find, but at last left for others to reap, after most of the hard work had heen done by them in a vain effort to reach their reward.

Sprucemont.—The White Pine *News* has noticed sevsral large teams, laden with fireproof rock, coming from the Pancake range and on their way to the above-named locality. A letter from Mr. Linehan, assayer and smelter in the employ of the Star King Mining Co., at Spruosmont, informs the *News* that his company is about to inaugnrate work on an extensive scale. Opportnnities will shortly be presented to practical smelters, miners and laboring men, to obtain employment at this point; in fact, onr informant states that he is in need of good men at this time.

MECHANICAL PROGRESS.

Straw-burning Engine.

There was exhibited at Vienna during the Exposition last year a straw-burning engine which attracted much attention. An exchange, in speaking of it, says: This engine is one of the novelties of the exhibition. A 10-horse power engine was used for the experiment, making 140 revolutions per minute, and the brake was loaded for duty of 19 horse power; 355 lbs. of straw was carefully weighed, consisting partly of bright rye and partly of loose, broken wheat straw, purposely mixed in order to test the capabilities of the engine for burning all kinds of fuel of this description. It required 46 minutes to consume the straw, steam being kept up during the whole time at a pressure of 70 lbs. per square inch with the greatest regularity. This result gives a consumption of about 24.5 lbs. of straw per horse power per hour, and as an engine burning average coal under similar circumstances would have required about 6.4 lbs. per horse power per hour, it appears that rather less than 4 lbs. of straw are equal to 1 lb. of coal. In threshing, about nine sheaves of straw are required to thresh 100 sheaves of wheat or barley. Everybody present was highly satisfied with the results of the experiment, as it has long been the desire the Eastern farmer to find some means of using steam power without incurring the enormous expense of bringing coal and wood from a long distance. This invention completes another link in the history of the steam engine, and will enable every farmer who raises more straw than he requires for the use of his estate, and who is miles from a coal mine or forest, to use steam instead of animal power, and at far less cost than hitherto. To California farmers, however, this engine will not be so great a novelty.

THE SZAROCH, A NEW RUSSIAN PROJECTILE. A new shell, under the above name, has just been adopted by the Russian artillery, which seems to have certain advantages. When the old spherical shell was replaced by the elongated shell, now entirely in use, the argument was the necessity of obtaining a higher initial velocity, which was possible only with rifled guns. There was not an artillery man who did not regret the sacrifice then made of the ricochet shot; a shot extremely useful in certain cases, and apparently quite impossible with an elongated projectile. Some two years ago a Russian officer devised a shell which was a time or percussion shell and at the same time could give the result of a ricochet shot. The szaroch, as it is called, is an elongated shell, the head of which is completely spherical; a round shell upon the end of an iron cylinder. The two parts are united together by a comparatively slight thickness of metal. When fired, the szaroch leaves the gun like an ordinary shell; but when it bursts, the cylindrical part alone flies in pieces, while the spherical head continues its flight intact and may ricochet for hundreds of yards further. The advantage of such a shell against artillery, for example, is very great. After bursting and scattering its fragments among the guns of the enemy, the head goes on to plunge into the infantry still further back. It is only to be used in Russia, however, for cannon of moderate size.

NEW FRENCH RIFLE.—A gunmaker of Limoges has submitted to the military commission at Vincennes a rifle of very novel construction. It is thus described in a Paris journal: The new gun presents nothing remarkable externally, but the lock is so arranged that the breech is opened by cocking the piece, and the charge being introduced, the breech is closed and the gun fired by touching the trigger. The cartridge consists of a hollow, leaden cone filled with powder, and closed at the base by means of a piece of cork. At the moment the cartridge is introduced into the breech the powder escapes by a small hole in the cork, and an imperceptible bell of fulminating powder, which forms the priming, takes its proper position. The triple action of cocking, loading and firing is thus effected simultaneously, so that a man with very little experience can fire twenty rounds a minute. The cartridges are stored in an iron tube, which is placed parallel with the barrel, and contains 30 balls, so that the piece may be fired as many times almost without any interval, and without removing the stock from the shoulder, as there is nothing to be done but to cock and pull the trigger.

DANGER SIGNAL.—MM. Lartique and Laforest have recently invented a novel device, intended as a danger signal, which is now in successful use on some of the French railroads. A whistle is arranged on the locomotive so that it will, when once opened, continue sounding until shut by the engineer. The same device which turns the disc signal, so as to show the danger side, is intended to transmit a current of electricity to a little projection between the rails. When the engine passes over this spot, a metallic brush hanging between the wheels strikes on the projection and sweeps over it, at the same time transmitting the current to an electro-magnet which pulls the whistle open. The latter, by continuously sounding, warns the engineer.

A NOVEL watch has been invented by a Swiss watchmaker of Aargau. The motive power is compressed air.

The Sand Blast.

Some new and interesting applications of this invention were lately described at a meeting of the students of the Polytechnic college, Philadelphia. Samples of raised lettering on marble, also of ground uncolored and of stained glass ornamented by the process were exhibited. Samples of thick plate glass, perforated by the sand blast with well defined holes one-fourth inch in diameter, were shown. The holes for the axles of the glass plates of electrical machines can be safely cut in this way. The lettering of the block of marble had been done by first grinding and polishing one of its surfaces, attaching the stencils (letters of the size and shape required cut out of plate metal), and then blowing sand, by means of a jet of steam, on the surface, until, where unprotected by the stencils, it is cut away to the required depth, leaving the letters in bold relief. The stone to be cut is placed upon a small truck, and then moved backward and forward upon a horizontal table, directly under the nozzle through which the sand is blown. The nozzle, which stands vertically over the table, has the pipe for the sand, entering the upper end, passing in the line of its axis, towards its lower opening. The steam enters through the side of the nozzle near its upper end, so that, when in operation, steam surrounds the tube through which the sand runs. A rubber pipe conveys the sand from an elevated box to the tubs.

TESTING STEAM GAUGES.—That will be an expensive gauge which government is to have in one of the towers of the Smithsonian Institute, with its costly column of mercury one inch in diameter and 150 feet in hight. It is to be the standard gauge whereby all manufacturers of steam pressure-gauges, and all supervising inspectors, may test the correctness of the instruments which they make or use. By means of this apparatus any gauge may be subjected to a mercurial pressure of 800 pounds to the square inch, and as it is to be constructed without regard to cost, it will be as nearly accurate in its graduations as human skill can make it. But as it cannot be expected that every gauge hereafter manufactured or now in use can be sent to the Smithsonian Institute, for the purpose of being tested, there will have to be many other standard gauges—*fac similes* of the Government one—erected in different localities, so as to leave no excuse for neglect or doubt; and when these standard gauges have become readily accessible, those who are found running their steam machinery with incorrect gauges should be severely dealt with.—*Technologist.*

PREVENTING RAILWAY ACCIDENTS.—An English inventor, Mr. C. Jordan, proposes to make the main lines without the usual switches, turnouts and crossings, being continuous from end to end, and to work such road by transferring trains where necessary from the main line to the adjacent siding, by lifting bodily from one line to the other. The lifting will only be an inch or two, and the hydraulic apparatus as now constructed will make nothing of the weight; while, as to time, Mr. Jordan calculates that a few minutes will suffice to transfer a train from one road to another without disturbing a passenger. The whole work, as regards the hydraulic apparatus, may be done by one or two lads.

PIPE JOINTS.—Mr. J. Phillips, of Hammersmith, has received a patent for a new method of making tight joints for pipes. The joint is of the spigot and faucet kind, the spigot and faucet being made with tapering parts fitting or nearly fitting each other at the front and back of the joint, with an annular cavity between the fitting parts, which cavity is filled with cement of fused material introduced through apertures in the periphery of the faucet. To prevent escape of the fillings in, rings of yarn or other yielding materials may be placed in annular grooves in the tapering parts of the spigot and faucet.

THE LARGEST LOCOMOTIVE IN THE WORLD. It is stated that the largest locomotive in the world is the "Pennsylvania," on the Philadelphia and Reading railroad. The principal dimensions of this engine are as follows: Diameter of cylinders, 20 inches; length of stroke, 26 inches; number of driving wheels, 12; diameter of drivers, 4 feet; and the weight of the engine alone is 60 tons.

STEAM on our canals seems to be an accomplished fact. Six boats are now plying on the Erie canal and twelve others will shortly be added, all capable of making the trip from New York to Buffalo in five days. It is believed that the grain trade of the fall will be considerably affected by the increased cheapness of transportation.—*Scientific American.*

THROUGH MANY HANDS.—In viewing that tiny bit of steel called a needle, it is hard to realize that seventy pairs of hands are required to make it perfect. Seventy pairs of hands to make a needle! and each pair necessary to make the needle perfect.

THE deepest boring that has ever been made for coal was made in 1853-7, at Mouille-longe, where the drills reached a depth of 1,006¼ yards, when the tools broke at the bottom of the hole, and the work had to be abandoned.

COLORED LENSES FOR LAMPS.—A recent English patent covers the invention of coating white glass lenses with a film of colored glass instead of making them of colored glass throughout.

SCIENTIFIC PROGRESS.

Geology of the West.

Among the geological deductions of the Wheeler expedition are the following: All that portion of the United States west of the plains is characterized by corrugation, that is, the geological formations once horizontal have been bent and broken and thrown into ridges so as to produce a mountainous country. The ridges vary greatly as to hight and length, but agree in a general northerly trend; so that in traveling north and south it is generally easy to follow valleys, while in going east or west one is confronted by range after range that he must climb or go around. In the lower parts of this great mountain system, the slow but indefatigable agencies of rain and stream have accumulated so great an amount of detritus that the valleys are clogged and the mountains nearly or quite buried. In this way have been produced the great desert plains of Utah, Arizona and Southern California, vast seas of sand and saline clay, from the surfaces of which a few half sunken peaks jut forth as islands. These intermissions of the mountainous character are mere concealments, not interruptions, of the corrugated structure; but that structure is interrupted in one place—perhaps in others, but in one notably—by a tract in which the strata are almost undisturbed. The general surface of this exceptional region lies from 6,000 to 8,000 feet above the ocean, and it is intersected by the celebrated cañons of the Colorado and its tributaries. By these gorges and by other modifications, chiefly dependent on erosion, it is divided into a great number of plateaus which the surveys now in progress are defining and naming. The geologists of the expeditions have found it convenient to designate the region, considered as a geological province, as the region of the plateaus, or the Colorado plateau system. It is surrounded on all sides by areas of corrugation, the ranges at the east constituting the Rocky Mountain system proper, and those at the west having been designated as the Cordilleras. At the north and south, these mountain areas coalesce.

LUMINOUS SIGNAL.—M. Laussedat proposes, for the above purpose, to direct a spy glass from one station toward a second point, to which the signal is to be transmitted. In the focus of the instrument, he places a diaphragm having a very small aperture; so that, on looking through, the field of vision will be restricted to the tower, steeple or other locality at which the receiver of the signal is stationed. The eye piece of the telescope is then removed, leaving the diaphragm, and behind the latter is placed, in the axis of the instrument, a light, the conjugate image of which, produced by the conveying glass, falls precisely on the opening of the diaphragm. The luminous ray transmitted through the telescope will fall directly on the edifice comprised on the restricted field of vision, and not elsewhere, and the light is therefore invisible to all without that field. The observer will perceive the objective of the telescope illuminated over all its surface; and necessarily the larger the diameter of the glass, the farther will the signal be visible.

SIEMENS' method of converting iron into steel consists in melting wrought-iron in a bath of liquid pig-iron, the whole being made into steel by means of very high temperature and the non-oxidizing flame of the regenerative gas furnace. The decarburized iron is thrown in measured quantities at regular intervals into the bath of pig-iron, the operation being completed by an addition of pig-iron which contains manganese in known proportion.

NEW METHOD FOR PRESERVING MEAT.—According to Endeman, meat cut in slices and placed in a room, the air of which is heated to 140°, and only allowed to enter and escape through cotton filterers, becomes so dry in three hours that it can be ground, and, since the albumen and fibrin are not coagulated, it loses none of its nutritive properties.

MILK sugar can be prepared by coagulating the casein, and removing that along with the fat, and then evaporating the whey to crystallization, and purifying by filteration through animal charcoal. It is manufactured principally in Switzerland, and comes into market crystallized on strings, when it somewhat resembles an ear of corn.

BLACK PHOSPHORUS.—The essential feature of this body, says M. Blondlot, is that in a state of fusion it does not differ from normal phosphorus. At the moment of solidification, however, it suddenly becomes black. On refusing, it again turns white, and so indefinitely.

STRENGTH OF IRON PLATES. — From experiments upon the strength of plates to resist rupture from pressure from a blunt body, it has been shown that a wrought iron plate of only a quarter of an inch in thickness is able to resist a force or pressure equal to that required to rupture a three-inch plank.

NEYRENEUF has ascertained by experiments that negative electricity attracts flame, which positive electricity repels.

Circular Compass.

Mention has already been made, in this journal, of the new circular compass invented by M. Duchemin. We now receive further particulars concerning the nature and merits of the invention, as reported by our esteemed exchange, the *Journal of the Franklin Institute:* The magnetic force resides, not in a bar or needle, as in the ordinary instrument, but in a flat steel ring, magnetized, with its poles at two opposite extremities of the same diameter. This ring, supported upon an aluminum traverse, pivoted on agate at its center, has attached to it the ordinary compass card, and acts promptly and efficiently. The author claims for it the following advantages: (1) a magnetic power double that of the needle whose length is that of the diameter of the ring; (2) two central points instead of one, as in the needle; whence it happens that none of the magnetism escapes, and that strong sparks, like those from the Holtz machine, do not derange the poles; (3) a better and more prompt performance of the compass, the cards seeming to float, as it were, in liquid; (4) a large increase in the sensitiveness of the instrument; (5) the ability to regulate the magnetic intensity of the ring, and thus to compensate for local causes. This is effected by means of a second magnetized steel ring, smaller than, and inside of the first, the position of which—and therefore its neutralizing action—may be easily adjusted. M. Duchemin now proposes, as an improvement, the use of a set of such rings, forming a spherical or spheroidal system of still greater magnetic power.

UNIT OF HEAT.—The introduction of the so-called unit of heat in matters of research in this branch of science has been of the greatest importance, as it is evident that the degrees of the thermometer are no direct measure of the amount of heat present; for instance, there must be eight times more heat necessary to raise a gallon of water 10 degs. than to raise a pint of water to the same temperature; but the quantity required to raise a gallon 10 degs. and a pint 80 degs. is the same. This makes it clear that the amount of the substance heated must be taken into account as well as the temperature; therefore it has been agreed to adopt a unit, and to make this equal to the quantity of caloric necessary to heat one pound of water one deg. Fahr. Applying this principle to the heat obtained from coal, it has been found that the combustion of one pound of anthracite coal gives 14,220 units of heat; that is, that the combustion of one pound of this coal will heat 14,220 pounds water one deg., or 1,422 pounds 10 degs.; 142 pounds 100 degs., and 79 pounds 180 degs., thus raising the latter from 32 degs. to 212 degs.; in other words, by means of the perfect combustion of one pound of anthracite coal we may heat 79 pounds of water from the freezing to the boiling point. The perfect combustion of one pound of bituminous coal gives 13,500 units of heat, that is, one-twentieth, or five per cent. less than anthracite.—*Manufacturer and Builder.*

THE FRENCH METRIC SYSTEM.—Mr. Sellers read before the Railway Master Mechanics' Association an exceedingly interesting paper on this subject, in which he examined the cost of making a radical change in the standard measurement at this time, when the use of machine tools, gauges, etc., is universal, estimating the cost of changing and renewing the stock of an establishment equipped for 250 machinists at not less than $27,000, without any change in drawings, and the complete change at not less than $150,000. Mr. Sellers concluded that the adoption of the metric standard in this country is now neither practicable nor desirable.

IMPORTANT, IF TRUE.—According to a late number of *Les Mondes*, two French chemists have succeeded in converting the nitrogen of the air into ammonia without expense, without chemical manipulation, and even without human intervention at all, by the use of certain bituminous schists. These schists contain all the elements necessary for the growth of plants in much larger proportions than farm-yard manure. Sulphide of carbon is produced at the same time, and it is said to be this only remedy for the phylloxera.

CHEAP MANUFACTURE OF OXYGEN.—Mr. Mallet manufactures oxygen from the sub-chloride of copper. This salt has the property, when moistened and exposed to the air, of absorbing oxygen, forming an oxychloride. When this is heated, water is first liberated, then the oxygen, and the sub-chloride, in its original condition, is left behind. The process is claimed to be continuous, and 100 pounds of the material will furnish, it is said, 50 cubic feet of oxygen at each operation.

NEW ALLOY.—A new invention consists in the production of a metallic alloy resembling silver more closely than any alloys heretofore produced in color, specific gravity, malleability, ductility, ring and general characteristics. For these purposes the following metals are combined: copper, nickel, tin, zinc, cobalt and iron. In some cases, also, a small proportion—say one-half per cent.—of aluminum is added.

VANILLA FROM PINE TREES.—There have recently been submitted to the French Academy some small crystals which are the pure aromatic principle of vanilla. These, it is remarkable to note, were extracted from conifers.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Aug. 5, 1874.

NAME OF COMPANY.	IN MINE.	FEET IN MINE.	SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.							
Alamo	300	6000	12¼w	11TH		½	
Alpha Con	3600						
Alta		30000	7T	6½TH		½	
American Flat		24000					
Bacon M. & M		54000	1¼T	6½T			¼
Baltimore Con	1040	104000	67w	65⅝S			1⅜
Belcher	224	22400	24w	22M			1½
Best & Belcher	20	5000					
Bowers		16000					
Buckeye	2500	25000					
Bullion	5000	20000	16w	14½F			1½
Caledonia			38¾TH	35⅝S			
California	2000	28000	52⅛W	49S			3
Chollar-Potosi	130	24960	11w	10M			
Confidence	34½	20000					
Con. Gold Hill Quartz	1160	108000	82½TH	75S			1
Con. Virginia	1600	24000					
Cook & Geyer	600	100000	70w	67½S			
Crown Point	2000	24000	2T	2T			
Daney	1200	24000	12w	11TH			
Dardanelles			5¾T	5T		⅛	
Dayton	70	25000	6¾T	5¾M		⅛	
Eclipse	75	50000	7⅞w	7S		⅛	
Empire M. & M	400	8000	64w	60M		1	
Exchequer							
Fairmount	3000	12000					
Flowery			1⅝w	1½w			⅛
Franklin		20000	1¾w	1½T			¼
Globe	1200	48000	19w	17⅝S			1½
Gould & Curry	400	16000	44w	38⅜S			6½
Hale & Norcross	184	100000	8⅝w	7⅞S		⅛	
Imperial							
Indus	2000	30000					
Insurance							
Jacob Little	2000	30000	2¼TH	2W			⅛
Julia	3000	15000	7T	6¾T		1	
Justice	95	30000	13¾w	12½M			½
Kentuck	1200	24000	5F	4M			
Knickerhooker			1w	1w		⅛	
Kossuth							
Lady Bryan	3600	36000					
McMeans	1600	50000					
Mint	3000	40000					
Nevada	3600	36000	2½w	2¼F			⅛
New York Con	800	10000	4W	3M			¼
Occidental	1400	16300	22T	17⅝S	4		
Ophir	1200	37400	32T	27½F	1		
Overman	1200	24000					
Phil. Sheridan	2900	30000	2¼T	1¾T			¼
Picton		24000	6¾w	5S			1½
Rock Island		16000	7T	7OTH			8
Savage	800	16000	75T				16½
Seg. Belcher	160	6400					
Seg. Caledonia		10000					
Seg. Rock Island			1W	7S			⅜
Senator		24000	4½w	4M			¼
Sierra Nevada	1200	100000	7w	6T		⅛	
Silver Hill		54000					
Sonth Comstock							
South Overman		24000					
Succor M. & M	7600	22800	1⅝F	1½F			
Sutro		24000					
Trench	20	5000					
Tyler	2200	33000	⅝w	60CT			⅛
Union Con	803	20000	11w	10w			
Utah		20000	4T	3½w		⅛	
Woodville	1400	28000	3⅜S	2¾w			¼
Yellow Jacket	1200	24000	73w	66S			6
NEVADA.							
Adams Hill		50000					
Alps	800	30000					
Amador Tunnel							
American Flag M. & M		30000	2¾TH	1½T		⅜	
Arkansas	300	30000	4¼w	4W			¼
Belmont							
Bowery		30000					
Chapman M. & M		30000					
Charter Oak	1000	30000					
Chief of the Hill		30000					
Chief East Extension		36000					
Columbus M. & M	10000	50000					
Condor		25000					
El Dorado South			2w	1⅞w			¼
Eureka Con		50000	11¼w	10TH			1¼
Excelsior		12000					
Harper		30000					
Hayes							
Hermes	1000	30000					
Home Ticket							
Huhn & Hunt	3000	30000	20CT	20CT			
Ingomar	1000	40000	¼T	¼T			
Ivanhoe		30000					
Jackson		50000					
Josephine							
Juniata Con	5000	50000					
K. K. Con							
Kentucky	1000	30000					
Kinston	1000	30000					
Lehigh	1000	30000					
Lillian Hall	1000	15000					
Louise	2400	30000					
McMahon	1000	30000					
Marion		30000					
Meadow Valley	24023	60000	6⅝w	4½F			
Mocking-Bird	1200	30000					
Monitor-Belmont			1¼M	1w			¼
Murphy	2000	60000					
Newark	800	32000	1⅝TH	1w			
Pacific Tunnel							
Page & Panaca	2400	40000					
Peavine	1000	30000					
Phœnix		50000					
Pioche	1000	20000	5½TH	1M			⅛
Pioche West Ex		35000					
Pioche-Phœnix		40000					
Portland							
Raymond & Ely	5000	30000	13w	9¼F			3
Rye Patch			1½T	1w			¼
Silver Peak		30000	¼T	¼T			
Silver West Con							
Standard M. & M							
Star Con	18000	50000					
Stariga	6900	30000					
Sterling		30000					
Spring Mount		35000					
Spring Mt. Tunnel		20000					
Ward Beecher							
Washington & Creole	200	30000	1¼w	1T			¼
Watson							
Yellowstone							
CALIFORNIA.							
Alpine	1900	12000					
Bellevue	8000	20000	1½TH	1w			⅛
Calaveras	3200	20000					
Cederberg		24000	2¼M	2TH			
Chariot Mill			8¾w	7½T		⅛	
Jon. Amador							
Cottonwood Creek		20000					
Cunderberg M. & M							
El Dorado							
Eureka	1680	20000	5T	5T			
Gillis		24000					
Independent	1800	25000					
Keystone		10000					
Mt. Jefferson	1500	25000					
Oakville							
St. Lawrence M. & M							
St. Patrick	1800	20000					
Teoumseh	3000	30000					
Yule Gravel	400	10000					
IDAHO.							
Empire		25000	2¼w	1¾T			⅜
Golden Chariot	750	30000	9¼w	5F	1		
Ida Elmore	1300	10000	1⅛w	¾M			⅛
Mahogany	720	10000	3½w	3W			
Red Jacket							
South Chariot	660	20000	10TH	9w			1½
War Eagle	1000	10000	2½w	2T			⅜
WHITE PINE.							
General Lee	1000	26000					
Mammoth	1800	36000					
Nooday	1000	20000					
Orig. Hidden Treas.	800	21333					
Silver Wave							
Ward Beecher		24000					
UTAH.							
Deseret Con	2400	30000					
Wellington		50000					
OREGON.							
Virtue		20000					

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Adams Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	E Landers	507 Montgomery st
Arizona & Utah	Washoe	9	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Belmont M Co	Nye Co Nevada	3	1 00	July 17	Aug 22	Sept 12	C H Bogart	402 Montgomery st
Best & Belcher M Co	Washoe	9	50	July 13	Aug 17	Sept 12	W Willis	419 California st
Buckeye G & S M Co	Washoe	11	50	July 21	Aug 28	Sept 16	C A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	8	3 00	July 15	Aug 22	Sept 11	R Wegener	414 California st
Caroline M Co	Ely District	5	25	June 30	Aug 8	Aug 31	R H Brown	402 Montgomery st
Chief East Extension M Co	Ely District	3	10	July 7	Aug 13	Sept 9	R Wegener	414 California st
Europa M Co	Washoe	2	25	July 14	Aug 18	Sept 10	F G J Margetson	418 California st
Eureka M & Smelting Co	Eureka Nev	4	25	July 14	Aug 13	Sept 7	T P Beach	424 Montgomery st
Europa M Co	Nevada	2	25	June 9	July 15	Aug 7	F G J Margetson	418 California st
Globe Cons M Co	Washoe	2	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Globe M Co	Washoe	7	1 00	June 11	July 15	August 4	Joseph Maguire	419 California st
Golden Chariot M Co	Idaho	10	3 00	July 22	Aug 7	Aug 27	L Kaplan	Merchants' Ex
Hale & Norcross S M Co	Washoe	42	5 00	June 9	July 14	August 4	J F Lightner	438 California st
Hayes G & S M Co	Cal	6	50	June 4	July 13	August 10	Geo R Spinney	220 California st
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 19	W Willis	419 California st
Josephine Cons S M Co	Nye Co Nevada	1	15	July 20	Aug 22	Sept 12	C H Bogart	402 Montgomery st
Julia G & S Co	Nevada	19	1 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Justice M Co	Washoe	10	2 50	June 13	July 14	August 3	Frank Swift	419 California st
Kossuth M Co	Washoe	1	25	June 29	July 31	Aug 18	E F Stone	419 California st
Lady Washington M Co	Washoe	1	50	July 1	Aug 3	Aug 31	H C Kibbe	419 California st
Leo M Co	Washoe	1	50	June 8	July 16	Aug 14	G J Eaton	Ex Press Building
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	C B Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	July 13	Aug 17	Sept 15	D A Jennings	401 California st
Mint M Co	Washoe		10	June 30	Aug 5	Aug 27	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	July 7	Aug 13	Sept 7	W F Hopkins	411¾ California st
Pauper M Co	Idaho	2	25	June 16	July 25	Aug 17	D Wilder	Merchants' Ex
Pioche S M Co	Ely District	Nevada	7	1 00	July 29	Sept 7	C E Elliot	419 California st
Rock Island M Co	Washoe	4	1 00	July 17	Aug 21	Sept 9	J W Clark	418 California st
Rye Patch Cons M & M Co	Nevada	3	25	July 21	Aug 24	Sept 19	D F Verdenal	409 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	July 27	Aug 27	A C Ryce	308 California st
Sierra Nevada S M Co	Washoe	39	1 00	Aug 5	Sept 8	Sept 29	R Wegener	414 California st
Silver Cord M Co	Idaho	4	50	July 3	Aug 6	Aug 31	F Swift	419 California st
Silver Hill M Co	Washoe	3	2 00	June 25	July 29	Aug 20	W E Dean	419 California st
St Laurence M & M Co	Placer Co Cal	7	1 00	June 25	July 27	Aug 13	R B Boyes	411¾ California st
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Table Mt Alpha M Co	Csl	4	25	June 18	July 28	Aug 18	T F Cronise	438 California st
Union Cons S M Co	Washoe	6	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
War Eagle M Co	Idaho	6	50	June 19	July 23	Aug 12	L Kaplan	Merchants' Ex
Yule Gravel M Co	Cal	4	15	June 10	July 15	Aug 6	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
El Dorado Water & Gravel M Co	Cal	4	5 00	June 19	July 20	Aug 5	H Elias	416 Montgomery st
Electric M Co	Cal		10	June 10	July 15	August 5	A B Paul	318 California st
Emma Hill Cons M Co	Utah	1	50	June 3	July 13	August 10	E G Fowler	302 Montgomery st
Enterprise G & S M Co	Nevada		10	June 22	July 22	Aug 25	E E Rice	411¾ California st
Equitable Tunnel M Co	Utah		7	25 June 12	July 12	Aug 4	C S Bealy	Merchants' Ex
Glasgow G M Co	Yuba Co Cal		3	25 June 16	July 20	Aug 7	D L Thomas	419 California st
Hartford M Co	Washoe		2	20 July 13	Aug 13	Sept 1	E F Stone	419 California st
Heokerdorn G & S M Co	Cal		13	25 July 1	Aug 10	Aug 29	P J Roberts	620 Washington st
Keystone No 1 & 2 M Co	Arizona		3	50 June 17	July 18	Aug 3	W R Townsend	419 California st
Knickerhocker M Co	Nevada		9	1 50 June 23	July 25	Aug 14	H Boyle	Stevenson's Building
Magenta G M Co	Grass Valley Cal		1	50 June 27	July 30	Aug 13	L Kaplan	Merchants' Ex
North Bloomfield G M Co	Cal		32	1 00 June 15	July 29	August 10	Thomas Derby	320 Sansome st
North Fork M Co	Plumas Co Cal		1	50 July 24	Aug 24	Sept 15	A Martin	520 Washington st
Oneida M Co	Amador Co Cal		8	75 July 28	Aug 31	Sept 19	L Kaplan	Merchants' Ex
Phœnix Tunnel & M Co	Utah		5	20 June 12	July 12	Aug 4	C S Neal	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada		2	10 July 1	Aug 6	Aug 27	C S Neal	419 California st
San Marcial S M Co	Mexico		14	1 00 June 18	July 28	Aug 17	C F Schulze	426 Montgomery st
Stanislaus River M Co	Cal		3	15 July 20	Aug 19	Sept 5	W Stuart	113 Leidesdorff st
Starr King S M Co	Nevada		6	25 June 11	July 14	Aug 3	L Kaplan	Merchants' Ex
Tecumseh G S & C Co	Cal			25 Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Umpire Tunnel & M Co	Utah		3	5 June 29	Aug 3	Aug 24	P A Eakins	220 Kearny st
Valley Copper M Co	Nevada			10 July 15	July 15	August 5	Wm H Martin	534 California st
Venus G & S M Co	Cal		1	3 00 June 8	July 18	August 8	S Pattee	328 California st
Wonder G M Co	Cal		2	10 July 18	Aug 18	Sept 7	David Buck	331 Montgomery st
Wyoming G M Co	Nevada		3	25 July 28	Aug 31	Sept 18	W J Gunn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Exchequer M Co	Washoe	Called by Trustees	Merchants' Ex	Special	Aug 29
Seg Caledonia	Washoe	A C Ryce	308 California st	Annual	Aug 27
Silver West Cons M Co		T R Barker	606 Montgomery st	Annual	Aug 8
South Comstock M Co	Washoe	J M Buffington	Merchants' Ex	Annual	Aug 17
Tolman & Miller M Co	Cal	J L Trask	306 Montgomery st	Annual	Aug 10
Ward Beecher Cons M & M Co	Nevada	David A Jennings	401 California st	Annual	Aug 18
Yellow Jacket S M Co	Gold Hill Nev	Called by Trustees		Special	Aug 18
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Special	Aug 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Aug 10
Cederberg G. M. Co.	California	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Aug 10
Con. Amador M. Co.	Cal.	F. B. Latham.	402 Montgomery st	50	April 9
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 00	July 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	July 11
Diana M. Co.		N. G. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	E. B. Minor.	411¾ California st.	50	Dec. 5
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

During the pest week the stock merket hes hsen dullsr and prices were lower thau was to have been expects4, allowing for the dstsrmiued efforts of the heare. The attack was mads principally upon the leading stocks. Rumors thet Cou. Virginia would reduce or pese the August dividend, that Crowu Poiut and Belcher had "petered out," that exploretious in the lower levels of Savags and other miuse had failed to reveal auy ore, etc., together with persistsnt ouslaughts iu the Board room, knocked these stocks down, aud they have hy no meane recovered. If the Comstocks had a bed time, the outside districts fared no better. But, whatever be the tone in speculative circles, there is no disputing the fact thet miniug proepects iu all querters were never more favorable.

Fluctuatiou iu certein etocke have been quite large. Alphe Cou., rauged hetweeu $11 and $12.25; Americen Flat, $6.50 and $7; Baltimore Con., $6.50 and $7.25; Belcher, $65.50 and $67; Best & Belcher, $22 and $24; Caledonie, $14.50 and $16; California, $35.50 and $38.50; Chollar, $47 and $52.50; Confidence, $10 and $11; Con. Virginie, $75 and $82.50; Crown Point, $67.50 and $70; Dardanelles, $11 and $12; Eclipse, $5.25 aud $6.50; Exchequer, $60 and $64; Gould and Curry, $17.12 and $19; Hale & Norcrose, $38.50 and $44; Imperiel, $7.37 and $8.50; Keutuck, $12.50 and $13.75; Kuickerhocker, $4 and $5; Occidental, $3 and $4; Ophir, $17.50 end $22; Overman, $27.50 and $32; Sevage, $50 and $63.50; Seg. Belcher, $70 and $75; Silver Hill, $6 and $7; Yellow Jacket, $66 and $73; American Flag, $1.50 aud $2.75; Eureka Con., $10 and $11.25; Meadow Valley, $4.25 and $6.50; Pioche, $4 aud $5.50; Raymond & Ely, $9.25 end $13; Chariot Mill, $7.50 aud $8.75; Golden Chariot, $5 eud $9.25; South Cheriot, $9 and $10.

A comperison of the higheet pricea for the wesk uuder review, as compared with extreme quotetioue of previoue week, ehowe the followiug more important edveuces: Alpha Con., 50c.; Amsrican Flat, 50c.; Empire Mill, 50c.; Exchequer, $1; Impsriel, 75c.; Ophir, $4; Overman, $1; Silver Hill, 50c.; Utah, 50c.; Americau Flag, 75c.; Chariot Mill, 50c.; Golden Chariot, $1.

The declines heve heeu, as usual of late, more uumerous. Baltimore Cou. fell $1.75; Best & Belcher, $1.50; Caledouie, $1.50; Chollar, $3; Con. Virginia, $1; Gould & Curry, $1.50; Hale & Norcrose, $6.50; Juetice, $1; Sevege, $16.50; Seg. Belcher, $8; Yellow Jecket, $6; Raymond & Ely, $2; South Chariot, $1.50.

FATAL MINING ACCIDENT.—At the North Aurore mine, ueer Hamiltou, Nevada, a stagiug gave way ou Thuredey leet, precipitating two men—James Martiu aud Joseph Washuanr—to the hottom of the shaft, a dietauce of 40 feet. One of the falliug timhers etruck Martiu on the heed, cruahing iu the eknll and inflicting a fetal wound. Waehusur wea severely hut not dangeronely iujured. The accident waa caused hy a large rock hecoming detached and falling down the ahaft, hreakiug aome of the timhere of the staging on which the meu were ateuding.

STRIKE NEAR BOZEMAN.—The Bozeman *Courier* ia iuformed that rich river minee have heen discovered ou the Miasouri, oppoaite Nave'e, and about eight milea from Radershurg; 25 ceuta to the pan have heeu ohteiued. The river prospecte well from the Three Forka to Nave's, and the greateet excitemeut prevaile in the aettlements contiguoua to the river.

MINING SUMMARY.

THE following is mostly condensed from Journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

FINISHED.—*Chronicle*, July 25: The McGlew furneces at the M. & N. W. mill will he finished to-day. Fires will he started ou Mondey, hut uo ore will he worked uutil they are thoroughly dried.

AMADOR COUNTY.

FROM DRYTOWN.—Cor. *Ledger*, Aug. 1: I seud you to-day samples of rock from the Gold Mouuteiu miue. The mine ie fully developed, opeued up and well ventileted. We have made eeveral cross-cuts through the ledge iu the tuunel; the lsdge is about 10 ft. wide and all good milliug ore. Galena eulphurets all through the ledge; also rich in free gold.

THE KENNEDY.—*Dispatch*, Aug. 1: The Kennedy miuiug company have finished sinking their new shaft, which has devsloped a large body of very fiue looking rock.

THE Amedor quicksilvsr miue is turuiug out some very rich ore.

CALAVERAS COUNTY.

MOSQUITO MINING ITEME.—*Chronicle*, Aug. 1: Garland'e mill was set at work upon rock from the San Bruno miue on the 28th. Ahout 100 tous of ore will be put under the stamps hefore makiug a clsau-up. The ledge showe 3 ft. wide in the face of the tuunel, the rock heing of au excellent quality. Good quertz ie also heing takeu from the mine of Lewie, Willett & Smith. Krim & Co. are also takiug out some good ore.

RICHER THAN EVER.—Yesterday moruiug we wsre ehown specimsus of quartz from the Sau Bruno mine evsu richer thau thoss meutioned in our last iseue. The specimsus were ahout equally composed of gold and quartz.

WEST POINT DISTRICT.—Mr. McNaughton is opsuing a fius, large vein near the Licking fork. Bill Briggs & Co. diecovered a very rich vein near the North fork, a short distauce from Zacatero miue. The ore ie over oue foot wide—csmeuted with gold. The Modoo Co., ou the east eide of the Valentiue mill, have commeuced atoping. The ore is excsllent and easily got.

COLUSA COUNTY.

QUICKSILVER.—Coluea *Sun*, August 1: Both the Buckeye aud the Elgiu coutinue to take out quicksilver. The latter eent down eight flesks lest wsek. The castiugs for the furnace of the Ahhott mine have bseu mads.

EL DORADO COUNTY.

MORE AND BETTER.—*Mountain Democrat*, August 1: Leouard Reeg, of Chili Bar, has ehown us a piece of gold-beering soapstone teken from the tunnel in the claim owned by himself and Peterson. This specimen shows a lerge proportion of hright, free gold.

MANSFIELD MINE.—Iu this mine they have struck a six-foot lsdge of decomposed quartz which gives highly favorahle proepects. The lowsr tunnel is uow iu 212 feet, aud is from 500 to 600 fest helow ths surface.

ITEMS.—*Republican*, July 30: Some good ground ie now heing worked at the Exceleior, Coou Hollow, just south of the city limits. The indicatione are that many tsns of thousauds will hs teken out of this miue by the oloss of the year. A littls lese tbau eeveu tons of rock from the Groes miue, cruehed at the Brswstsr mill, produced a 47⅛ ouuce pure gold bar ou Mouday last, bsiug equal to $110 to the ton.

FRESNO COUNTY.

CERRO BENITO.—*Expositor*, August 1: Iu Panoche Valley the reducing worke of the Cerro Benito quicksilver mine have again heen etarted up, the repeirs to the furnaces completed, eud the streams of quicksilver sre ageiu flowiug from the coudeusere.

INYO COUNTY.

SYLVANIA.—*Independent*, July 25: The Marriotte furuece here has a capacity of two tous of ore per day, working up to 96 per ceut. of the leed contaiued. The furnace is a reverheratory. From 2,300 ponnds of ore ruu through the Merriotte fnruace a few daya since, 937 pouude of hullion were obteined, coutaiuing silver to the value of $451.98. The Emma No. 2 mine, belouging to Louis Marriotte, hae quite a lot of good ore on the dump, 20 tone of which is to be put through this furnace immsdiately. This geutleman has discovered a large body of fire clay, sufficient to supply all demande of the camp. The Emma No. 2 ehows at 18 feet deep a three foot ledge solid, of grey carhonatee, assaying hy numeroua teate from $45 to $150 per ton. W. F. Kiucaid haa a sheft down 112 feet, the deepest iu the district, ou a silver ledge teu inchee wide at that depth, assaying $800 per tou. Also ou a leed mine called the Liheral, a ehaft 55 feet deep, with a four foot ledge, aud quite a lot of ore on the dump. He has aleo an opeu cut ou another ledge showing e face of 11 feet of epleudid leed ore, the hest iu the district. There ia about 100 tons of thia on the dump. Several locationa are made in a quartzite formation aome 300 feet iu width, which haa heeu traced aud prospected more or lese every 300 or 400 feet for 10 milea, or clear into the White mountaius.

LAKE COUNTY.

SULPHUR BANKS.—*Bee*, Aug. 1: There are 150 meu now employed at the Sulphur Banke hy the Celifornia Borax Company, miniug for quicksilver. The new reduction worka are nearly completed. The men are making bricks

ont nf the soil which contains the quicksilver, which are to be burned for the extraction of the metal.

Dr. Baker's Quicksilver Mine.—In this mine, near Lower Lake, some very rich ore was struck last Monday. They also discovered a cave, which was su full nf gas that the men conld not stand it, and wnrk hsd to be suspended.

MARIPOSA COUNTY.

From Mariposa Creek.—Cor. *Gazette*, Aug 1: The Italian mine (a 3-ft. vein) turns out $8 per ton. A small vein on tnp of the hill, near Bull Run, paid $12 per ton, and 10 tons taken from a ledge in Ben. Wills' field turned ont one nnnce to the tnn.

On the other side of Mr. Wills' house is another ledge abont the same size and character nf the above. These twn ledges, in addition to pnre gold, contain a fair percentage of rich sulphurets. The Blue Lead, near Mr. Morrison's ranch, varies from a few inches to 7 ft. in width, and has been opened abont 1,500 ft. in length, and st various depths; the deepest shaft is abont 70 ft. This mine has yielded nver $30,000 tn the lncky owners, most of which has been ponnded ont with a hand mortar, at very small expense. The Doss mine, which belongs to Mr. Brooks, is down 110 ft., and shows a vein all the way down, varying but little from 10 ft. in thickness, about all of which has been worked as pay-rock. Two hundred tons nf this, crushed by Mr. McCullongh, turned nnt $17 per ton; 400 crushed about two years since yielded $10 and $11 per ton in free gold besides 15 per cent. snlphnrets, worth $24 per ton.

MENDOCINO COUNT.

More Quicksilver.—*Democrat*, Ang. 1: We hear nf a new quicksilve strike, ssid to make a hnge showing, on or near Dry oreek, this county.

MONTEREY COUNTY.

Quicksilver.—Hollister *Enterprise*, Aug. 1: Twenty flasks of quicksilver were shipped to San Francisco on the 27th, from the Cerro Benitn mlnee. These mines are opening up splendidly, and shipments would have been much greater, recently, had it not been for an accident to the furnace, by which work in that department was temporarily suspended.

NAPA COUNTY.

Redington Quicksilver.—*Reporter*, Aug. 1: Last month's rnn amonnted to 900 flasks. Thie was the produotion of two furnacee only, the old furnace being in conree of demolition to make room for two othere that are to be erected, and for which 400,000 bricks are already prepared and on the gronnd. Only 125 men were employed dnring the month.

NEVADA COUNTY.

Grass Valley *Union*, Ang. 1: The run of the Idaho mill for the past four weeks has prodnced gold to the valne of about $45,000, which ineuree a dividend next Tuesday. The undergronnd appearance of the mine continnes good. The 800-ft. level has been etarted, and the shaft is also sinking for the 900-ft. level. The Empire has had a succeesful and profitable month's run. The clean-up for the past four weeks will realize something like $13,000. The New York Hill mine continues to show splendid ore in the tunnel. The ledge is now four feet thick in the breast and is certainly rich. The Seven-Thirty mine had a little crushing made the other day. Eight loads were put throngh the mill and gold valued at $1,168 was taken out—which is $146 to each load of qnartz. The Magenta ie making a good showing. The shaft is down 300 ft., and there are three levels run from it. A chnte from the 3d to the 2d level has been run, which gives good ventilation to the mine. The ledge ie from eix to fifteen inches in thickness, and has no breaks in it. The ore showe well in galena, heavy eulphurets and free gold. The Slate Ledge mine (Perrin's) ie doing well. The shaft is down 625 ft. on the incline, the ledge being very flat. The ledge ie over 3 ft. in thicknee in the present workings, and shows plenty of snlphurets, and some free gold. The ledge matter ie all worked, and, without any assortment of the rock, will mill at leset $10 per ton. All ie worked, since the milling is done by water power. Last week a cave occurred in the mine, whioh required six days for repaire. The cave, however, disclosed that there ie another ledge above the one now being worked, and that the npper ledge is rich in gold and gold-bearing snlphurets. The Omaha mine continues to ehow well. The ehaft ie down 90 ft. on the incline, and the north drift has been run about 60 ft., and the drift to the south is in about 40 ft. The rock in both drifte is good, and that in the north shows well in free gold. Reese, of Reese & Co., has frequently struck rich pockets in his ledge. One day this week he made an extraordinary strike at the depth of 80 ft. Ont of 57 ounces of decomposed qnartz, melted gold to the amount of 46 ounces were obtained. The Alaska mine ie situated on Ben. Franklin hill. The ehaft ie down 60 ft., and very excellent rock is being taken qut. In the county generally, mining hae been very active dnring the eummer so far, the gravel miners having a good supply of water. The North Bloomfield company will, by the first of October, have their tnnnel completed, and will then be able to commence washing off their immense body of pay dirt. They have lately, acquired, by purchaee, seventy-five acree of mining ground in the vicinity of French Corral. The Milton company are working their mines euccessfully, and are operating their twater ditchee so as to make them pay. At North San Juan there ie much life and prosperity. At Moore's Flst, differences between the miners and ditch owners, as to the price of water, still exist, and the miners are waiting anxiously for the Milton company tn get water into the Flst. The quartz mines aronnd Nevada city aro doing well.

PLACER COUNTY.

Bellevue.—*Argus*, Ang. 1: The dumps are full of high grade nre, and the mill steadily ponnding awsy. Will olean up to-day. A big ledge of rich ore is reported in the west stope and fnoe of the west drift of the 240-foot level. In the 150-foot east drift a new chute of ore is coming in, the ledge being 30 inches thick. On the 240-foot level a cross cnt is being driven sonth to tap the series of parallel veins that show on the surface.

St. Patrick.—Shaft No. 1 of the Crater mino is going down for the 500-foot level. The ledge is said to be well defined.

Rich.—Cor. *Herald*, Ang. 1: The Indian hill Blne Gravel mining company, at Gold Run, sre now taking out very good gravel, paying a little over four dollars to the car-load, of about 1,500 ponnde. They crush, with an 8-stamp mill, 1,000 car-loads in abont fifteen days, and as the whole cost for labor and milling is only about one dollar per car-load, it leaves a very handsome profit for the owners. The gravel is getting richer, and very rich retnrns may be anticipsted before the water sesson closes.

PLUMAS COUNTY.

North Fork and Vionnity.—*National*, Aug. 1: The North Fork Ditch and Mining Co. intend making an ontlsy exceeding $200,000; are now engaged in constructing a ditch which will cover the whole gronnd. The ditch will commence at the North Fork of Feather river, about 23 miles distant from the ground intended to be worked, and is intended to carry 1,500 inches of water. There will be over 8 miles of iron piping on the line of ditch, 22 inches in diameter, which will cost, inoluding the laying, $125,000. A contraot hae been let to a company of Chinamen to make about 2 miles of the ditch; the remainder will be made by the company, who in a few daye will have 400 Chinamen at work. They intend having the ditch completed and the water on the ground by first Dec. next. The Providence Hill Co. have their reservoir oompleted; aleo two ditches leading water from the reservoir to the hill, capable of carrying 1,000 inchee of water each, and have the mine fitted up with three monitore and all the late appliances for working a hydraulio mine. The Sunnyeide Co. have struck graved in their tunnel, and at last accounte were making fair wages. They are finding very heavy gold—piecee weighing 3 ounces. Messre. Rupe & Stevene are making $5 per day to the man. Kirkham & Co. are busy pntting in their wing-dam, and intend having it completed and the claim dry by Augnst 1st. Shin & Co. have suspended operations on their tunnel for the present. Stump & Co. will soon euspend operations on account of a soarcity of water. They have had a good run this season, making abont $4 per day to the man.

Another enterprise in thie vionity, is being undertaken by a San Francisco company, who propose taking a ditoh from the North Fork of Feather river above Independence bar, which will carry 3,000 inches of water, and eventually exteuding it down the river a distance of eix miles, for the purpose of working nnmerone pointe, benches and deposits of gravel along the banks of the river. Horse Shoe Pnint, the first ground intended to be worked, is about 3½ miles distant from the head of the ditch. It ie a large deposit of gravel, covering about 10 acree, with a dump of 70 nr 80 feet on every side; has been worked with profit for yeare in a primitive way with a small head of water.

Argentine Hydaulic Mine.—The Argentine mine, owned by Messrs, Heath & Jndson, is sitnated in the heart of a district through which run innumerable stringere and ledges of quartz, all carrying more or less gold. The bedrock is talcoee slate, carrying gold-bearing sulphurets which assay from $50 to $500 to the ton, while to crush the whole indiscriminately will pay from $5 to $20. A great portion of the quartz is decomposed, from which the gold readily frees itself upon being waehed, and it was this fact which induced the company to fit up hydraulio diggings. Their flume at the head is 1,200 feet long, dumping into a eteep cañon; thence the tailings run over a rough groundeluice 700 ft., when they are picked up by a flume and rnn through an undercurrent, after which they resume their travels, only to be canght up again by another nndercurrent. Thie operation is repeated four timee after leaving the main flume, and the tailinge finally dropped into Greenhorn gulch, about one mile from their starting point. From the fourth nndercurrent Mr. Heath cleaned up thirty ounces a short time siuce, and judging from that the final clean-up will be a good one even thie year.

SANTA CRUZ COUNTY.

Across the Bay.—Cor. *Enterprise*, Aug. 1: The coal minee, which were productive of so much excitement a few months ago, have not turned out so well as was anticipated. They have demonetrated beyond a doubt that coal of a good qnality exists in the Santa Lucia range; but, as yet, it has not been found in any considerable qnantity. Two promising cinnabar lodes have been discovered. One of these, known as the Guadalupe mine, ie situated about 12 miles sonth of here, near the rancho Los Laurelee. Ore taken from this mine resembles very much that taken from New Almaden, though, of course, it ie not so rich, as it comes from within a few feet of the surfsce. The other lode is situated abont 25 miles sonth of thie plaoe, and was discovered a few days ago by Captain A. Smith. These discoveries verify the npinion expressed by Prof. Whitney, that "there is a probability of cinnabar or qnicksilver being discovered in the hills back of Monterey."

SIERRA COUNTY.

Gibsonville.—*Mountain Messenger*, July 25: Mining operations are being vigorously prosecuted in this camp. The Rip Van Winkle company will wash 8 claims this year, whioh promise rich returns. Nine men have been working, night and day shifts, since the beginning of the water sesson. A clean-up of abont 30 ft. of their ground sluice, realized $600, among which was a 6¼ and a two ounce specimen. The Chalcedony are now taking out good pay, their claim recently yielding $18 per day to the man. The Bootjack are scattering things at a lively rate in their diggings, and contemplate soon putting in an engine. The Michigan company are opening their claim. The Washington, at Independence, are hydraulicing. The Nevada, Newark, are pushing ahead into pay gravel. The North America, Hepsidam, have their working apparatus in excellent order for the summer's campaign, and are pushing ahead with a large crew of men.

SISKIYOU COUNTY.

Quicksilver.—Yreka *Union*, Ang. 1: Two furnaces for reducing quicksilver are being erected at Borsx lske. The capacity of these two furnaces is forty tons a day and will yield, it is expected, forty flasks of quicksilver.

Eliza Mine.—An excellent prospect has been struck in the tunnel in which work is being done at the Eliza mine. The indications are better now for a large body of rioh rock than ever before since the claim has been worked.

Scales.—Fair Play diggings have paid $6,000 per month thie season, working two littlo giants; bank 200 feet high; blasting necessary; about five month's run this year. Cleveland company also using two little giants, which have paid well this seaeon. McChessney & Co. have turned out a respectable amount of the yellow stuff while water lasted.

Gradino.—The Green mountain oompany, at the head of Mt. Vernon ravine, are busy with a large force of men grading a ditch from Rook creek to their claims.

Port Wine.—The dissensions between the shareholders of most of the claims at this locality have seriously interfered with the proper working of their mines. The dirt averagee $2 per osr-load, the poorest yielding seventy-five oente. The ground is soft bed-rook and gravel, rendering blaeting unnecessary.

TEHAMA COUNTY.

Discovery.—*Independent*, Aug. 1: Considerable exoitement exists in the northeastern portion of our county over the report of the discovery of new and extensive mines somewhere on the head branches of North Feather river.

TRINITY COUNTY.

A Good Claim.—*Journal*, Aug. 1: Swift & Hurst are cleaning bed-rook. Their ditches present a fine appearance, and some of them, cloee up to the bank where bnt little dirt has been rnn throngh, were literally "lousy" with gold.

Large Bowlders.—Chapman & Fisher have a large array of boulders to contend with in their olaim opposite the old Arkansas dam. Some of them are 18 or 70 feet long, with a corresponding breadth and thickneee. One kept the blastere busy for five days before it was finally disposed of. Giant powder ie used exteneively and is found to work to excellent advantage.

Goon Prospects.—We saw a few pans of earth washed in the claim of Fisher & Prater, opposite the Arkansas dam, while in that eection last week. The prospeots were taken from the back of the olaim, and were good enough to make ne want to drop the quill and start in on the bed-rock again. They have a good ehow ahead of them for another year.

TULARE COUNTY.

Work in the Mines.—*Times*, Aug. 1: Quite a number of companies are engaged in making tunnels in the Mineral King mines. Some are now completed for 40 or 50 ft. Several loade that contain rich specimene have been discovered recently, and among others is the Crystal, containing ore which aseaye over $100 to the ton. We learn that Mr. Creighton hae purchased the first extension south on the Lady Franklin lode.

TUOLUMNE COUNTY.

The James Lick Mining Co.—*Independent*, Ang. 1: This mine ie situated one mile np the river from the Telegraph, and one mile from the Hazel Dell mine. The prospecting tunnel hae run on the vein 200 ft. from a ehaft, showing good rock the whole distance. A ditch has been rnn that will furnish water for a large number of etampe, and can be had in great abundance the year round.

Nevada.

WASHOE DISTRICT.

Rock Island.—Gold Hill *News*, July 30: This mine was located in 1860. It is situated in Gold Hill Mining District, just south of the Baltimore and American Flat mines. In 1863-4 a tunnel was run some 600 or 700 ft. into the mountain, outting the ledge, which at that point ie about 80 ft. in width. In 1864 operations were diecontinued and not resumed again until January of this year. Since that time work has been prosecuted constantly. A three-compartment ehaft has been sunk to a depth of 227 ft.; a station opened at the 200-ft. level, and a drift run toward the ledge, a distance of 160 ft. Some water is now coming in near the bottnm of the shaft, but not enough to impede nperations. The face of the west drift, from the 200-ft. station, is in good working gronnd, no water coming in. The prospects of this mine are favorable, as the tunnel above shows a very fair quality of metaliferons qnartz.

Consolidated Virginia.—Daily yield, 300 tons of ore. The ore breasts on the 1,300-ft. level, both north and south, are looking and yielding well. The ore stopes on the 1,400-ft. level are being extended north and south, and the ore is gradnally improving in both directions. The north winze, No. 2, from the 1,300-ft. level, has made connection with the 1,400-ft. level, giving a much needed circnlation of air. Sinking the north winze from the 1,400-ft. level to connect with the south drift on the 1,500-ft. level is making steady progress, passing downward throngh splendid ore. The main sonth drift, on the 1,500-ft. level, is making the nsual good progress notwithstanding the great heat encountered. The work of preparation for the erection of the new mill is making rapid headway.

Ophir.—Daily yield, 50 tons of ore. The ore breasts on the 1,300-ft. level are showing better and richer ore. The ore in the stopes raising up from the 1,465-ft. level is also richer. Raising up from the 1,700-ft. level, to connect with the winze from the 1,465-ft. level, for air pnrposes, is making good progress, and will be completed shortly.

Crown Point.—Owing to the excessive heat and some delaye in starting up the new incline hoisting machinery, the usual quantity of ore has not been extracted dnring the week. The new hoisting machinery was given a test trial on Monday last, and moved off with most perfect clock-like perfection. This hoisting machinery is of size and power that perfectly eclipses anything of the kind erected on the Comstock lode.

Belcher.—The prospecting drifts throughout the entire mine have been snspended for a few daye on account of the excessive heat and consequent bad air. The ore breaste throughout the entire mine are looking finely. Daily yield, 400 tons of ore. The new air shaft is being sunk with all the vigor possible. It is now down 215 ft.

Sierra Nevada.—Daily yield, 65 tons of ore. The ore breasts throughout the mine are both looking and yielding well. The hydraulio worke splendidly, and is fast tearing ont a big hole in the hill-side. The erection of the new hoisting and pumping machinery is fast approaching completion.

Imperial-Empire.—The pnmp columns are now in place nearly down to the 2,000-ft. station. This station ie completed, and a drift has been started at that point to out and prospect the ore vein on that level. A chamber has been cut out preparatory to sinking a winze below the 1,850-ft. level as soon as the air connections on that level are completed.

Gould & Curry.—The north drift on 1,700-ft. level is still advancing, the face in hard blasting quartz. Sinking the double incline winze below the 1,800-ft. level ie making the neual headway. The winze is being orowded downward for the purpose of opening a station at the 2,000-ft. level, to connect with the Savage mine for ventilation purposes.

Hale & Norcross.—Sinking the main incline below the 2,000-ft. level goee steadily on. Sinking the north winze from the 1,900-ft. level to connect with the main north drift on the 2,000-ft. level is making good headway, cutting occaeionally favorsble indications of ore. The north drift on the 2,000-ft. level is being pushed ahead to conneot with the Savage for ventilation purposes.

Overman. — Sinking the shaft below the 1,200-ft. level is progressing at the rate of 2½ ft. per day, the bottom still extremely hard. During the week a streak of fine ore, about 3 ft. in width, wae encountered in the north drift on the 1,200-ft. level, which still continues in the face. The main west drift on the 1,200-ft. level ie making good headway.

Savage.—Sinking the main incline for the purpose of opening the 2,100-ft. level is making the neual good progress, the rock in the bottom blasting out finely. The main south drift, on the 2,000-ft. level, is being driven steadily ahead to conneot with the Hale & Norcross. The north drift, on the 2,000-ft. level, ie also running to connect with the Gould & Curry for ventilation purposes.

Globe Conecliaten.—The face of the north drift from the incline up-raise is still driven northward in good ore. The west drift from the bottom of the winze, 95 ft. from the head of the incline, has developed a fine body of ore during the week, the quartz and ore strongly resembling the rich ores found in other portions of the Comstock lode.

Utah.—The flow of water in the shaft continnes much the same. The pump and water tanke prodnce very little effect.

Chollar-Potosi.—Daily yield, 100 tone of ore; assay value, $30 per ton. The ore breasts and stopes show but little change.

Justice.—Sinking the main incline progresses at the rate of 2½ ft. per day, and to-day a depth of 769 ft. ie attained. About 40 tone of ore per day are being extracted from the Waller Defeat section.

Florida.—New working shaft down to the depth of 210 ft. Rapid progress is being made in sinking.

Julia.—The enlargement of the main ehaft ie progressing at the rate of 15 ft. per day, the work being driven ahead at three different

[Continued on Page 92.]

Bag-Making in San Francisco.

There have been bags full of items concerning bags, their manufacture and their contents, spread by the press before the people of this coast; but the public probably have had a slight conception of the extent to which bag-making is carried on in San Francisco. This city has on several recent occasions "astonished the natives" in matters of home industry; and notwithstanding we have been credited with being slightly addicted to "tooting our own horn" in some matters, we think we may consistently put in a claim for modesty in the matter of home manufactures. The rapidity with which a new want is discerned and supplied, is in strict keeping with the promptness and enterprise displayed by Californians in mining, agricultural and other undertakings. In none of the active industries in which San Francisco has been engaged has the machinery run more noiselessly than in the manufacture of bags. The business has been followed to some extent for several years; but it has only recently assumed anything like a prominent position among the industries of the city. In order to give a correct estimate of its present dimensions, we clip the following from the *Evening Bulletin* of July 20th:

The industry is carried on at present in San Francisco by four houses, that of Detrick & Co., Neville & Co., Meyer & Weintraub, and Bardwell & Co. Of these, the factory of Detrick & Co. is one really worthy of San Francisco, both from the capital invested, the number of employés, and the quantity of bags made. It extends through from Clay to Commercial street, and occupies two stories. The first is filled by bales on bales of burlaps, hundreds of thousands of yards being kept in stock at the same time. From this story these are carried up to the second by an elevator, where they are quickly opened, and where they are measured off against cutting-boards provided with graduated scales. There are seven of these cutting boards, attended by as many youths and young men, who, having measured off the burlaps by a dexterous stroke of the knife, manage to cut as many as forty bags at a time. From the cutting-boards they are passed to the machine sewers. Of these there are seventy, tending as many machines. They average about five hundred bags a day each. Having passed through their hands, the bags are next taken by the turners, who are principally small boys, who turn them on turning boards with great dexterity and quickness. This is for the purpose of having the seams inside. Each bag having been examined three times to see that it is free from defects, it is thrown upon a pile. When these piles are large enough they are made into bales, carried down by the elevator, and are ready for shipment to any point on the Pacific coast. The capacity of the factory, which is now running full-handed, is about 30,000 bags per day. The season begins in March and ends in September, so that it is capable of making 5,000,000 bags during that time. Those really manufactured are of course much less. There are here employed altogether 130 girls and boys. The girls earn all the way from $5 to $14 per week, and the boys from $2.50 to $18 per week. They work by the piece. Nearly all the boys are entitled to be classed under that appellation, but the girls, while some of them are extremely young, others are of quite mature aspect. The work is carried on as quietly as possible, and but for the incessant click of the machines a pin might be heard to drop.

The character of all the other factories is similar to that which we have just noticed, save that they are of much less capacity severally. The bags intended for shipment are put up in bales of 500 each, each bale weighing 400 pounds. The Grangers have ordered, it is said, an immense quantity of these California-made bags—the house just mentioned having already sold them 1,250,000.

The manufacture of flour-bags is also growing to be a great industry, and the house of Detrick & Co., during the season, which lasts from the middle of July to January, makes about ten thousand per day. The same firm have a printing-press for printing the bags, and they are now importing a skeleton Hoe press for the same purpose. Besides the factories in the city, there is the jute and bag factory at Oakland, which has doubled its capacity this year, and a couple more throughout the country. It is estimated that 18,000,000 bags, worth $2,500,000, will be needed in the State this year, and that of these upwards of 8,000,000, worth $1,500,000, will be made in San Francisco, Oakland, and a few interior towns. But this is only a beginning, for as the cultivation of cereals spreads, the value of the industry will be increased year by year, in a ratio which it would be rash even to estimate.

Experiments with the view to organize a pigeon post are being made in Hungary, with the authorization of the Minister of War. A body of officers are engaged in fixing the stations for this service, which would be of great utility in case of war.

The increase in the production of steel in France, last year, was 29,125 tons, as compared with that of 1872. The manufacture is five times as extensive as it was in 1867.

Unsuccessful attempts have been made in Italy to raise the tea plant, and the experiment is now to be tried in the southern districts of Sicily.

The Big Wood Drive.

Although a great quantity of wood has floated down the Carson river since the big drive was started, a vast amount is still strung along the upper waters of the stream, and a good deal at the extreme head of the drive has not yet been started. At present there is a sort of wrangle between the owners of the wood and the men who contracted to bring down the drive, the latter being inclined to throw up their contract. In doing so, however, they wish the owners of the wood to refund the money they (the contractors) have thus far expended. This the majority of the owners do not wish to do. They want the wood brought down according to contract. Our readers will see that the bringing down of this great drive of wood—over 100,000 cords in all—is no light matter when they are told that the contractors have over 200 men employed and a great number of teams. Their expenses are said to be not less than $1,000 per day. The great trouble is that vast quantities of the wood now lie high and dry on ranches and out in flats along the river. This wood must all be hauled to the river and thrown into the channel. It was deposited where it at present lies at the time of the breaking of the big boom. As the wood rushed down the river it caught in places and formed dams which raised the water over the banks and sent thousands of cords of wood floating away into the flats, there to be left high and dry upon the breaking of the dams and the subsidence of the water. Notwithstanding all wrangles and troubles of other kinds a considerable quantity of wood is still floating down, and at all points along the river it is estimated that about 2,000 cords per day are being taken out. In the big cañon below Markleyville are many drifts of wood several feet in hight that lie far above the water. On many of the bars of the river are left similar large ricks. The wood drivers have quite an ingenious plan for getting afloat the wood on these bars. They purposely form a dam or gorge just below, raising the water till the wood is floated off, when the dam is broken and all goes down the stream with a rush for a time.—*Enterprise.*

Locating Mining Claims.—The San Juan *Times* says: A few days ago business called us up the ridge, and when we reached a point about half way distant between Cherokee and Columbia hille, we came across a party who were engaged in the landable object of locating mining claime. Our old townsman, John Barber, was one of the parties thus eogaged. He informed us subsequently that he had found as many as four mining claims that had never been located, though the ground all around his location had been taken up years ago. The precise point of this location is near Mark'e & Co.'s reservoir, in front of Jacob Kunse's house, between the Crusen road and the old road leading from Cherokee to Columbia hill. These claime are valuable. Marks & Co. have claimed the ground for many years, but under what kind of title we know not. We learn that other parties have located the ground occupied as a reservoir—the same allnded to—for miniug purposes. Within a few weeks past numerous locations of mining claime have been made between Cherokee and Columbia hill. One party, we are informed, have located the ridge for nearly a mile in extent, along the public road in front of Nixon's premises. Another party of thirty persons have located claims fronting on Bloody run, and between said run and Grizzly ridge. Thie last location is north of the Backbone house.

Burleigh Drills.—The new air compressor and Burleigh rock drills, at the Consolidated Virginia mine, were started in operation yesterday. Four-inch iron pipe extends from the surface and conducts the compressed air down into the mine, where it passes into the engines, which work the drills, through flexible gutta percha tubes one inch in diameter in the clear. The compressor above furnishes the air, which can be utilized in running a number of drills in different parts of the mine at the same time. This additional supply of air will also be a great relief to the miners, and improve ventilation. The air heretofore used was brought from the 1,200-foot level of the Gould & Curry. The new air pipe of the Consolidated Virginia will be extended to the 1,500-foot level of the mine. —*Virginia Chronicle.*

How to Judge of a City.—The average amount paid in the last five years in the United States for advertising was about $15,000,000 per annum. In 1867 New York City paid $80,000 tax on advertisements; Philadelphia, $30,000; Boston, $23,000; Cincinnati, $16,000; Chicago, $15,000; and St. Lonis, over $13,000. The wealth of the merchants in those cities and the extension of their business over the whole country, as well as the flourishing condition of cities themselves, shows what advertising may accomplish. It is a common remark among observing business men that the enterprise of a city may be judged from the appearance of the advertising columns of its newspapers.—*Louisville Courier-Journal.*

Deep Water.—The water in shaft No. 2 of the Sutro tunnel is now 850 feet deep, besides filling several large chambers and 400 feet of drifts 9 by 12 feet in size. The temperature of the the water is 95 degrees Fahrenheit. This water was struck in the drift or tunnel about 180 feet west from the shaft, and came in with a hissing sound through half a dozen perpendicular cracks in the face of the tunnel, forcing seams of spar out of the solid rock, as though it had been soap.—*Independent.*

Our Mining Frontier.

Only a few years ago some miners were killed by the adherents of Joaquin Jim, in the white mountain range. Others were driven from their claims, and have never returned to resume their work. Then the mountains in the vicinity of Columbus and to the southward, were beginning to be explored. Now and then a miner, more adventurous than the others, would go forth into the arid wastes of the southeast and return no more. This was then the border beyond which it was deemed unsafe to venture. Now the boundary is extended a hundred miles further toward the Colorado; but it has been done since 1867, at which time a detatchment of soldiers were sent to Fish lake valley to keep in check the Shoshones, who were committing murder in the vicinity of Red mountain and running off and killing stock in the neighborhood of Palmetto. Now Sylvania, Alida and Gold mountain, still beyond the former boundaries, constitute the frontier on the southeast, and verge on the outskirts of Death valley basin. Beyond this it is not safe for a single person to venture, with the determination of prospecting and mining. Now and then some try it. They are warned to leave and go about their business. They may be treated kindly, their horses taken care of over night, if they happen to fall into an Indian camp, but in the morning they must go on—it might be unpleasant to remain.

In the region of Black cañon there is said to be a band of desperadoes—Indians of the worst type, into whose hands it is dangerous to fall. But the region will be prospected. A line of labor and civilization is on the march. From Utah, on the East, through Lincoln and Esmeralda, into California; from Pioche and Panaganat to Gold mountain, and from there to Panamint and the mountains of San Bernardino there are thousands of camp fires which light the hills and mark the line of march of the pioneer. Tents are pitched, claims discovered, districts organized, townships formed and government established. Veins of rich ore abound in many of these border districts, which require a moderate expenditure of capital for developing the mines and erecting mills and furnaces for reducing the ores.—*Borax Miner.*

Pine Flat Mines.—A correspondent at Pine Flat thus writes to the Sonoma *Democrat* concerning the quicksilver mines there: The Ida Clayton, in Knight's valley, is proving to be a first-class mine. The owners are erecting a fine furnace, and will soon be ready to reduce the ore from the above named mine and also the Yellow Jacket, having made a fine graded road for that purpose. This mine is owned by W. A. Stuart & Co. They have made a survey from the Ida Clayton to a mill three miles distant, to a forest of pine, fir and mountain cedar, where the road connects with the Great Western mine, which will be but seven miles from Knight's valley, over one of the finest grades in the State, being but seven feet to the hundred. It would be well for Santa Rosa to think of this route, for they may as well have the trade as any other place. Pine Flat is improving rapidly; the new road from Healdsburg will soon be completed, at a great loss to the builder. This road will tap a fine mining portion of the district. The Georgia, Annie Belcher, Pioneer, Flagstaff, Rattlesnake, Sonoma and other mines will use this new road. The Missouri, Oaklin, Geyser, Emma, and Kentuck will travel the old road to Healdsburg for a while. I am told there has been a survey of late made to connect these mines with Cloverdale. The Oaklin mine will soon have three new and large retorts in operation, at which time they will be able to turn out about 90 flasks of metal per month. Some new discoveries near by are being made and have a good showing, and will no doubt prove well. The Hardy mine, now owned by Whitton & Co., is looking well. The Livermore mine is looking well; they have 300 tons of fine furnace ore on the dump.

Napa Mines.—Quite an excitement was occasioned in Calistoga on last Wednesday by a reported rich strike having been made in tunnel No. 3 of the Calistoga silver mine. At a depth of about 218 feet, the ledge being fully five feet wide, the assays had constantly increased until they reached, on Tuesday, $571 in silver and $60 in gold, making the unprecedented value of $631 per ton. The vein having gradually increased in value to this figure it is reasonably supposed that its richness will continue. In shaft No. 4, about 1,000 feet south of the location above named, the miners are only down about 40 feet; a three-foot vein of quartz has been exposed which assays now $321 per ton. This figure has been reached by a constant increase in the assays from the surface downward, commencing at $18, thence to the hundreds, until the highest figure has been attained. Messrs. Roberts & Robertson, owners of the Lost Ledge mine, have since the first of May shipped from their mine 170 flasks of quicksilver, all of which was secured by means of a small retort. They are now working sixty men, and will in a short time have a ten-stamp mill in full blast.—*Calistoga Free Press.*

Dayton Mine.—On Saturday last the spur wheel at the Dayton mine broke, and in 30 hours the water in the shaft gained 60 feet. The tanks are still in operation and are hoisting 45,000 gallons per hour.

Philadelphia has eight file manufactories doing a general manufacturing business, while New York has only one. Indianapolis has two.

Sutro Tunnel.

The main header of this great adit was yesterday in a distance of 6,356 feet; progress for the week, 60 feet. As men are becoming more accustomed to the use of the Burleigh drills, a gratifying increase of progress is shown each week. For the past three days the progress has been at the rate of 12 feet per day, in a heading of 12x9 feet. At present only two drills are at work. Cars for the removal of dirt are being rapidly constructed, with a carrying capacity of two and a half tons each, and as soon as a sufficient number shall have been finished, two more drills will be put to work and the work be driven ahead much more rapidly. For the enlightenment of the editor of the Gold Hill *News*, we will quote from the foreman's weekly report as to the temperature: "Thermometer, at 7 A. M., in the header, 75 degrees; at Shaft No. 1, 73 degrees; at the mouth of the tunnel, 75 degrees." In the language of the *Enterprise*, "what a refreshing current of air" would reach the miners above, and even below the 2,000-foot level of the Comstock, when the air shall be enabled to pass through a cool tunnel for nearly four miles, with a force sufficient to almost knock a man down; if, as at present, it maintains the surface temperature for a distance for more than a mile without outlet, and falls two degrees in the vicinity of an open shaft on the line. This would seem to indicate that when the tunnel is completed the temperature of the atmosphere, even on the 1,200-foot level, which the tunnel will strike, will be lower than at the mouth of the tunnel, instead of being twenty to thirty degrees greater, four and five hundred feet above, as at present.—*Independent, July 29th.*

Nevada Coal.—Mr. Wm. H. Day, of lower Gold Hill, showed us to-day a fine specimen of coal weighing about fifty pounds, which was received from a mine in which he was interested. This mine is situated in the Palmyra district, opposite the mouth of Seven Mile cañon, and about four miles north of Dayton. The vein is about two and a half feet wide, at the present depth of forty-five feet, but is widening perceptibly as the shaft is sunk. The coal closely resembles coal found in Illinois, but is not quite so hard. Mr. Day assures me that he has tried the coal, using it for various purposes, and that the tests were satisfactory in the extreme. We congratulate him upon the valuable discovery; as it will, in time, prove of great service and pecuniary value to him.—*News.*

The British Mercantile Marine.—In the British mercantile marine there are 40,000 persons, says the *Nautical Magazine*, who man ships coming to or from the United Kingdom, and do not include seamen manning British ships in the Colonies and abroad that do not come to our shores. These men may be classified as follows: Certificated masters and mates, 38,200; certificated engineers, 7,600; uncertificated masters and petty officers, 10,000; fishermen, 150,000; other sailor men, 151,200; firemen, stokers, etc., 14,000; stewards, etc., 5,000; apprentices, 11,000; other boys in merchant ships serving afloat, 7,000; boys in fishing boats, 13,000.

Lassen County Mines.—The Susanville *Advocate* contains the following: George Boyd and several other parties have struck very rich placer mines, in the hills above the Mountain Meadows. It is said that the deposit is quite extensive, and several claims have been taken up which prospect first-rate. Ward and Abel have commenced to work a claim on Gold Run, in a large bed of gravel, which they say prospects very rich. Frank Bosquet and a man from Virginia City have lately located a set of claims on the gravel range above the old Bosquet claim which are likely to prove valuable.

Tybo.—The mining company at Tybo, represented by McGee, will very shortly have the smelting furnace ready for operation. The one about completed has a capacity of 40 tons in every 24 hours. Two others will be constructed after the completion of the one now being built. There are three tunnels being run into the ledge, and wherever the ledge is tapped a very encouraging prospect is met with. It is said that one man can extract five tons of ore per day, the ledge being of immense width and can be mined without the use of powder.—*Courier.*

A great variety of articles, including grain-bags, wagon-covers, floor-covers, ropes, sails, etc., are made in Russia from the inner bark of the bass-wood, or linden tree, a million of trees being destroyed annually in the manufacture, and the value of the articles produced amounting to $2,400,000.

Of Iron.—The new fume arrester at the Eureka Consolidated furnaces is to be constructed entirely of iron. The trestle work will soon be built and the iron for the flue and stack pipe will arrive from San Francisco in a short time.

Sulphur.—The annual product of sulphur from the Sicilian mines is nearly 7,000,000 cwt., while that from all the rest of the world is only about 150,000 cwt.

The coal production of the United States amounted last year to 45,413,340 tons: the corresponding production of 1872 was 42,749,241 tons.

No other nation but the United States can boast of 75,000 miles of telegraph.

Good Health.

The Human Frame.

No. 9—The Bones.

Ths bony framework of our bodies, representing as it does a mechsnism permitting the most varied and complicated movements possible, consistent with tha integrity of the machine as s whole, is not the least remarkable portion of "the house we live in." It is a perfect adaptation of msans to snds; of physical structure to physical wants. Anatomists differ as to the aumber of pieces constituting the osseous syetem, some computing ths teeth and sosamoid bones, while others reject these, and reckon only tha trus bones. Including the patellas (knee caps), which though sosamoid ara always compnted, there are 206 distinct bones in the human skeleton. These are fastened, or articulated, together in a great variety of ways; as for instance, the compact, dentated articnlation of the cranial bonss, which will permit fractura of their aubetance befors the bones themselves will separate, and the free, "ball and sockat" joint of ths humerus (arm bone) with the scapnla (shoulder blads). Of course, having to subserve so msny different perposes, bonss are vary differently shaped. Alt tha scientific principles involved in architectura or dynamics are portrayed more or less faithfully in thsir construction and adsptation; as for a familiar example, the power of the arch to resiet superincumbent pressnre is well illustrated in many portions of the body, as the vaulted bonea of the skull, tho foot, etc.

As to their chemical composition, they consist of about one-third animal, and two-thirds earthy matter. The animal, or organic, matter is chiefly gelatin; the earthy, or inorganic, consists for the most part of the phosphate of lime, carbonate of lima, etc. As is well known, in old age the earthy matter greatly predominates over the animal, thns rendering the bone exceedingly brittle and easily broken; while during childhood the reverse is the cass, and the long bonea of the infant may be bent conaiderably without being broken. Under an unhealthy *regime*, or insufficient earthy food, this animal element preponderates to such an extent that it becomes a fruitful source of disease or deformity; producing most commonly that diseaee known as "rickets." This disorder is always a result of deficient nutrition, and can be remadied in almost evsry case by correcting and toning up the digestion, and supplying food which contains an abundant proportion of the phosphates.

It would be well, also, if mothers wonld besr in mind the tender, cartilaginous condition of the bones of their children in early infancy, and not encourags, as is too often done, the precocious use of the child's limbs. Nothing is more annoying to the thorongh anatomist than to aee little, puny children tottering abont on limbs which are bending beneath their load, and which, from this reason, are destined to cause their possessor to be dubbed in after lifs as "bow-legged."

Bones are very often diseased, broken or dislocated. In all such cases they should have the care of a competent physician; although it is wonderful to note, especially in the lower animals, the remarkable restorative power which nature sometimes exercises in cases of fractures, etc. We have freqnently seen instances where a bone has been broken and the two ends widely separated, when new bony material was thrown out and the bones united and presenting the novel appearance of a square "elbow" in their course.

Saccharated Calomel Contains Corrosive Sublimate.—Dr. Polk, of Philadelphia, iu the *Medical Times*, calls attention to the fact that corrosive sublimate is developed when calomel is rubbed np with sngar. He administered 10 grains a month after its preparation, with such poisonous effects as led him to test the compound, with the result as stated. He quotes from Alpins, who says: "When calomel is mixed in powder with white sugar, or calcined magnesia, or bi-carbonate of soda, corrosive aublimate is formed in 24 hours. Rather large quantities are formed in powders composed of calomel, white sugar and bi-carbonate of soda." We believe it is the general opinion among practitioners that the increased activity of the eaccharated calomel, which, by the way, is an old remedy, dependa on the increase of surface caueed by its diffusion. But the development of the chloride puts a serious face oa ths matter.

Women of Enoland and America.—We begin very much to doubt that the women of England are any more healthy than those of America, though the notion has a long time been prevalent. English women are larger, plumper and fatter than American women, but they do not perform so much work. American women are great workers, and have good powers of endurance. They are tough. If they would obey the laws of health they would be nearly or quite free from illness, except such as is inherited. It is said that English women are great walkers; but this does not indicate higher health, but habit.—*Herald of Health.*

Strychnine Poisoning.—A person who had taken five grains of strychnine for the purpose of committing suicide was snccessfully treated by skilful applications of chloroform, which alleviated the spasms. At the time a physician was called in, the poison had evidently been absorbed, and emetics were consequently nseless.

Muscular Movement Without Life.

The persistenca of motion in decapitated snakes, turtles and other low forms of life is familiar to every ons. It is commonly explained by the relatively large nervous ganglia, independent of ths brain, of sach creatnres. Bnt it appears that many if not all muscles may contract without that stimnlns of nervous action, with which alone we associate the possibility of conscious life. A striking illustration is givsn by Dr. Brown-Séquard in ths cass of two decapitated msn. Ths arms wsrs cut off; and for thirteen or fonrteen hours, their muscles contracted in responss to irritation by galvanism or mechanical stimnlsnts. Aftsr that length of time, all signs of lifs had disappeared. He thsn injected the blood of a msn into one of the arms and the blood of a dog into another. Local lifs was rsstored in both; the mnscles became irritable, and ths strength of contraction sxtremely powerfnl. In the arm in which human blood had been injected, the contraction was stronger than dnring life; yet ths nsrves remained quite dead.

On another occasion the same obssrver kept tho eye of an eol, removed from the body, at a temperatnre of 36° to 40° Fah., for a period of aixteen days. By that time ths eye was in almost complets pstrsfaction, yet the iris contracted when exposed to light. Nervons action was impossible, and muscular fibers themselves wers considsrably altered; yet they acted.

It is in connection with ths rhythmical movements of the heart and othsr organs, however, that the most striking proofs of muscnlar action independent of the nerve centers are fonnd. The diaphragm, for exampls, may be sepsrated completely from the spinal chord without interruption of its rythmio action. Similsrly the heart of a dog has continued to beat for forty-eight hours after its removal from the animal, and there is recorded the case of a man at Rouen whose heart was found to beat for 36 hours after the death of the body by decapitation. "I dare ssy," observes Dr. Brown Sèquard, "that the great cause why we see those organs stop at death so qnickly is that the phenomena of arrest of their activity have taken place at the time of death," the phenomena of arrest, we may add, being quite independent of the cessation of life. Other observers have demonstrated the rhythmic action of numerous other organs in man and the lower animals; motions that persist after, not death merely, but the entire separation of the parts from the rest of the body. Indeed Dr. Brown-Séqnard claims to have found that rythmical motion is a common property of all contractile tissnes, bnt one which shows itself only under certain conditions, different from the ordinary circumstances of life.

Still more remarkable is the fact that motions closely mimicking voluntary movementa can go on in the absence of conscious life.

Dr. Séquard mentions a caee in which he was called to see a man who was thoroughly dead of cholers, yet who persisted in certain complicated movements distressingly suggestive of life. The dead man wonld lift np his two arms at full length above his face, knit his fingers together as in the attitude of prayer, then drop the arms again and separate them. These movements were repeated many times, with decreasing force, until at last they ceased. To persons not knowing what may take place in the human body after death, these singular movements, observes the doctor, must certainly have looked as if the will powor had been directing them. In fsct, the family and friends all thought the dead man alive, and many tests had to be applied to convince them that death had really taken place.

It is worthy of notice in this connection that it is generally with the victims of cholera and other sudden and violent diseases that *post mortem* movements are most common, and consequently the suspicion of premature burial most likely to arise. That auch movements are wholly independent of life was demonstrated beyond a doubt by Dr. Dowler, of New Orleans, who adopted the heroic expedient of cutting off the limbs of patients, dead beyond hope of recovery from cholera and yellow fever. Notwithstanding their separations from the nervous center, the amputated limbs continued their seemingly voluntary movements. Whatever may have caused them, it is evident that these imitations of life were not due to anything that could be associated with consciousness.—*Scientific American.*

Air-proof Fabrics.—Air-proof fabrics ought to have only a very limited nse. In India-rubber or gutta-percha textnres we feel highly nncomfortable when we have to undergo mnch exercise, or have to give off more heat than usual. They become inconvenient, not beoanse they stop the change of air entirely, which they cannot do, in fsct, on account of the necessary openings in them; bnt only becanse they limit the universal exchange of air in the nnderlying garments. For protection against the wet from without they are well suited, but they produce another wet on our skin by impeding evaporation. They may be nsed in wet weather, when accompanied with cold or wind, but never, though wet, when it is warm or calm.—*Pettenkoffer.*

New Cure for Rheumatism.—Dr. Wagenhats, of Ohio, hss cured himself of two severe attacks of acute rheumatism, by inaulating his bedstead with a glsss tnmber nnder each of its legs. He has had the like success with two patients. How wonld boots with non-conducting soles answer to prevent rheumatism? —*Pacific Medical Journal.*

Useful Information.

Seasoning and Preserving Timber.

Thers are different ways of seasoning timber; the most simple is to dry it iu ths air under a ehsd, ths next to immerse it in water for a season, salt water by prefsrence, which disaolves somo of ths aap, which othorwise may promote decay; the next is to put it into a warm place, artificially heated, for instance by etoam pipes; this produces a kiln drying. A etill better way is to plaes it in a steam chsmber, where steam under high pressuro is introduced; this psnetrates into ths fibers and prspares ths wood for a more equal shrinkage when dried afterward; it is a kind of cooking process which coagnlates the albumon, and thus augments the solid mattsr in the wood, preventing lumber thus trsated from swelling afterwsrd by dampness, and to shrink by dryness only half as much as other lumber.

Ths exposnrs to steam-pressnrs is no doubt amoug the simplsst of the thorough methods. Expsrisncs has shown that an exposure of timber during two or thres wesks to high pressure steam will thoroughly season inch lumber, however green or wst it may be. Snch seasoning acts to some extent as a preservative; however thero are mors thorongh msthods of preserving wood, based on the joint action of tsnnin and iron. We are able to corroborate this principle, having before us a sample of moderate antiquity, bnt snfficiently old. It is a piece of white oak dowel which was for some thirty or forty years in pine flooring of Tiber cresk arch, Washington. It is black, perfectly sound, and as hard as ebony; it evidently owes its black color and hsrdness to the combined effect of the iron in the soil on which it was placed and the tannic acid in the wood itself. The cost of the materials for this process is small, as tannic acid pure enough for this purposo can now be produced for about 10 cents a pound, and even much less in the future, as it can be made from bark, young branches, and leaves of msny trees, which owe to that acid their astringent properties.—*Manufacturer and Builder.*

Use of Thermometers.—The differences in the ordinary meteorological observations are not so much owing to the defects of the thermometer, aa a general thing, as to the want of a proper csre in observation. To ascertain the true temperature of the atmosphere the instrnment should never be hung against the walls of a building, as the heat absorbed and radiated will cauee a change of several degrees, depending on the nature of the material of the walls and side exposed to snn or wind, as also the radiation from the internal heat of the building. The best place is under the shade of an open cover or tree, away from any buildings, suspended a few feet above the ground. The fact that the air may be at rest or in motion will not affect the temperature. To ascertain the heat of the direct rays of the sun the instrument should be covered with a coat of lampblack, and exposed to the direct rays of the sun in a sheltered place.—*Western Manufacturer.*

Hot Filtering.—The apparatus consists of a tube of soft sheet lead which can be wound around the funnel contsining the filter in the form of a spiral. One end of the tnbe passes through a cork in the neck of a flask, in which water, or other liquid of higher boiling point, is boiled; the other end dips into a receiver into which the condensed liquid flows.

Filtering Alkaline Solutions.—By using asbestos psper placed in the bottom of the filtering funnel, or by want of this, a plug of the asbestos fibers, in the same way as cotton is used for a aimilar purpose. Strong alksline solutions, which would destroy filtering paper, may be filtered.

Artificial Ivory.—A new process of msnufactnre is to treat cotton waste acted upon by sulphuric acid with a mixture of alcohol, castor oil and camphor, add oxide of zinc, and run the resulting paste through rollers. The product, treated with proper coloring material, may be also converted into artificial marblea.

Transparent Paper in Photography.—Paper dipped in a solntion of castor oil in alcohol becomes quite translucent after the evaporstion of the alcohol. To restore it to its original appearance the oil may be dissolved off by dipping in alcohol.

Every man who works indoors at any trade or pursuit which requires a cap on the head to protect the hair from dirt, shonld wear a paper one, instead of one of cloth or other heavy materisl. The latter so heats the head as to injure the scalp, and in multitudes of cases causes baldness.

An old and dirty sponge may be cleaned by first soaking it for some honrs in a solution of permanganate of potassium, then squeezing it, and putting it into a weak solution of hydrochloric acid—one part acid of commerce to ten parts water.

Qualities Necessary in Ships.—Strength combined with lightness; great capacity for stowage; safety; speed; durability; economy in repairs; cost; dranght of water.

Keeping Paste.—A few drops of carbolic acid stirred into a pint of common flour paste will preserve the paste in a good, nsable order for a long time.

Artificial Flowers of Tin.

In a recent number of a Berlin journal we find the following directions for making accurate copies of natural flowers and leaves from ordinary sheet tin: The method is somewhat similar to that employed for wax flowers, but the dies, of course, require to be made of stronger material. The leaf or petal to be copied is first oiled on one side, and then laid lightly upon some dry plaster Paris, or very fine sand, in such a manner that this oiled surface is nppermost. A little bank of clay is built around it, and the mixture of plaster Paris and water poured in, care being taken to remove the air bubbles with a soft brush. Instead of plaster Paris paste, melted etsarine, mixed with powdered gypsum, may be employed, where the leaves are quite thick and strong. Very delicate leaves must first be painted over with a brush dipped in soap water, after which several thin layers of plaster Paris are applied with a brush, fine wire being introduced to give it firmness. The leaves thus prepared are either oiled or used to make plaster casts, or they may be coated with black lead and have copper deposited upon them by electricity. The upper stamp having been formed, the mstrix, or lower stamp, is easily made from this. The tin is first cut into the required shape, either by hand or by a suitable die, and then pressed into the required shape between iron or steel stamps, cast after the plaster molds just described. Each of the pieces required to form a flower, having been prepared separately, are carefully soldered together, a stem and leaves added, and the whole object so bent and twisted as to avoid the appearance of stiffness. They may finally be painted with the natural colors and varnished.

Cutting Glass Bottles.—Take a good three-cornered file, file a circular notch around the middle of bottle; let the notch be at least 1-16th of an inch deep, and, if the glass is very thick, ¼ of an inch. Into this circular notch fasten a soft small lamp wick or thread of tow, well moistened with alcohol, taking care not to wet the surrounding glass surface. Light the thread, which should be large enough to fill the notch and not wound too tight, and while burning revolve the bottle in the hands, taking hold of the ends, and holding it horizontally so as to confine the flame to one particular part. When burnt out, plunge the bottle at once into cold water. If necessary, repeat the heating and cooling suddenly.—*Artisan.*

Removing Grease Spots.—In taking out grease from clothing, with benzole or turpentine, people generally make the mistake of wetting the cloth with the turpentine, and then rubbing it with a sponge or piece of cloth. In this way the fat is dissolved, but is spread over a greater space and is not removed; the benzole or turpentine evaporates, and the fat covers a greater surface than before. The only way to remove grease-spots is to place soft blotting-paper beneath and on top of the spot, which is to be first thoroughly saturated with the benzole, and then well pressed. The fat is then dissolved and absorbed by the paper, and entirely removed from the clothing.—*Journal of Chemistry.*

Cement for iron railing tops, iron gratings to stone, etc., of a very excellent nature can be manufactured by taking equal parts of sulphur and white lead, with about a sixth of borax; mix the parts together until they form a homogenous mass. When used the mass is wet with strong sulphuric acid, and a thin layer of it is placed between the two pieces of iron, which are then pressed closely together. In five days it will be perfectly dry, all traces of the cement will have vanished, and the iron will present the appearance of having been welded.

Removing the Teeth of Children.—The operation consists in simply slipping a rubber ring over the tooth and forcing it gently under the edge of the gum. The patient is then dismissed, and told not to remove the appendage, which in a few days loosens the tooth and causes it to fall out. Grown children, who shrink from tho shock and pain of the dental nippers, may also have their teeth removed by means of the rubber, which is a mild form of treatment.

Casein is the name applied to the nitrogenous constituents of milk, which are coagulated by acids, and which have received this name from their use in the manufacture of cheese. A portion of the nitrogenous snbstance, known as albumen, is coagulated by boiling, and then forms those repulsive little films generally met with in boiled milk. Casein is soluble in fresh milk, but insoluble in milk which has turned.

The fracture of a steel wire containing, say, seventy-five per cent. of carbon, when seen under the microscope, presents a tolerably flat surface, composed of innumerable small, sharp, crystalline points, while that of iron is rough, more or less fibrous or mossy, and the fibers do not end in sharp points.

Softening Violin Notes.—M. Laborde states, in *Les Mondes*, that the disagreeable rasping tone peculiar to some violins may be avoided by placing a small strip of wax on the upper portion of the bridge. The notes are immediately rendered sweet and soft, and can be suited to the ear by regulating the size of the piece of wax.

Powdered chalk, added to common glue, strengthens it. A glue which will resist the action of water is made by boiling one pound of glue in two quarts skimmed milk.

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SAVING THE SULPHUR IN COPPER SMELTING.

Mr. Spence, of England, some 12 yeare since, tnrned his attention to the saving of the sulphur evolved from copper ore in the process of roaeting. He erected a small experimental furnace about 12 years ago, on what he denominated "eound ohemical principles," which proved a most satisfactory success. It required but s small expenditure of fuel and labor to eliminate the sulpbur from the ores as fully as required in practice, and oonvey tbe same to the vitriol chambere as sulphurous acid gas. Very soon afterwards he erected additional furnaces on a large scale, and all the sulphuric acid made at his works, for the last ten years, has been obtained from furnaces of tbis deecription. The amount of sulphur waeted in copper smelting, in England, and which might he economized by tbe use of furnaces of this deecription, is enormous. It has been estimated at 70,000 tons per annum, which would be wortb something like two snd a quarter million dollars.

FIRE ALARM IN THE BELCHER MINE.—Wednesday evening, of laet week, about 8 o'clock, there was an alarm of fire and a grand stampede in tbe Belcher mine. It appears that some decayed timbers were being blasted out of an old drift of tbe 1,300-foot level of the Belcher, near the Crown Point line, when some of them took fire from the blast, they being eaten up with the dry-rot and as inflammable as punk. Thoee who knew what wae the matter procured one of Babcock's fire-extinguishere, kept on the level, and pnt out the fire. But in tbe meantime the alarm had extended to the men on the level and throughout the mine, when a panio and a grand stampede for tbe surface eneued, and meet of the men were hoieted out of the mine before the alarm subided.

GREAT Britain has 396 paper mills; Franco, 634, and Spain, 139.

Mining as a Legitimate Enterprise.

We clip the following from the Calaveras *Chronicle*:

"The Yellow Jacket and Carey Conaolidated company, which erected steam-hoieting works on s wortbless feeder, near the Obio, bave shut down. It ie to be hoped that the company will use better judgment in the future, or employ a competent person to judge for them."

We know nothing of the circumstances which called forth the above item, nor whether it is a just criticism or not upon the management connected with the company to which reference ie made. We have merely placed tbe item at the head of this article ss a text for the few words wbich msy follow, and wbich, while they may have no application whatever to the mine mentioned, will certainly be applicable in many cases, which msy be readily oalled to mind hy any one who has had much experience in or knowledge of mining in California.

Tbe successes in quertz mining on this Coast may be coneidered the exceptions rather than the rule. In the early days of mining here, there might bave been some reason for such a result; but of late years we have not been wanting in men who are sufficiently well experienced in all the science and intricacies of both milling and mining for the precious metals, to eecure, as a result of their efforts, as fair a percentage of profit as oan be derived from any of the legitimate pursuits of life, involving the same amount of capital and skill. We believe that very few of the failnres here oan be properly attribnted to the oharacter of the mines themselves. The only wonder is that they bave paid ae well as they have, considering the recklees system of mansgement eo generally pursued; bnt we trust that we have seen the worst of such things, and that better times in this regard are in store for our early future. Intelligent, honest and economical management will do more to give our mines a good reputation abroad, and bring capital to our aid, than anything else which can be done to further thet object. It will aleo secnre the beet possible reeults for our home investments and labor.

There is nó question shout tbe valne of our mines, or of the fact that vast riches lie scattered all about our mountains, waiting for the hand of industry and skill to come snd gstber them np. Hence mining may and should be made profitable; and it might he made ae profitable and reliable ss most other industries, if only properly managed, snd with as much regard to economy ss is practiced in other callings. Mining is not only important in itself, but it vitalizes and stimulates every otber business. Yet, praotically, our merchants, manufacturers, farmers and capitalists reject it, or are unwilling to embark therein.

One of the chief reasons assigned for thus ignoring so important an industry, is the acknowledged fact that since the partiel exbaustion of surface mining, tbe business has largely fallen into the hands of sharpers and speculatore, wbo generally make their money by victimizing the ignorant or unwary, inetead of depending upon tbe actual produots and legitimate profits of mining.

Another source of trouble and discouragement arises from the fact that eo many mining operations are conducted in such a reckless snd extravagant manner, that it seeme as though the object wae to spend the most money and realize the least possible results for the stockholders, who find, too late, that their agente and managere have been "going it blind," generally through ignorance or a lack of the ability and experience necessry to enoess in such operations.

Failures tbat are attributed to the high rate of labor, or a worthless mine, are too often found, on critical and intelligent examination, to result from too extensive, too expensive, or ill adapted machinery; too much cost in the management of nnnecesaary corporate associations; too much ignorant expenditure in speculative experiments; too little intelligent, practical mining, and a consequently too small percentage of the precious metale saved. Hence the distrnst and suspicion that bss so generally fallen npon mining ss an investment.

There is one other great drawback to mining enterprise, snd tbat ie too mnoh waiting for capital. There are thouands of minere ecattered throughout the mountains of California, Nevada, Colorsdo, etc., who are in poseession of mines as yet undeveloped, but really valuable, but who will do nothing whatever towards developing them; they are simply wsiting for capital, and large capital at that—tbousands instead of hundrede. How much better would it be for such men if they would combine into a co-operative enterprise, ae people are now doing in almost every other branch of industry, and become independent of capital.

Now to counteract these evil tendencies, and build up this great and important industry on a sound and reliable basie, it ie nececeary that all who are practically engaged in mining or who have money to invest thorein, should employ or combine with none hut thoee who are capable and honeet. See tbat only the most experienced superintendente, those who have a well known record for ability and heneety, are put in charge of the general management, and place none hut the best practical miners and mill-men at the head of the various departmente connected with the hnsiness, instead of the cbeap and unreliable class of men too often employed. Let such a course be pureued and the confidence of capitaliets abroad in onr mines, now well nigh destroyed, would soon he renewed on a firmer base than ever.

In sddition to tbe cansee already enumerated many failnres are also due to tbe fallacious idea that knowledge is of but little conseqnence in locating or operating a mine or mill, or in eelecting and arranging the machinery for the same—that any person who hae businece tact and knowledge snfficient to navigate a steamboat or run a saw mill, and who has had no other experience, is fully competent to mansge a mine. That any person, whoever, connected with mining sbould be found to disregard the neceseity of applying scientific knowledge to aid the operations of tbe miner, notwithetanding the indubitable evidence that it has done so much for the advancement of mining, ie greatly to be deplored. Practical men, combining scientific with practical knowledge, are undoubtedly the men best quslified to insure success; but practical men merely, especially those whose experience has been confined to one or two localities only, are as unsafe as the mere theorist. The one is guided solely by what he has seen, the other by wbat he hae read. What is wanted is the educsted man whose study has gone hand in hand with prsctical working in the mine or mill. Fortunstely we now have such persons in numbers fully equal to the demand, and there is no need of such failures as the one noted at the head of this article or any similar ones anywhere.

In locating and working a mine, either for gold or silver, measures may and should always be taken to know positively before the erection of a mill, that the company hae a mine sufficiently well developed, and of tbe ne essary riohness to aeenre at least a reasonable degree of success. Tbis may readily he done by a proper exploration of the same by means of drifts, sbafts and tunnels, and the character of the rock fully ascertained. Such exploration will cause no delay, for it is impossible to obtain sufficient rock from any ordinary mine to keep a mill running, until a large amount of preliminsry work has been done; and it is mnch better to lose the ontlay for *such* work alone, tban, by injudicions haste, to add to it the cost of a mill and its immediate acceeeories. By careful observstion, and the collection and collation of numerous facte, mining has been reduced to a science, accessible to all who bave the necesesry ability and experience to inform themselves, or who will take trouble to do so. It is a progressive science, however, to which new facts are being conetantly sdded, snd he who would practice it successfully, or employ it as a means of pecuniary gain, should be constantly on the slert for the latest development of facte or latest improvement in machinery in sll its various appliances in both mill and mine.

Engineering Two Thousand Years Ago.

Perhaps some of tbe most remarkable remains of ancient engineering are those which were diecovered hy excavations made, some 10 or 12 yeare since, a short distance from Rome, snd near the ruins of the ancient city of Alatri. This city was eurrounded by massive walls, and located on a mountain or elevated point, snd ill provided with water. About 150 yeare before Christ, as we learn from a Roman inscription, an immense aqueduct was built to bring water from a neighboring mountain better supplied with that element. We are furthermore told that this aquednct was 340 feet high, supported upon arches and provided with *strong pipes*. The topography of the country, moreover, sssures us that the water supply oould not have been conducted into the city, even over suob high snpporte, except by pipes—an inverted eyphon—the lowest point of which must hsve been some 340 feet below the point of delivery, or nnder a presenre of at least ten atmoepheres. The excavations already alluded to ehow that the aqueduct must have been of large size, as the piere of the arches sre not less than five feet nine inohee in hreadth, while the total length of the syphon must have been between four and five miles. Tbe question naturally arises—How, and of what material, wae this syphon huilt? Ae iron pipes of large dimensions, if of any dimensions st all, were not known at tbat era, we can look only to masonry or wood-work for the material of ench construction. Poesibly a olue bas been found to tbe the mode of their oonstruction by a euhsequent discovery, near the same locality, of a field, euppoeed to have been the eite of an ancient parade ground near thie once walled city of Alatri. A complete syetem of underground drainage has been revealed at a depth of ahout seven feet helow the surface of the field, effected hy a well oonetructed syetem of pipes made of fire clay, sach about eighteen inches in diameter. It is possible that snch a pipe, of lsrger dimensione, snd strengthened on its exterior by a strong and massive hulwark of masonry, may have been tbe meane of oouveying the water into the city. But however that end might have been attained, the work was certainly a most wonderful feat of engineering, considering the oondition of tbe mechanic arts of that early day. Tbe excavations and discoveriee tbus brought to light, and so fnlly oonfirming the trnth of the anoient inscription, were conducted by order of the present Pope, and under the immediate supervision of the well known Italian scientist—Father Secchi.

THE Département of Agriculture estimatee tbe consumption of timher during the preeent decade at one hundred millions of acres, or an average of ten millions of acres per year.

Academy of Sciences.

Tbe Academy of Sciences held its regular meeting on Monday evening 1sst—Profeesor Davidson in tbe chair. After the acknowledgment of a long list of donations the following gentlemen were elected as regular members: Hon. Cornelius Cole, Professor T. Gueran, Carl G. Schneider; and James Falkner as corresponding member. Six names were also proposed for membership.

The New Constitution.

The cuetomary pspere and discussions on scientific eubjects having been laid over, the new conetitntion and by-laws, ss reported by the committee on that matter, were taken np for consideration, and after oonsiderable discussion were finally adopted as a whole. This document has been drawn up and considered, in committee, with great care, and with special reference to the expected important change in the pecunisry condition of the Academy. Heretofore tbey had had little property, and now ss they had what might be called great expectations, it was necessary that the affairs of the Academy should be transacted in a thoroughly legal way. As several points in the old constitution were comparatively weak for the present condition, tbe committee had studied tbem by the laws of otber ae sociatione, and had endeavored to arrive at a better means of electing the officers of the Academy, and also of putting restriction upon the character of those who are elected members—not a restriction as to tbeir scientific qualifications, but whetber the man who comes in among them is a man of probity and honor, or whetber there is some black mark to his cbarscter which should disqualify him.

Following are the main provisions: Its membership is to consist of resident, life and honorary membere. Esch applicant for life or resident membership must be proposed in writing hy two or more resident or life members, snd tbe nsme, occupation and residence of tbe applioant be posted in a conepiouous place for not lees than one month. At the next meeting the Council shall determine by hallot whether the applicant is worthy, and shall report at the next regnlar meeting, whereupon the applicant shall he balloted for. Honorary members shall be elected only at the annusl meeting. Each candidate to he elected must receive the votee of four-fifths of tbe membere voting. Any resident member may become a life member by payment of $100. Corresponding membere shall be elected for one year. The business of the Academy ehall be transacted hy the resident and life members from whom tbe officers ehell he elected. The number of honorary members shall not exceed 50, of whom 30 shall be residents and citizene of the United States, and 20 of foreign countries. Seven trustees shall he elected who shall have under their charge the property of the society, and shall transact all affairs relative to the temporalities thereof. Tbe trustees shall elect one of their number as President, snd ehall also elect a Secretary. Tbe trnstees shall have power to require from the officers snch bonds as shall be security for tbe faitbful performance of their duties; and tbey shall elect some bank in which to make deposits on behalf of the Academy. At the annual meeting, the trustees shall present a detailed statement of their proceedings, together with vouchers, and a full sccount of all property, real aud personal, and of tbe condition of the corporation.

Whenever the trustees shall have in their hands fnude not needed for tbe immediate nse of the Academy tbey sball have the power to loan the same npon such terms as sre advisable, but no loan sball be made except upon mortgage of uninoumbered real estste, the value of which sball be twice the amount of the loan, or upon bonde of the city or State. No loan shall be made except hy vote of not fewer than five trustees. If any loan he made contrary to these provieions, the trustees making the same ehall be individually liable for the money eo loaned. The trustees may invest the money of the Academy in bonds of the Stste or city. The officers of the Academy shall he a President, First and Second Vice-presidents, Corresponding Secretary, Recording Secretary, Treaeurer, Librarian and Director of Mnseum, sll of whom mnst have been life or resident members tbree years previous to their election. These officers shall conetitute a council for the transaction of such hueinese as may be assigned to it by the Academy. The President of the Academy shall be President of the Council. The Council may not incur any indebtedneee unless authorized by the trustees. All of the officere are required to make annual reporte and special reports as may be considered requisite. Medals and prizes may be given by the Council, and bequests may be accepted by the Academy.

PRIEMOIDAL RAILWAY.—A model of Crew's prismoidal railway is on exhibition at No. 331 Montgomery street, in this city. Tbe trsck employed in the construction of this railway is in the form of a prism having one track at the apex of the two inclined sides, upon whiob tbe main driving wheel bears, while a small wheel hears upon each of the inclined sides of the priem and at an angle to tbe main wheel. Tbe inventor claims many advantages over the ordinary railroad system. Cnts are heing prepared and when completed we shall illnetrate the invention in the MINING AND SCIENTIFIC PRESS.

The Mammoth Pavilion Accepted.

On Friday, July 31st, the Pavilion of tha Mechanics' Institute Fair was formally transferred from the hands of tha contractnr, Mr. James Drury, to those nf the Board of Mansgers of the Associatinn. Besides the Board of Managers, a number nf luvited guests were present, incinding several members of tha press. The Rural Press being duly represanted there, and, as many of tho facts counectad with the construction of tha building are of a very interesting character, wa propose to lay a few of them befora our readers.

On the 7th of May the contract was awarded; and nnly threa months previons to tha date of nur prosont issua much of the lnmber of which the Pavilion is constructed was growing in the forests of Oregon. Many of the timbers were cut to ordar to suit the vast dimensions of the hnilding. Some of thesa timbers measnre 80 ft. in length, 12x12 in., without a knot nr flaw. Tha materials of which the structure is composed ara as follows: 1,703,000 feet of lumber, exclusive of shingles, which were 1,398,000 in number; 190,000 bricks for foundation; 4,000 lbs. nf iron bolts; 306 kegs of spikes and nails. The building contains 6,287,000 cnbic feet, covering abont 4½ acres of ground. The hight of the great exhibition building, from the floor to the arched ceiling, is about 90 feet. The first floor does not cover the whole srea of the building, a wide spsce on the east side being appropriated to the display of hortionltnre.

The exhibition rooms of the nppar floor extend nearly the full length of the building; the west side being reserved for tha art gallery. A promenade 16 feet wide extends aronnd those nppar exhibition rooms. This is to be kept exclnsively for promonading, and will offer tha most favorablo point for forming a general conception of the size of the bnilding. A person standing at one end here and observing a group of men at the other end, could hardly recoguize his friends among them—no matter how well dressed they might be. It is estimated that on the side opposite the picture gallery—inclnding promenade—a thousand soldiers could parade.

The massive arches that span the enclosuro, and the ornamental balnstrade that borders the promenade, give to the hnilding, even in its present nnoccupied condition, a very inviting appearance. Bnt when all the exhibiting space is filled with the choicest products of industry and art, when tha unoccupied space below, and the promenade above are thronged with delighted spectators, the whole hrilliantly lightad from fonr thousand gas burners, the plants and fountains in the horticultural dapartment refreshing the eenses with their delicate infineuce, a scene will ha produced such as the spectator may not see duplicated in a lifetime. We hope our rural friends will andeavor to so time their visits to San Francisco as tn enable them to take their places among tha tens of thousands who will visit this exhibition daily.

Mr. Drnry, in completing his contract, rather startled the oommnnity, heing ona week ahead of the specified time. This gives the managers ampld time to complete the inside arrangemants. They are now "masters of the situation" at every point.

The almost incredibly short space of time in which this mammoth building has been constructed may possibly arouse a suspicion that it has been done in too hurried a manner, and at the sacrifice of thoroughness; hut snch is not the case. The Building Committee was composed of men who would have permitted nothing of this kind, even had tha contractor heen so disposed; and one of the most plaasant features of the pleasant ocoasion of last Friday was the extreme satisfaction expressed by all the managers with the manner in which the work had been done. In regard to this matter the unanimous thanks of the Board were voted to Mr. Drury. The pavilion, aven in the course of its construction, has been one of "tha sights" of the city, and has heen visited hy thousands, and the work examined by nnmhers of competent jndges. We hava not heard a word of unfavorable oriticism. Every considerstion has been given to tha safety and comfort, as well as to the entertainment of visitors.

In locating the pavilion, the managers chose a situation most accessible hy the street railroad cars, and in as olose proximity as possihle to tha business portion of the city. The building is located on Eighth street, extending from Market street to Mission street. The lot upon which the pavilion is erected is an extremely valuahle one, and could scarcely be purchased at any price; but the owner, Mr. A. B. McCreery, generously granted to the Mechanics' Institute a lease of the lot for a term of five years, for the mere nominal consideration of paying the taxes and street assessments on the property during that time. The Institute has the privilege of retaining possession of it the sixth year by paying $7,500. The managers were truly fortunate in securing this desirable location on such extremely favorable terms, and the generosity of Mr. McCreery is duly appreciated hy the whole commnnity. The entrance for visitors is on Mission street, and comfort and convenience in ingress and egress have been well provided for here. The upper story of the building juts over the sidewalk, forming a covered way by which visitors can enter from carriages or cars without exposure to the weather, and also protecting the spacious entrance from driving dust and rain, shnnld storms occur.

Ona of the conspicuous enterprises connected with tha approsching axhibition is tha publication of a daily paper—tha "Mechanics' Fair Daily."

This is to be published by Dewey & Co., proprietors of the Scientific Press and Rural Press. The managers nf the paper, lika tha managers of the fair, are fully np to tima in their arrangements. The exhibition opens on August 18th, and will continua from four to six weeks.

Peterson's Patent Bee-Hive.

The accompanying out represents tha "Peterson Bee-Hiva, invented and patented by Peter O. Petersnn, of Oakland, Alameda county. A model of this hive has been nn oxhibition at the office of tho Rural Press for some weeks past, and has heen examined by nnmerons parties, and favorably commented on. The invantor is a practical baa keeper, and has made the various improvements combinad in this hive as the necessities of his bea-keeping experienco reqnired. It is therefore not a product of theory, each of his improvements being suggested by some want and thoronghly tested.

This Hive is a California invention, simple in its construction, and is cheap onough for tho amateur or professional bee-keeper. Among the paramount objects secured by this Hive are the facility it affords of examining at all times the etores of the bees and the taking away of any surplus, or supplying whatever may be wanting. Also, the presence and state of health of the queen bee, and in fact of the whole hive. It enables the keeper to interfere in all sorts of emergencies; increasing the number of bees by artificially creating young swarms, and what is of especial importance to the progress of bee science, can be thoroughly examined with reference to the behavior and habits of the different bees, queens, drones, and workers, without interfering with their daily labor. An important point is, that being a low hive it gives the bees less labor and a better chance for production of honey. By the peculiar construction of the Hive, the drones are unable to get into the place where the bees keep the bulk of their honey.

The engraving of the hive shows the peculiarities of its construction. B are the breeding frames, c the

honey frames; C is a partition to prevent the drones from getting into the place where the bees store the bulk of their honey. The slats, *a*, are intended to cover the breeding frames, B, so as to keep the bees down in them. They are movable and can be placed over the breeding and honey frames. A sheet of glass is placed over the honey frames, E, so as to let the bee-keeper see how the bees are working, and when the frames are filled. The slats, *a*, or a piece of cloth can be laid over the glass covering the honey frames, E, so as to keep the hive dark, and can be removed when it is desired to examine the hive. H is the hollowed strip by which the hive is ventilated.

Improvements on Patented Articles.

Editors Press:—Please decide a point for us. Suppose I hold a patent on some article, and some other parson invented and patented an improvement on my invention; now, does thare exist a law in connection with our patent office which would compel me to adopt or accept of his improvement? I say not; hut a person here, who is making use of several patanted machines every day and should know something about it, is of a different opinion. I leave you to decide for us. Rifle.

Napa City, July 28th, 1874.

[You are right. The holder of an original patent is no more bound to purchasa a patent for an improvement upon his invention than a person who owns a farm is bound to purchase tha farm adjoining him. An improver must base the value of his invention upon the advantages which it possesses independent of the original or former patent. Most of the patents issued from our patent office now-a-days are simply improvements; not one in five hundred being for the original discovery of a principle. —Eds. Press.]

Repoated Strike Near Reno.—A very rich strike was reported on Monday last in the Sierra Rose claim, in Ravine, near Reno. For some time they have been running in rock assaying from $60 to $80 per cent. in copper, till yesterday they struck rock perfectly studded with gold and silver. The Paymaster has run through an 8-foot ledge of very fine rock. Several other claims showing a fine prospect has given new life to Ravine district.

The Idaho mine, Nevada county, for the past four weeks, prodnced about $45,000. The Eureka mine, near by, is just paying expenses, including active explorations for pay-rock below the present workings.

Fruit Drying—A Revived Process.

Thora ara nnmerous patents on fruit dryers. The usual methnds are to construct chambers with shelves, or drawers, and either conduct hot air into tha chambers or apply tha heat of a furnsca so as to heat tha air in the ohambor. Tha first patent issned in tha United States for an apparatus for drying fruit in a chamber by a current of heated sir, and the fruit in motion, was to Francis H. Smith, Baltimore, Md. This patent was numbered 31566, and dated February 26th, 1861. Copying from tho Patent Reports tha invention is thus described, viz: "This invention is designed for drying brick, fruit or other articles. Tha tunnel or apparatus is divided into compartments, by means of sliding gates, which may be opened and tha cars pushed through anccessively when the drying process, in the trays upon the forward car, is completed." This was a horizontal chamber, and as the description says, the cars upon which the fruit was placed were pushed through tho chamber by hand.

Smith re-issned this patent three times, as follows: On the 30th Jnna, 1868; July 11th, 1871, and March 26th, 1872. The last re-issua is the patent now in forca. The claims of this patent are as follows:

First—A chamber through which a current of air is passed, and in which the articles to be dried are subjected to a progressive temperatura and dryness.

Second—The process of drying fruits and vegetablea hy subjecting them to a current of

AN OLD FRUIT-DRYING PROCESS.

air artificially warmed, in combination with a gradually increasing tamperature and incraasing dryness, etc.

Third—A drying chamher in which the operation is continuons in combination with increasing temperature and dryness, etc.

Fourth—A drying chamber in which the drying air is admitted at one end and escapes at the other, when such air passes through and around the substance to be dried, so as gradually to reduce its temperature and dryness, etc.

Among a number of other patents granted and issued since the date of Smith's original patent, is the patent which was issued to Charles Alden, of Newhurg, N. Y., No. 121569, and dated Decemher 5th, 1871, ten years after the date of Smith's original patent. This patent was re-issued on the 11th Novemher, 1873, with the following claim:

The withiu described process of maturing and preserving animal and vegetable substances in part through evaporation and in part through ohemical hinding of their organic moisture, hy exposing the same to a current of heated and humid air, increasing in humidity and decreasing in hest, as the evaporation proceeds, said current of air moving in the same direction with the articles to he treated, etc.

It will he seen that Smith's fourth claim covers "a drying chamher in which the heated air passes in at one end and out at the other," thus virtually preventing any subsequent improver from using such arrangemant. While Smith claims that the fruit shonld be snbjected to increasing temperature and dryness, Alden claims that it should be snbjected to a decreasing temperature and inoreasing moisture; thns, as he clsims, improving upon Smith's invention.

Now comes a party who publishes an article from the *Horticulturist*, published in Rochester, 1854, in which is described a drying apparatus which it is claimed was thrown npen to tha public over twenty years ago.

Tho acoompanying ont, with the following description which we copy from tha pnhlioation allnded to, will give our readers and accurate idea of the method and apparatus:

"It consists of a tall, npright shaft, *a b*, represented in the annexed section of the appatus, through which passes an endless chain, made of a nnmber of strong frames securely hinged together at their corners. This chain shonld he strong enongh tn bear several hundred pounds without breaking. At avery point it is furnished with a braced shelf, each consisting simply of a aqnara frame furnished with coarse twine netting—lika a sieve. This endless chain, with its series of sieves, runs over an angular wheel abova, another below, precisely like those of a common chain pnmp, but wide enough to receive the full hreadth of tha chain. Its motion is quite slow, descending from *a* to *b* on one sida, and rising on the nther, and is accurately regulated hy means of the pendulum, *d*, connected to tha notched wheel *e*, hy means of an escapement like that of a common clock, hnt made very strong. A strong and broad India rubber baud connects the axla of this wheel to tha drum, *e*, on which the chain rnns. As the chain is loaded with the drying fruit, and is therefore quite heavy, it must not, and indeed cannot ha snbjectad to the successive vibrations of tha clock work, these vibrations being broken and destroyed by the India rubber hand.

The fruit is dried by heated air. Tha fruit is spread npon tha sieve at the top, and descends as it is being dried."

If this statement oan be proven to he true in a court of law, Smith's patent will certainly be declared void bacanse his claims are too broad Still he wonld be entitled to a claim on his *horizontal* apparatus. The description abova given does not state how tha heated air is applied, so that we cannot tell whether the process is the same as the Alden process or not. Our readers may rest assured that no patent now in existence can prevent them irom drying fruit in the same manner that it was dried over twenty years sgo, and whenever a patent now in existence anconnters snch a precedent it must fall. As we said, Alden's process of "subjeoting tha frnit to a decreasing temperatnre and increasing moistura" may save it, although the apparatus which he uses is identical almost with that represented in our cut. The qnestion which now remains to he answered is, in what way was the onrrent of heated air applied in the old apparatns of twenty years ago?

Street Traffic of London.

It is estimated that one million persons enter London, the great commercial metropolis of the world, every business day of tha week, and leava again for their homes in the snhurbs or in the country, every evening. One million persons represant a number eqnal to the entire population of Californis, whose locomotion mnst thns be provided for to their places of business and hack, six times a week. No donbt a mnch larger portion of this numher make their way on foot than would be fonnd doing so in any American city of large extent; bnt a larger proportion also employ private vehicles and all moving over pavements than wonld be employed to accommodate the same amount of traffic in an American city. Twelve years ago it was estimated that something over 60,000 vehicles entered and departed from tha city every day. By reason of the more recent and general introdnction of cars—steam and horse—the nnmber of vehicles has not increased since that time in proportion to the amount of travel; hut still the nnmber of vehicles passing through the main thoroughfares is immense, and causes much inconvenience and delay hy street blocks and general crowding by constant passing and repassing. New expedients are constantly heing devised to relieve this inoreasing prassure of street traffic, among the more important of which ara new railways—generally steam railways conducted over the tops of honses or through nnderground tunnels—new police regulations, and new and wider streets. Yet the difficulty of solving the problem must be obvious from the mere statement of the case, and the constantly advancing ratio of increase in population and volume of business. The same problem has already become an almost insolnble conundrum as applied to the great commercial metropolis of the new world.

Water-Wheel.—Since the introdnction of Hyde's water-wheel power for driving sewing machines we notice that it is heing applied to various other machines for the same purpose; for instance, Hanly & Co. at their store on Market street, have one in use for rnnning their coffee mill.

The American sleeping and hotel cars are now coming into use in England. A late num- of *Engineering* speaks very flatteringly of a recent trial of Pullman cars on the Midland railway.

Colorado Mines.

A correspondent of the *Rocky Mountain Herald* writee as follows from Georgetown: We see freqnent mention made in the various jonrnals of the day, of the enormous wealth in this and that mining district, particnlarly of the vicinity of Gold Hill, bnt we look in vain for statemente of dividends in the moet glowing of those eensational articles beyond assays of pocket ssmples, whioh are calcnlated only to mislead the uninitiated. It certainly requires no argument to convince the pnblic that the continned prosperity of Colorado mnst depend largely upon its mines and reduction works. The great question, therefore, for consideration, is the qnality, qnantity and permanence of precions minerals which Colorado mines are able to produce, and not the production of minerals like tellnrinm, used only for a few chemical teets, n huudred poun ie of which wonld be an ample supply for the world for a year. It is now more than 10 yeers aince Colorado mines attracted the attention of capitalists and adventnrous spirite from abroad. Dnring that time large amonnts of capital have been sent here and expended, yielding in most cases no retnrns whatever. Representatione made have not been jnstified by eubsequent developments, or dividends. Thns much harm has been nnwittingly done to injnre our mining interests, and donbts engendered in the minds of those who would otherwise invest from their spare capital with a liberal hsnd. These donbts and misgivings mnet be removed by statements that can be snbstantiated of what mines hsve produced, and the profits realized in their working before we can hope for confidence in pnblished reporta concerning the fabulone wealth of onr minee.

Sensational artioles concerning fabulous discoveries, calcnlated to mislead the uninitiated, should be discountenanced by the press instead of enconraged as they now are, before we csn again hope for a full renewal of the confidence onr minee once enjoyed. We have mines enough that are suffioiently developed to guarantee their future, to write the most glowing articles abont without indulging in uucertaiutiee. That Colorado as a great mining couutry hee a brilliant fntnre before her, can be best appreciated when we consider the growing interest menifested in our mines by people from abroad who vieit ns for recreation and health. Had there not been miree here unexempled iu numbere and of surpassing richness, Colorado as a mining country wonld have sunk into utter insignificance, and all publio effort and interest wonld long sihce have been absudoned.

It is true, there hss been a failure in mining, as in other branches of business; but these failurea have been mainly owing to snch woeful mismansgement as ever entails failure and disaster in whetever bnsiness it appeare. In spite of mismanagement, misdirected effort and misrepresentation, our people snd mines have most gallsntly withstood and overcome these most prodigious obstacles, and to-day stand vindicated and triumphant everywhere, and are noticed and qnoted in New York, London and other great moneyed centers. No conntry need blnsh to own such mines as the Ceribon, Red Clond, Moose, Terrible, Dives, Pelican and Colorado Central. The Caribon, which sold for three millions of dollare to a Dutch company, as usnal mnst needs send over a Dutch mansger. In a very short time it beoame psinfnlly apparent that everything was going to the bad—when Mr. Moses Anchor, a Coloradan, who negotiated the sale abroed and retained a large intersst, was called to the general management. He soon bronght order ont of chaos, reduced the generul expeuses at the rate of $125,000 per annnm, and nt the eame time doubled the product of the mine. Now everything is lovely and Caribou stands high. Then there is the Terrible, sold by Mr. Fred. Clark, of Denver, to an English company, for $500,000, also, who must needs send over their English snperintendent. Tbe shares, which were £5, soon ran down to £1.10s. When Mr. Clark was called to the management, in lees than six months tbe stock stood at par again, and to-day the mine is considered about the best developed mine in Colorado. Thus it will be seen nt a glance what a difference there is between good and bad mauagement, of onr best mines. But the most important discovery in Colorado within the last two years, unquestionably, hes been the Colorado Central, which may safely be tsrmed the banner mine of the entire country. Prof. Stoelting, Territorial assayer, who sampled the produot of thie mine last year which was shipped to Friebnrg, Germany, says the amonnt or ore taken from thie mine dnring eleven montbe, commencing on January 31et. 1873, and rnnning to January, 1874, amounted to 247¼ tons, which contained 84,589 ouncee of eilver, or an average of 341¼ ounces of silver per ton of 2,000 pounds, being $109,119.84 in coin.

The selected or first-olass ore contained from 2,570 onnces to 4,225 ounces of eilver, and from 40 to 50 per cent. of lead to the ton. The second-olaes ore contained from 800 to 1,600 onncee of silver per ton, and the tbird-olass ore contained from 60 to 170 ounces of silver per ton. The oree in thie mine are the rarer qualities known, snch as brittle eilver, ruby silver, eilver glance, and grey copper contained in a matrix of galena, between well defined perpeudicular walls, in a crevice varying from 15 to 40 feet in width. For weeks together this mine netted as high ae $66.00 per man per day—for every person employed on and about the mine. Large qnantities of ore have been taken from this lode worth worth four dollars per pound, and ores have beeu sent from the mine to Germany that bronght $2.00 per pound by the ton. Professor Ches B. Richardson, in writing to the London *Mining Journal* concerning this lode, saye: It is evidently the bed of an ancient mountain stream, and promises well for the future, and may be said to be practically inexhaustable. It is in granite formation, in which none but true fissure veins are found We heve seen semples from thie mine so pnre in silver as to be susceptible of being pounded out almost like lead, into silver dollars. It has been worked entirely by lessees, and the owners receivsd over $20,000 royalty last year without contributing one single dollar, or giving nn honr'e labor, while the lessees, who started with about $4,000, realized between forty and fifty thoneand dollars' clesr profit, from eleven monthe' work, being abont ten hundred and fifty per cent. profit.

Now we contend that such statements as the above, based upon the results of the first year's labor, are the best showing ever mede in Colorado, all things considered, and fairly entitle the Colorado Central to be regarded the banner mine of the whole country.

Progress of Manufacturing Industries.

From varions eections of the State we have gratifying evidences that the people are making progress in the metter of establishing manufacturing enterprises. These are the more observable in the larger interior cities. In Sacramento emelting works have recently been erected, and although work has been somewhat retarded for a lack of water, a considerable quantity of ore brought from Utah has been rednced to bullion. But there is a demand now made in Sacramento for the erection of furnaces for smelting the iron ore which is claimed to have been discovered in the vicinity of that city. The Linooln (Placer county) coal has been well tested, and it is said can be utilized for this purpose. Sscramento certainly offere an inviting field for an industry of this character. The railroad compauy have large workshops there, and iron is the great ingredient in all the varions departments of mechanism connected with a railroad. In Stockton the manufacturers of agricultural implements have found it necessary to enlarge their worke, and we find it specially noted among the San Joaquin valley journals that the labor-saving machinery nsed in gathering the harvest of that valley hae been largely of home mauufacture. The Stockton Paper Co. are also making good progress. Several California journals are now printed upon the paper turned ont at their works, which bears a favorable comparison with the same class of paper turned out of Eastern mills. The tanneries and other leather manufacturing establishments in Stockton also show a wholesome growth. From small bsginnings they have arrived at the stage where regulsr exportetions now take plsce to China and Japan.

There is now every probability that a shipbuilding industry has been permanently entered upon at Vallejo. A tug-boat was lannched there last week, and another is in conrse of construction. The co-operative ship-carpenters are progressing satisfactorily with their schooner. And the ebip-building company are preparing for operatious on their 1,200-ton ship. In addition to which a boot and shoe company has been organized, which began business a few days ago. In Sonoma conty, one or two chair factories are in operation, with satisfactory resnlts. Cheese-making hae also assumed some importance in and aronnd Petalnma, and large quantitiee have been eold for the home market. Petaluma is also organizing a boot and shoe factory, with every proepect of snccess.

In the southern connties a eimilar disposition to embark in manufacturing enterprise is exhibited. Los Angeles already possesses a woolen-mill, and a project is on foot for organizing a company to manufacture paper. The oil-wells of San Fernando are in operation, and works for refining the oil have been erected. Passing up to the northern coast we find that Enreka, in Humboldt county, is moving to have a woolen-mill included in the industries of the place, nnd that at Crescent City, in Del Norte county, they are laying the foundation for a chsese factory. Added to the industries above mentioned are the number of wine cellars in process of construction all over the grape-growing counties—in Sonoma, Napa, Sacramento, Los Angeles, Len Mateo, etc. These wine cellare use large quantities of casks, and the day will come when they will be manufactured at home. Oue citizen of Sonoma county has commenced their mannfacture. He obtains his timber from Leke county, where it remains one year to season before being hauled into Sonoma and made up into staves for wine caske.—*Bulletin.*

Lincoln coal is now regularly on sale in Sacramento at $4.75 per ton. To the eye it is not prepossessing, being a dingy brown without luster. The lumpe are full of cracks and there is much that looks like bony or semi-slaty coal. But the burning provee that there is neither slate nor other impurity. The ash is free from slate and clinker. We saw it in use at the Sacramento water-works. The engineer reports it excellent fuel; only it burne up rather rapidly. At Ione, forty miles from Stockton, and at Lancha Plana, there are vast beds of similar coal, which the railway now under construction will bring to market next year. This cheap fuel cannot fail to affect the prosperity of the two cities mentioned, and it will be felt in San Francisco.

San Juan.

From a letter to the Eureka *Sentinel* from Rio La Plata, San Juan county, Colorado, we make the following extracts:

I came overland from Visalia, through Arizona, New Mexico and Southern Utah, arriving here on the first day of April—a nice winter's trip of 1,200 miles in the saddle. As usual on such occasions, we experienced the many incidental hsrdships of euch a trip. We were obliged to make 300 miles of new road, which now connects San Bernardino, St. George and Southern Nevada with Colorado on the sonth. Soon after arriving, our provieions became short and we were obliged to send a train to Fort Wingate. They were gone 28 days, 20 of which I, with several othere, eubsisted on grouse, and it took considerable ruetling to get them. We have formed a district and started in on the placers prospecting. The bar we are going to work ie about four milee long and oue and a helf in width, and shows to be very nice gravel to the bedrock, an average distance of 25 feet. It prospects from a half dozen colors to 20 cents to the pan. To work this we are compelled to bring a ditch to the har, the building of which we are engaged on with a force of 20 men. The capacity of the ditch will be 7,000 inches, and we expect to have water on for gravel sluicing in 40 days. All claims must worked in 20 days thereafter, or forfeited. I tbink when we have the water on, my claims will be worth $500 a day.

From appearances, I think thie one of the best mineral countries in North America. It will take time to develop it and money to set things a going in good shape, bnt when once fairly stsrted the district will be productive and one of importance. The ore is moetly rebsllions, though in some of the lodes the nstive silver is plainly seen and can be worked advantageously by milling process. The grand rnsh to this plsce is over. In common with all mining excitements hundreds of emigrants came here, mostly provided with scarcely a day's provisions, and having no knowledge of mining. They were forced to leave and gave the place a bad name. They said we had gobbled on the whole country that was of any value, but what we did take I think we have n right to, ns we were the first here.

There are six furnaces on the way that may get into operation this fall. I would not advise any one to come here nnless they can bring plenty of provisione, for it is a bad plece to get in and out of. The snow falle to a great depth, and waters on the different routes are generally high. The Indians at preeent are at peace with the whites, but they have killed several prospecting parties in the last few years, and cannot be relied on with any degree of security. They do not like to see us encroach on their grounds, and hail with great diseatisfaction the discovery of our new district.

The Oyster Beds at Richardson's Bay.—The oyster trade of California is fast increasing. Instead of the small, almost tasteless California oyster, which was about the only thing in the shape of a bivalve that we could get before the completion of the overland railroed, onr epicures can now revel in fat, plnmp, juicy Esstern transplanted Saddle Rock or Shrewsbury oysters. Morgen & Co., of San Francisco, have expended a large amount of money to make the traneplanting of oyetere on this coast a success. Shoalwater bay was first tried by this firm, but the oysters did not epawn in that locality. An effort was then made on the mud flats of Oakland for fonr or five years, bnt too much fresh water proved an obstacle. Vallejo was also tried, but without snccsss, and Richardson's bay is the only place yet found of convenieut access to the general market of the Stete that has proved satisfactory. In the beds at Richardson's bay—one at Kashow'e island and the other at Reed ranch—there is at preeent time about $20,000 worth of oysters. A force of dredgers is constantly at the beds to snpply the market, and a trip to the locality would prove quite interesting and entertaining. The agent of Morgan & Co. informe us that the Eastern transplanted Saddle Rock or Shrewsbnry grows more on an average in California in six months than in the Esstern States in two years.—*San Rafael Herald, July 30th.*

Work at the Railroad Shops.—At the railroad machine shop six 3,000-gallon tenders, with strong iron frames, are being constructed for use by the locomotives running between Wadsworth and Winnemucca, the object being to dispense with the neceseity for hanling the water cars which have been run heretofore to snpply the engines. The frames of these tenders are 22 feet in length, and the tanke will hold 1,500 gallons of water more than ordinary tenders. In the boiler-shop there is much work being done. Two splendidly-built boilers for the steamer "Chin-du-Wan" are receiving the finishing touchee. The steamer's old boilers had but 1,100 feet of heating surface, while these have two thousand, but the difference in cost will be abont made up in one seaeon by the saving of fuel. A new shaft is also being made for the "Cbin-du-Wan." Two immense boilers for the steamer "Chrysopolis" are well advanced. They are each 29 feet long, with a diameter of shell of 11⅛ feet, and 35 tons weight. A number of men are employed in the boiler-shop constructiug water-pipe for railroad use near Los Angeles, and it will be a pretty big job, three miles of three-inch pipe. The casting of car wheels hes been resnmed at the foundry, and at present 12 are turned out daily, but the number will soon be increased. —*Sacramento Union, July 31st.*

The New Crown Point Hoisting Machinery

At 11 o'clock thie forenoon a temporary steam pipe from the old boiler was attsched to the new hoisting engine of the Crown Point works for the purpose of a preliminary test or trial. The steam being turned on, the whole great mass moved and worked from the very start with the ntmost precision and perfection. Not a single miecslculation had been made, each bolt and other detail of the mechinery filling its proper function without the necessity of a chauge of a single piece of the whole. This hoisting mechinery, in some respects at least, is without a parallel, and when considered as a whole, ie simply ponderous. The machinery is driven by two hoistiug engines which are of the liuk motion, built after the fashion of a common locomotive engine, so that when the steam is tnrned on they start from any point of revolution. The cylinders are each 20 inches in diameter, with a 42-inch stroke, giving a combined power of 300 horses, each engiue weighing 22½ tone, and the bed plates and boxes npon which they rest weighing 17½ tons. To these engines is attached two fly wheele 14 feet in diameter, and each weighing 14,000 pounds. The driving or spur wheel of these engines is 21 feet in diametsr, with a 19-inch face, the coge having a 6-inch pitch, and weighs 28 tone. Attached directly to this driving wheel is a ponderous hoisting reel, 21 feet 6 inches in diameter, with 6 foot face covered with heavy cast iron plates, with a spiral groove encircling it in which a heevy steel cable, two inches in diameter, winds like a screw, each coil of the rope having its own separate groove, thus avoiding all friction or chafing of the rope, and greatly adding to its wear and safety.

It takee four and a half revolutions of the engines to make one turn of this drum, which winds 68 feet of rope at a tnrn, and is calcnlated to hoist 12 tons of ore at a load. The real sheft is 13 inches in diameter, and 14 feet long, which, with the reel alone, weighe 56 tons. This tremendous weight of machinery is built upon 1,200 perch of solid masonry, there being 800 cubic feet alone in the pillow blocks and engine beds. The anchor bolts are 17 feet in length, and the whole built in the most solid and perfect manner. The engine will be supplied with steam by 4 54-inch tubular boilers, each 16 feet in length. This ponderous piece of maobinery wae designed and its erection snperintended by I. F. Thompeon, the noted engineer and machinist, assisted by Mr. Ivy Fulton, chief engineer of the works, and reflects great credit npon both. It is designed to work the mine to the depth of 3,200 feet, which it will no doubt do with perfect esse. The connection between the new boilers and the engines are not quite finished yet, bnt will be by the first day of August, when it is expected to resume hoistiug ore from the mine, with an opportunity for bigger and better work than has ever been done heretofore.—*News.*

The anthracite coal mine recently discovered by Olympians, ie about 20 miles eontheast of the summit of Monnt Ramier, and one mile south of the south fork of the Cowlitz river. The seam is 11 feet thick, well defined along the margin of Coal creek for more than three-fourths of a mile, with a stratum of elate 8 inches tbick overlying the coal, and over this stratum solid basaltic rock, averaging over 100 ft. thick, and still over thie rock a mountain of earth and rock. The company having now returned with full confidence that their object had been gsined, their claim notice of 320 acres of land recorded, and having exhibited about 100 pounds of coal as specimens, feel confident of success in obtaining the requisite amount to pay the expenses for a full and satisfactory development of the mine. In furtherance of this object the company therefore offer to any individual or compauy an equal undivided interest in the whole mine, provided such individual or company furnish the requisite means for paying the expenses of further development, wbich shall not exceed $1,000; it being understood, however, that the parties having enbscribed originally toward tbe expensee for prospecting shall be first considered.

Started up on Trial.—The new hoisting machinery of the Crown Point mine wae started up yesterdey for the first time. A steam-pipe from the old boilers was connected with the new engine, and the machinery was pnt in motion to eee if it was all in working order. It moved on beautifully, the ponderons wheels revolving without a clash or jar. As Snperintendeut Sam Jonee remarked: "It got up and walked off like a thiug of life." The machinery is not yet connected with the hoisting apparatue. It was allowed to run all day yesterday, that the great gudgeons and boxee might be worn smooth. No ore is being hoisted from the mine, nor will any be taken out nntil all the machinery is ready to start np and continue in constant operation.—*Enterprise, 29th*

The Sarah Rose.—We have before ns th result of an assay of rock taken from th mine, Peavine district, which reads as follows

Gold, per ton	$1,384
Silver, "	3
Total	$ 1,385

We have ouly to say it is most too good tce considered average rock. If Captain Grifh has a mine of any considerable magnitnde at will pay half as well by mill process, he ont at once to announce himself a Repnblican n-didate for the United States Senate.— *no Crescent.*

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REPEATING RIFLE,
(Model of 1873.)
San Francisco Agency
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The Winchester Repeating Arms Company, of New Haven, Coan., have recently made still further valuable improvements on the celebrated Henry Rifle, which now make it, beyond doubt, the most magnificent weapon in the world. They have just introduced this beautiful arm upon the market, and their San Francisco Agency is fully supplied with all the various styles, together with cartridges for the same.

In the manufacture of the new gun, iron mountings (blued or case-hardened) have been substituted for gun metal or brass, thus increasing the strength of the arm and decreasing its weight. It is also now so constructed as to carry a Central Fire Cartridge holding one-third more powder than used in the cartridge of the model of 1866, thereby greatly augmenting the power and accuracy of the weapon.

THE SPORTING RIFLE

Has a Set or Hair Trigger which can be used at will—set or not set, as preferred. All the arms have a sliding lid which covers the opening in which the Carrier Block moves up and down. This lid, by the action of the Carrier Lever, is always open when the gun is fired, and closed by hand when the firing ceases, thus protecting the lock and inner works of the gun from dust and rain.

Various other improvements, which it is not necessary to mention in detail, by which the strength of the several parts is increased and the general appearance of the gun improved, have also been made.

There is now a greater variety of the Sporting Rifle than heretofore. They can be had with a length of barrel (round or octagonal) ranging from 24 to 30 inches, fitted with Globe and Peep Sights, or any other kind in use.

The Carbine is now made with all the improvements above referred to, except the set trigger.

The Sporting Rifle and Carbine will also be made as Extra Arms, Gold, Silver or Nickel Plated, plain or beautifully engraved.

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Still further improvements have been accomplished which overcome all objections heretofore raised against the Repeating Rifle as an army gun. It is safe, certain and effective in fire, whether used with deliberation or during excitement in action, and no more motions are required than in operating the old model gun.

More extended and minute particulars concerning the new gun can be had by writing or applying to the San Francisco Agency for circular.

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The trade is notified that the Shells of the Central Fire Cartridge for the new gun can be reloaded, and that the Winchester Repeating Arms Company are manufacturers of every description of Cartridge used for Carbine, Rifle and Pistol of any make, and that the Company have a full stock constantly on hand at their San Francisco Agency.

JOHN SKINKER,
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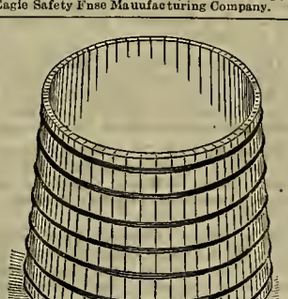

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24v22-3m JOSEPH MOORE, Superintendent.

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MANUFACTURERS OF ALL KINDS OF
Machine Bolts, Bridge Bolts, and Ship or Band Bolts.
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[Continued from Page 85.]

points. The new pump station at the 1,000-ft. level, is completed, and another has been commenced at the 750-ft. station.

Woonville.—Opening out the mine for the extraction of ore north of the shaft, is making good progress. The body of ore recently developed in the upraise, 300 feet south of the shaft is widening out.

Buckeye.—The north drift at the third station level is in 152 ft. Prospecting on the first station level is still vigorously prosecuted.

Knickerbocker.—Opening the 600-ft. station is making fair progrees.

Crown Point Ravine.—The main south drift on the 300-ft. level is being rapidly advanced, the full face of the drift in solid quartz and low grade ore, with occasional spots of good pay.

Yellow Jacket.—Driving the main east drift on the 1,740-ft. level, for the purpose of crosscutting and prospecting the ore vein at that point, is making good headway.

Caledonia.—The main shaft is down 28 ft. below the 900-ft. level. Sinking the winze below the 700-ft. level is making good progrees.

Daney—Still driving the main west drift ahead, the face being quite soft, with some fine streaks of quartz asseying from $20 to 25 per ton.

Succor.—Prospecting and extracting ore from the mill shaft in the cañon are going ahead as usual.

Occidental.—A crosscut has been started to prospect the ore vein at a point 88 ft. below the tunnel level.

Sutro.—The main west tunnel is still pushed vigorously ahead, the face in fair blasting ground.

Baltimore Consolidated. — Sinking the shaft is making the usual good progress, the rock in the bottom working quite favorably.

Union Consolidated.—Still driving the north drift on the 1,300-ft. level of the Ophir, following the west wall of the ledge, cutting occasional bunches of quartz with ore indications.

Lady Bryan.—Sinking the main shaft is making good progrese.

Senator.—Driving the main east drift to intercept and cross-cut the ore vein, is making steady progrese.

American Flat.—Driving the main southwest drift from the 750-ft. station of the Baltimore Consolidated is making good progrese.

Bullion.—Driving the main drift on the 1,700 ft. level is making steady progress, following the west wall of the ledge.

Arizona.

Yavapai County.—*Miner*, July 24: The news from Walker district is that Lynx creek is now filled with water from heavy rains at the head of the creek. In consequence of this supply, Lovejoy & Co. are working away in their hydraulic claims, and all who have sluicing claims are doing the same thing. The waterwheels, near the head of the creek, are running night and day, driving arrastrae.

It is said that the owners of the Tiger mine, in Bradshaw, are about to grant another extension of time to the gentlemen who are endeavoring to sell their mine for them.

While going the rounds this forenoon, Mr. L. Bashford showed me over $2,000 in nice gold, which cum he has recently bought. It is not long since he shipped fourteen pounds of gold to California. The best looking gold in the lot was that from Lynx creek.

Smith's mill, near Wickenburg; the Vesuvine company, in Walnut Grove district, and many others are taking out considerable gold.

Mohave County.—At latest advices from Mineral Park, the shaft on the Keystone mine was down 160 ft., at which depth the ore was as rich as the richest Tiger ore.

Colorado.

Clear Creek County.—*Review*, July 25: Wm. Newman has developed a fine vein of ore in the Atlantic that yields upwards of 850 ounces of silver to the ton.

C. J. Goss is working a lode on Brown mountain—a new development—from which he has already had two mill-runs of first-class ore, the first being 610 ounces per ton, the second 741 ounces.

We hear of a splendid discovery recently made in Geneva district. At a depth of six feet the lode carries a solid vein of bismuth silver ore that runs $4,535 of silver per ton.

The Diamond tunnel is now in a distance of 630 feet. Lode No. 4, cut about the 1st of May, shows at the crossing a small streak of fine galena mineral, carrying a heavy per cent. of brittle silver, a specimen of which assayed $2,181.

San Juan.—A letter to the *Miner*, bearing date July 2, says that at a depth of 12 feet in the Evergreen mine there is a strong vein of mineral that assays 396 ounces silver per ton.

Montana.

Vipond and Trapper Ores'—*New Northwest*, July 25: During the past week or two a considerable quantity of ore has been purchased and shipped from the Vipond and Trapper districts. A good deal of this rock assays up to $200 per ton, and is worth 40 to 50 per cent. of assay on the dump. Arrangements are being made to take out much larger quantities of ore hereafter.

The Jefferson river mines are attracting many loose footed miners. During the past week or two dozens of prospectors with pack outfits have wended their way toward the rising sun and the new El Dorado.

The Kelley & Pemberton ground at Georgetown paid $900 on the second week's run, and a very rich clean-up had been anticipated this week but for the breaking of the ditch.

A New Phase of Irrigation.

In the valleys where irrigation has been most extensively introduced, a noticeable change has occurred in the atmosphere; greatly modifying the discomforts of the heated term in those localities. The oppressive heat of midsummer in some of the most favored valleys in the State has heretofore been an objection in the minds of many to locating there; but by a liberal supply of water in these localities, and by the growth of grasses, fruit trees and other vegetation, that this irrigation has promoted, the summer atmosphere has become much more bearable. In Kern county, especially, where probably more has been done in the matter of irrigation than in any other portion of the State, this climatic change is quite perceptible. Still more extensive schemes of irrigation are about to be inaugurated there; and with the probable increased improvement in the atmosphere which this will produce, will add greatly to the attractions of San Joaquin valley. The probability is that the irrigating enterprises of California will result in something more permanent than an increase of the crops to which it is applied. For the moisture that is thus artificially brought to these dry, languishing places, encourages permanent vegetation there; and this vegetation in its turn promotes moisture and tempers the severity of the heat; thereby reducing the necessity of irrigation, and making these fruitful regions far more desirable as permanent homes.

A Kern county exchange credits the growing alfalfa crop with aiding materially in modifying the heat and dryness of former summers. The increased acreage given to this crop in Kern county is quite extensive, and the breezes that come across these rich, green, almost matted fields, if they are not equal in their fragrance to those that come from "Araby the blest," are good enough for "all practical purposes;" and if those who breathe this alfalfan breeze do not go into poetic ecstasies at its approach, they will at least feel inclined to take off their hats to it respectfully, and even thankfully.

That these climatic changes are being effected by irrigation, satisfactory evidence proves, and science affords ample illustration of the mode by which it is done; but, while we are considering the climatic benefits derived from a limited system of irrigation, in an extremely dry region, we would call the attention of those living in places surrounded with a damp atmosphere, to the danger of excessive irrigation. San Franciscans, especially, would do well to consider whether their profuse irrigation is not really injurious to the health of the city. When, to the cold fog which hangs about our dwellings morning and evening, a copious watering is added to everything surrounding the house, a condition of the atmosphere is produced which does not offer a safe retreat to persons afflicted with pulmonary diseases. It is believed that diseases of this class are on the increase in San Francisco; and it is remarked that while some are coming here to escape consumption, others are leaving for the same prudential reasons.

This artificial dampness is undoubtedly even worse than that which is caused by excessive rain; and if people possessing weak, or partially diseased lungs, can not safely remain in an atmosphere naturally damp and chilly, it is, we think, at a still greater risk that they pass their time in neighborhoods where the bare earth, the grass, shrubs, walks and streets even, are very day, and in many cases twice a day, drenched with cold water that has not been properly prepared for this purpose by passing through the air that surrounds us. A delicate person would probably incur less risk in going abroad on a regular damp day than on a dry one, when the warm, dusty streets and sidewalks are interspersed with crossings and other spaces that are as wet as they can be made, and that, too, with the coldest of water.

Do we not see more water about our houses than accords with good health or even with comfort? While our friends in other portions of the State are panting and languishing during midday, and in the morning and evening hours are tempted into out-door strolling, and are justified in the use of any means for "cooling off," we are only comfortably warm at midday; rather preferring the sunny side of the street; while the semi-daily fogs drive us indoors morning and evening, throwing a wet blanket over all out-door enjoyments. In every house in the city, no matter what the condition of its inmates may be as to comfort and healthfulness, to be drenched, with all its surroundings, just for "the fashion of the thing," or because California generally is to be recognized as an exceedingly dry climate? Those who are concerned for their own health or that of their families, and those also who are sensitive about the reputation of California for healthfulness, would do well to give a thought to this matter.

The present high price of quicksilver furnishes a strong inducement for prospecting for this metal, and it is to be hoped that the sources of supply will continue to multiply, and with increasing production, until the "corner," which we believe exists to make this article a monopoly, has been effectually broken. Men who own quicksilver mines should hold on to them, or sell only to such men as will work them.

Tecumseh Gold, Silver and Copper Mining company has levied an assessment of 25 cents per share, delinquent September 5th.

General News.

Another Reservoir Break.—The great reservoir supplying the city of Trenton (N. J.) with water, suddenly gave way on Monday last, sending down an immense volume of water through Pennington and Railroad avennes, in that city, and thence on to the Delaware. It inundated all the houses in the neighborhood, and compelled the inhabitants to flee for their lives. Almost miraculously no lives were lost; but an immense destruction of property was occasioned. It is said that the break had been observed for some days, and workmen were actually engaged in repairing it when the whole embankment, 30 feet high and 25 broad, suddenly gave way before the pressure of water. These frequent giving way of reservoirs of late is certainly a matter requiring the most rigid scrutiny, both into the causes of the past and the possibilities of the future.

Of late years frequent attempts have been made to replace stearic acid by some cheaper product, and paraffin, composition, Belmontine and other kinds of candles have been produced; although largely used they will never supersede the undoubtedly finer stearine candles. A few years ago the manufacture of candles of bleached ozokerit commenced, and this ozokerit promises to play an important part in future in Austrian industry. Being much cheaper than wax, and equally well adapted for the manufacture of candles, flowers, figures, paper, etc., it is also useful for cosmetical, technical and pharmaceutical purposes, and employed in many places throughout Austria in preference to bees-wax. The refined or purified ozokerit is sold under the name of *ceresin*.

The agitated elements from the north, south, east, west, the valleys and the mountains, reports of thunder and lightning displays, attended with cloud-burst, wind-storms, and deluges of rain still continue to reach us. Arizona has had these visitations. They have been witnessed in San Bernardino, Inyo and other counties where but little rain falls even during the winter season. At San Diego, there was, on the 29th ult., a grand electrical exhibition, such as is seldom witnessed in this State. Peal after peal of thunder rolled along, and incessant flashes of forked lightning lit up all the eastern and northeastern heavens. This display was continued for nearly three hours, the storm gradually passing around to the north and northwest.

Postal Changes for the Pacific Coast.—The following postal changes have been ordered for the Pacific Coast, during the past week: Postmasters appointed—Joseph H. Miller, at Mariposa, Mariposa county, California. William H. Cullmer, at Sandy, Salt Lake county, Utah. Henry Wickenburg, at Wickenburg, Yavapai county, Arizona.

The San Joaquin River.—The Stockton *Independent* states that persons familiar with the San Joaquin river entertain the belief that, at the rate the water is falling, the stream, in the course of two weeks, at the farthest, will be navigable only by boats of the lightest draught, if navigable at all.

Singular Case of Death.—The Santa Cruz *Enterprise* says that Conrad Stsndet, the man who died so suddenly at Aptos recently, is said to have died of overjoy, brought on by the exceedingly generous gift by Claus Spreckles to the deceased of fifty acres of land.

The Trial of Vasquez.—The notorious outlaw, has been transferred from Monterey to Santa Clara county, for trial. The most persistent efforts will, no doubt, be made to cheat justice of her due in his case, as in many similar ones of late years.

Struck by Lightning.—During one of the storms two weeks ago, Melvina, daughter of D. E. Isbell, was struck by lightning, at the ranch of her father, on Reese river. She was prostrated by the stroke and severely injured, but will recover.

The Sixth Senatorial District Agricultural Association of the State of California propose to hold a district agricultural fair at Salinas City, Watsonville, Holister, or Santa Cruz, sometime in the month of October next.

Killed by Coal Oil.—Another victim of the business of kindling fires with coal oil is Miss Emma Smith, of Helena, Montana, who was so badly burned on July 10th that she died on the 12th.

State Prison Outbreak Frustrated.—The plans for a general outbreak from the State Prison, Nev., to have taken place several weeks since, were exposed by one of the prisoners.

Insane from Beecher-Tilton. — A man named Wm. Rameey, near the Azues, Los Angelos, has reasoned himself into a fit of insanity over the Beecher-Tilton scandal.

The first annual fair of the Bay District Fair Ground Association is to commence on the 7th and end on the 12th of September, 1874, at San Francisco, Cal.

The agents of the bondholders of the California and Oregon railroad are examining into its affairs.

The Virginia *Chronicle* says men are badly needed in Empire City to take wood ont of the Carson river.

Rich placer diggings, it is reported, have recently been discovered a short distance to the west of Carson city.

Carson, Nevada, wants a Vigilance Committee.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Aug. 4th, 1874.

For Week Ending July 21st, 1874.*

Paving Blocks.—Philip Zsdig, S. F., Cal.

Railway Car Axle.—Henry H. Rhodes, S. F., Cal.

Treating Fats to Separate the Stearine from the Oleine.—Francis J. Kraft, S. F. Cal.

Hatchet.—Robert H. Morrison, S. F., Cal.

Gear-Cutting Machine.—John A. Peer, S. F., Cal.

Railroad Switch.—Bourgin. pierre, Oakland, Cal.

Closing Gas Retorts.—James R. Smedberg, S. F., Cal.

Gas-Purifiers.—James R. Smedberg, S. F., Cal.

Trade-Mark.

For Powder.—Joseph W. Willsrd, S. F., Cal.

*This patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

Foreign Patents.

British Patents for Pacific Coast Inventors

Following is a list of inventions patented or protected by Provisional Specifications in England, by inventors in the Pacific States and Territories, from January 1st to June 30th, 1874:

Dental Filling.—Charles E. Blake, S. F., Cal.

Pump and Engine.—William D. Hooker, S. F., Cal.

Filter.—P. Huerne, S. F., Cal.

Rock Drilling.—W. W. Dunn, S. F., Cal.

Breech-Loading Fire-Arm.—Alfred Swingle and Frank A. Huntington, S. F., Cal.

Foon from Milk.—B. Smith, S. F., Cal.

Air Engine.—Wm Manson, S. F., Cal.

Gear-Cutting Machine.—John A. Peer, S. F., Cal.

Canadian Patents for Pacific Coast Inventors.

Following is a list of inventions patented in Canada by inventors in the Pacific Coast States and Territories, from January 1st to June 30th, 1874:

Water Filter.—Prosper Huerne, S. F., Cal.

Improvements in Dentistry and Improved Metallic Foil.—Charles E. Blake, S. F., Cal.

Fastening Seams.—Jacob W. Davis, S. F., Cal.

Breech-Loading Fire-Arm.—Alfred Swingle and Frank A. Huntington, S. F., Cal.

Window-Fastening.—W. A. Hawthorne and E. E. Scott, Cereon City, Nevada.

Atmospheric Power Hammer.—Wm. Manson, S. F., Cal.

Tripartite Tie Link for Chains.—Wm. Quinlan, Santa Clara Co., Cal.

Prosperous Signs.—The *Enterprise* speaks hopefully of the prospects in Western Nevada, as follows: The great hoisting works, so famous along the line of the Comstock, continue to be extended until American Flat and Silver City bid fair to be as densely populated as Virginia and Gold Hill. Houses are going up in all directions in this and a portion of Lyon county, and improvements are being made all along the line of the railroad from the City of Carson, which has undergone greater improvement this last year than ever before. Brick buildings for stores on the main street and substantial frame cottages are being erected with great rapidity. That town is outgrowing its original dimensions, and an "addition" to it is to be made on the northeast. The farms of Ormeby county are being cultivated in excellent style, and everything bears the unmistakable sign of thrift. Within an area of two miles of the State House more than 18,000 forest trees and a considerable number of fruit trees have been planted this season. Up in Carson valley, one of the finest of its size in the world, the same thrift is everywhere visible. Farms may there be seen which are unsurpassed anywhere. The successful mining on the Comstock is of course the cause of this general prosperity. It furnishes profitable markets for the farmers, and diffuses more general prosperity among the people of the western portion of the State that exists, perhaps, among the same number of people elsewhere on the Pacific slope.

An institution destined to survive the Vienna Exhibition, and at the same time to serve as a memorial of that event, is the Austrian Athenæum, an establishment founded in the interest and for the instruction of mechanics and working men, and constructed after the plan of the Conservatoire des Arts et Métiers in Paris. Large numbers of articles left by exhibitors at the Exposition have been transported thither, together with a quantity of models and other instructive apparatus, and a library of 3,412 volumes.

Rules and Regulations of the Ninth Industrial Exhibition, Mechanics' Institute, San Francisco, 1874.

1. The Pavilion will be open for the reception of goods on Monday, August 10th. The exhibition will be open to the public on Tuesday, August 18th, at 11 o'clock, A. M.

2. Applications for space must be made on or before July 20th, stating character of exhibit, amount and kind of space required—wall, table or floor. Blanks will be furnished for this purpose, and a clerk will be in attendance at the Library of the Mechanics' Institute, every day from 12 to 1, and 7 to 10 P. M.

3. All persons presenting articles for exhibition must have them registered by the Receiving Clerk, who will give a receipt for the same, which receipt must be presented when the articles are withdrawn, at the close of the exhibition.

4. The name of every article must be attached by the exhibitor to it, and filed with the Board of Managers.

5. In case of any misunderstanding, application may be made to the Manager of the day, who will at all times be in attendance.

6. Articles intended for sale will be labeled accordingly, but cannot be removed until the close of the exhibition, except by written permission of the Managers.

7. Steam power will be provided, so that machinery of all kinds may be seen in actual operation, and every facility possible will be given to exhibit working machinery to the best advantage.

8. Perishable articles will be received, or may be removed at any time during the exhibition, with the consent of the Managers.

9. The most effectual means will be taken, through the agency of the Police and otherwise, to guard and protect the property on exhibition; and it will be the purpose of the Managers that all articles shall be returned to the owners without loss or injury. Still, all articles deposited will be at the RISK OF THE OWNERS.

10. Articles intended for exhibition must be entered and placed on exhibition on or before Friday, August 21st.

11. The Managers are desirous that articles should be presented early. Those from abroad, intended for exhibition, should be properly packed, and if not consigned to exhibitor's agent, must be marked: "MANAGERS OF NINTH INDUSTRIAL EXHIBITION, SAN FRANCISCO-CAL." Articles from foreign countries should be accompanied with a certificate from the American Consul, in order that, upon their arrival, the proper course may be taken to have duties remitted. All articles thus received, arriving too early, will be stored free of cost to the exhibitor, and the Managers will have them duly placed in proper position for exhibition. No freight charges will be paid by the Managers; but exhibitors are notified that arrangements are being made with various transportation companies to repay freight charges on evidence of return of goods exhibited.

Information will be furnished on addressing MANAGERS OF NINTH INDUSTRIAL EXHIBITION, SAN FRANCISCO, CAL.

GENERAL MERCHANDISE.

WEDNESDAY M., August 5, 1874.

Bags and Bagging are still in good demand, and the transactions are large. Coffees are weaker. Coal Oils are shading off. Sugars are firm at the new rates.

BAGS.

Eng. Stand Wht..	—14	@14¼
Detrick's Machine Sewed, 22x36 E..	—	@13½
do 22x36, do E W—		—@14
do 24x40, do A.....		—@14¼
Flour Sacks ½s..	10½	@12½
" ¼s.	6½	@ 7¼
Stand. Gunnies. double seam...	—15	—@18
single seam...	—13	—@13
" Wool Sacks,	65	—@—
Barley Bags 24x36	—	@15¼
do 22x40	—	@15½
do 24x40	—	@16¼
do 28x36	—	—@17
Cal Bags, 24x40....	16	@16½
do 28x36..	—	@17
Hessian 40-in.gds	9½	—@10
do 45	10½	—@11
do 60	—	@15

CANNED GOODS.

Asst'd Pie Fruits in 2¼ ℔ cans.	2 75	@ 3 00
do Table do..	—	@ 2 75
Jams & Jellies	3 75	@ 4 25
Pickles ½ gl..	—	@ 3 50
Sardines, qr box	1 75	@— —
do half boxes	2 00	@— —

COAL—Jobbing.

Australian, ℔ ton	10 00	@— —
Coos Bay.....	—	—@10 00
Bellingham Bay.—		—@ 8 50
Seattle.....		—@1—
Cumberland.cks..	22 00	@23 00
do bulk...	18 00	@20 00
Mt. Diablo.....	6 25	@6 50
Lehigh.....	—	—@19 00
Liverpool.....	11 00	@12—
West Hartley.....	12 50	@— —
Scotch.....	9 50	@10 00
Scranton.....	15 00	@17 50
Vancouver's al..	11 00	@11 50
Wellington's k...	75	@— —
Coke, ℔ bbl....	—	@ 60

COFFEE.

Sandwich Island	—	@ 22
Central America'n	22	@ 23
Costa Rica per ℔	23½	@ 24
Guatemala.....	21	@ 22
Java.....	28½	@ 30
Manilla.....	22	@—
Ground in oc....	—	@ 30
Chicory.....	10	@—

FISH.

Pac. Dry Cod, new	5	@ 6
cases.....	6	@ 7
do boneless....	11	@ 12
Eastern Cod....	7	@ 8
Salmon in bhls..	8 00	@—
do ½ bbls	4 50	@—
do 2½ ℔ cans	—	@3 00
do 1 ℔ cans..	2 65	@2 75
do 1 ℔ cans..	1 75	@—
Do Col. R. ½ h..	—	@—
Pick. Cod, bbls	22 00	@—
½ bbls	12 00	@—
Bos. Sm'k'd Har'g	40	@ 50
Mack'l, No. 1, ½ bls	8 00	@8 50
" Extra....	—	@9 00
" In kits....	2 00	@2 50
" Ex mess..	3 00	@3 50
" Ex mess, ½ bs	—	@12 00
Sm'k Herr'g, hx.	50	@ 55

NAILS.

Assorted size, ℔	4½	@ 7

OILS.

Pacific Glue Co. Neat P't No. 1.	—	@1 00
Pure.....	1 25	@—
Castor Oil, No.1..	—	@1 75
do do No.2...	—	@1 60
Cocoanut.....	45	@ 50
Olive Plagniol..	5 00	@—
do Fossel....	4 75	@—
Palm.....	9	@—
do Bagicalupi.	—	@—
Linseed, raw....	—	@1 02
do boiled....	—	@1 07
China nut in bx..	—	@ 82½
do bulk.....	70	@ 72
Sperm, crude....	—	@1 40
do bleached..	—	@2 20
Coast Whales...	35	@ 40
Polar, refined..	50	@ 55
Sperm.....	1 40	@1 50
Lard.....	95	@1 05
Coal, refined Pet	37½	@ 40
Oleophine.....	—	@ 34
Davoe's Brill's..	25	@ 28
Long Island....	—	@ 34
Eraka.....	37½	@ 40
Devoe's Patro'm	26	@ 29
Barral kerosena	—	@ 28
Olive.....	4 00	@9 50
Downer Kerosene	—	@ 42½
Gas Light Oil....	—	@ 34

PAINTS.

Atlan. W. Lead.	7½	@ 12½
Whiting.....	—	@ 2
Putty.....	4	@ 4½
Chalk.....	—	@ 1½
Paris White.....	2¾	@—
Ochre.....	—	@ 3½
Venetian Red...	2½	@ 3
Red Lead.....	7	@ 11
Litharge.....	10	@ 11
Eng. Vermillion	1 00	@1 25

RICE.

China No. 1, ℔	6½	@ 6¾
do 2, do.	5½	@ 5¾
Japan.....	5¾	@ 6
Siam Cleaned...	7	@—
Patna.....	—	@ 6¼
Hawaiian....	7	@ 7¾
Carolina.....	10	@ 10½

SALT.

Cal. Bay, per ton	10 00	@14 00
do Common..	8 00	@ 9 00
Carmen Island..	11 00	@13 00
Liverpool fine..	20 00	@22 00
do coarse	15 00	@20 00

SOAP.

Castile ℔ bar...	10	@ 11
Local brands..	5	@ 8

SPICES.

Allspice, per ℔..	15	@ 16
Cloves.....	45	@ 47½
Cassia.....	22½	@ 25
Citron.....	—	@ 30
Nutmeg.....	—	@1 07½
Whole Pepper...	17	@ 17½
Pimento.....	—	@ 15½
Ground Allsp'ice	—	@1 00
do Cassia do..	—	@1 50
do Cloves do..	—	@1 50
do Mustard do	—	@1 25
do Ginger do..	—	@1 00
do Pepper do..	—	@1 00
do Mace do....	—	@1 50

SUGAR, ETC.

Cal. Cube per ℔..	11½	@—
Pure Pep. Cube bbl or 100 ℔ hxs..	—	@ 11¾
do in 50 ℔ hxs..	—	@ 12
do in 25 ℔ hxs.	—	@ 12¼
Circle A ornshed	—	@ 11½
Powdered.....	—	@ 11¾
Granulated.....	—	@ 11
Dry granulated	—	@ 11½
Hawaiian.....	8	@ 10½
California Beet.	—	@ 11½
Golden C.....	—	@ 10½
do Rey'g grada	—	@ 6½
Cal. Syrup in ols.	—	@ 52½
do in ½ bls.	—	@ 55
do in kegs.	—	@ 80
Hawaiian Molasses.....	10	@ 20

TEA.

Oolong, Canton, ℔	19	@ 25
do Amoy...	28	@ 50
do Formosa	40	@ 80
Imperial, Canton	25	@ 40
do Pingsnay	45	@ 80
do Moyune..	60	@1 00
Gunpo'der, Cant.	30	@ 42½
do Pingsney	50	@ 90
do Moynno.	65	@1 25
Y'ng Hy., Canton	28	@ 40
do Pingsney	40	@ 70
do Moynne..	65	@ 85
Japan, ½ oheste, bulk.....	30	@ 75
Japan, Imperial hxs. 4½ and 5 ℔s	45	@ 67
Japan do, 3 ℔ bxs	45	@ 90
do pl'n bx, 4½ ℔	35	@ 65
do ½ & 1 ℔ paper	30	@ 55

TOBACCO—Jobbing.

Bright Navys...	50	@ 60
Dark do	45	@ 55
Dwarf Twist....	57	@ 62½
12 inch do	57	@ 62½
Light Pressed...	65	@ 75
Hard do	60	@ 70
Conn. Wrap'r...	40	@ 50
Fann. Wrapper..	20	@ 30
Ohio do ...	7	@ 15
Virgi'a Smok'g..	60	@ 95
Fine ot ohe'g, gr..	8 50	@9 25
Fina ont chewing, hnots.	75	@ 90
Banner fina cnt..	—	@9 00
Eureka Cala...	8 75	@9 00

TURPENTINE.

Eastern.....	60	@ 65

METALS.

WEDNESDAY M., August 5, 1874.

Reports from London, New York, etc., show a stringency in stocks of Quicksilver on hand, and the price has been advanced throughout the world. Here the present quotation is $1.45 ℔ lb. with an intimation as to where the rise will stop, if aver. The yield of the New Almaden is steadily decreasing and it is reported that the works are to be temporarily shut down. High rates for Quicksilver mean a large diminution in profits for all gold and silver mines and a possible suspension of work on very low grade ores.

American Pig Iron, ℔ ton	—	@	40 00
Scotch Pig Iron, ℔ ton	—	@	40 00
White Pig, ℔ ton	—	@	50 00
Refined Bar, bad assortment, ℔ lb	—	@	— 3½
Refined Bar, good assortment, ℔ lb	—	@	— 4
Boiler, No. 1 to 4	—	@	— 5
Plate, No. 5 to 9	—	@	— 5½
Sheat, No. 10 to 13	—	@	— 5¾
Sheet, No. 14 to 20	—	@	— 5¾
Sheet, No. 24 to 27	— 08	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	— 9½	@	— —
Norway Iron	— 8	@	— —
Rolled Iron	— 6	@	— —
Other Irons for Blacksmithe, Miners, etc.	—	@	— 4½
COPPER.— Brazier's	— 31	@	— 32
Copper Tin'd	— 45	@	— —
O. Nie's Pat	— 50	@	— —
Sheathing, ℔ lb	— —	@	— 24
Sheathing, Yellow	— —	@	— 23
Sheathing, Old Yellow	— —	@	— 12½
Composition Nails	— 24	@	— —
Composition Bolts	— 24	@	— —
TIN PLATES.— Plates, Charcoal, IX ℔ box	—	@	16 00
Plates, I C Charcoal	14 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ℔ lb	— 33	@	— 37
STEEL.—English Cast, ℔ lb	— 20	@	— 25
Anderson & Woods' American Cast	— 10	@	— 27
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC	— —	@	— 11
Zinc, Sheet	— —	@	— 11½
NAILS—Assorted sizes	— 5¾	@	— 8
LEAD.— Pig, ℔ lb	— 5¾	@	— 6
Bar	— 6¾	@	— 7
Sheet	— —	@	— 9
Pipe	— —	@	— 8¾
QUICKSILVER, per ℔	— —	@	1 45

LEATHER.

WEDNESDAY M., August 5, 1874.

The Leather trade continues dull. There is but little movement in local makes.

City Tannad Lesther, ℔ lb	24@28
Santa Cruz Leather, ℔ lb	25@29
Country Leather, ℔ lb	24@28
Stockton Leather, ℔ lb	25@29
Jodot, 8 Kil., per doz	$50 00@ 54 00
Jodot, 11 to 19 Kil., per doz	66 00@ 90 00
Jodot, second choice, 11 to 16 Kil. ℔ doz	55 00@ 72 00
Cornellisn, 12 to 16 Ko	57 00@ 67 00
Cornellian Females, 12 to 13	60 00@ 64 00
Cornellian Females, 14 to 16 Kil	66 00@ 74 00
Beaumorville, 15 Kil	60 00@ —
Simon, 18 Kil. ℔ doz	61 00@ 63 00
Simon, 20 Kil. ℔ doz	65 00@ 67 60
Simon, 24 Kil. ℔ doz	72 00@ 74 00
Robert Calf, 7 and 9 Kil	35 00@ 40 00
French Kips, ℔ lb	1 00@ 1 15
California Kip, ℔ dozen	40 00@ 57 00
French Sheep, all colors, ℔ doz	8 00@ 15 00
Eastern Calf for Backs, ℔ lb	1 00@ 1 25
Sheep Rosns for Topping, all colors, ℔ doz	9 00@ 13 00
Sheep Roans for Linings, ℔ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 4 50
Best Jodot Calf Boot Legs, ℔ pair	5 00@ 5 25
Good French Calf Boot Legs, ℔ pair	4 00@ 4 75
French Calf Boot Legs, ℔ pair	4 00@ —
Harness Leather, ℔ lb	30@ 37½
Fair Bridle Leather, ℔ doz	48 00@ 72 00
Skirting Leather, ℔ lb	34@ 37½
Welt Leather, ℔ doz	30 00@ 50 00
Calf Leather, ℔ foot	18@ 19
Wax Side Leather, ℔ foot	17@ 19
Eastern Wax Leather	—@— —

Designing ana Engraving at This Office.

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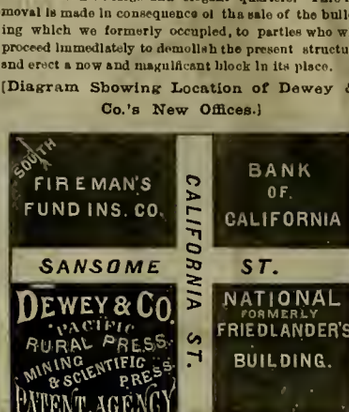
No. 224 Sansome st., S. F.

SEND IN YOUR SUBSCRIBTIONS FOR THE PRESS.

Removal.

July 13th, 1874, the business office of this Journal was removed just one block east of our former location, to No. 224 Sansome Street, southeast corner of California, over the Bank of British Columbia, where we have secured large and elegant quarters. This removal is made in consequence of the sale of the building which we formerly occupied, to parties who will proceed immediately to demolish the present structure and erect a new and magnificent block in its place.

[Diagram Showing Location of Dewey & Co.'s New Offices.]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DEWEY & CO. PACIFIC RURAL PRESS. MINING & SCIENTIFIC PRESS. PATENT AGENCY. ENGRAVING.
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CAMPO, SAN DIEGO CO., CAL., July 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. GASS.

ONE of our most valuad exchanges is the PACIFIC RURAL PRESS, published by Dewey & Co., San Francisco California. Every number contains a vast amount of general newe from the far west, besides much valuable information in the way of Grange newe.—*The Farmer's Friend, Mechanicsburg, Pa.*

To Mining Secretaries.

An amendment to Section 338 of tha California Code, taking effect **July 1st, 1874,** provides that in addition to the regular publication of tha assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in tha following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in tha MINING AND SCIENTIFIC PRESS will be furnished with copias of aeeeesment notices printed on olipe suitahla for sarving personal notice under thie law at short notice.

DEWEY & CO., Publishers.
Jnne, 1874.

Mining and Other Companies.

Eagle Quicksilver Mining Company.—

Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—Is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of July, 1874, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 6, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessment shall remain unpaid on Monday, the 21st day of September, 1874, shall be deemed delinquant, and will be duly advertised on Saturday, the 26th day of September, 1874, for sala at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of Septemher, 1874, to pay tha delinquant assessment, together with costs of advertising and expenses of sala. By ordar of the Board of Trustees.

WM. H. WATSON, Secretary.

Offica, Rooms 5 and 6, No. 302 Montgomery street, San Francisco. jy-25

Electric Mining Company—Location of

principal place of husinaes, San Francisco, State of California.

NOTICE.—There are delinquant upon tha following described stock, on account of assessment levied on the tenth day of Juna, 1874, tha several amounts set opposite the names of the respective sharaholdare, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm McCaw	18	2800	280 00
Wm R McCaw	65	300	30 00
Wm R McCaw	203	435	43 50
J B Honghton	15	1168	116 80
J B Houghton	201	272	27 20
Wm H Baker	7	500	50 00
Wm H Baker	8	2000	200 00
Wm H Baker	200	375	37 50
Wm H Sparks	64	500	50 00
Wm H Sparke	219	75	7 50
M Ellsworth	9	250	25 00
M Ellsworth	213	37	3 70
A C Knox	71	100	10 00
A C Knox	222	15	1 50
Maria Foley	136	50	5 00
Maria Foley	233	7	70
Maria Foley	234	½	05
Louies Thompson	161	400	40 00
Louies Thompson	239	50	6 00
Geo W Mullen, Trustee	126	1000	100 00

And in accordance with law, and an order of the Board of Directors, made on the 10th day of June, 1874, so many shares of each parcel of said stock as may be necesesary will be sold at public auction at the salearoom of Maurice Dora & Co., No. 326 Pine street San Francisco, California, on tha 5th day of August, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessmant thereon, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—No. 318 California street, room 13, San Francisco, Cal. jy18

POSTPONEMENT.—The above sale is hereby postponed until Tuesday, the twenty-fifth day of August, 1874, at the sama hour and place. By order of the Board of Trustees. A. B. PAUL, Secretary.

Enterprise Gold and Silver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, Meadow Lake District, Nevada County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 13, levied on the 22d day of June, 1874, tha several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Battersby, Jse	173	3	30
Battersby, M A	361	7	70
Coll, Tracy	254	8	80
Coll, Tracy	278	40	4 00
Coll, Tracy	308	40	4 00
Coll, Mrs P M	337	24	2 40
Campbell, David	263	20	2 00
Davie, E	204	40	4 00
Davis, E	252	4	40
Flynn, P R	319	100	10 00
Freeman, J E	380	40	4 00
Fenton, D W	178	150	15 00
Fenton, M E	181	50	5 00
Fenton, S H	233	20	2 00
Furrey, Wm C	381	4	40
Goddard, S	369	40	4 00
Goddard, S	370	20	2 00
Goddard, S	372	20	2 00
Goddard, S	374	10	1 00
Goddard, Fred	3	40	4 00
Heathfield, E	212	24	2 40
Hall, Thomas	331	4	40
Hall, Thomas	332	4	40
Hall, Thomas	333	4	40
Havene, Howard, Trustee	382	20	2 00
Jones, J W	355	20	2 00
Locke, S M	110	40	4 00
Locke, S M	Not Issued	20	2 00
Leet, A	296	12	1 20
Mathewe, M R	144	4	40
Mathowe, E G	27	40	4 00
Mathews, E G	28	40	4 00
Mallory, A P	298	4	40
Nelson, A T	14	4	40
Phillips, David	383	20	2 00
Pomeroy, H	149	20	2 00
Pope, J A	375	80	8 00
Pope, J A	378	10	1 00
Thompson, J P	240	4	40
Toudy, J C	363	5	50
Warren, Bessie	Not Issued	12	1 20
Woodward, E F	295	8	80

And in accordance with law, and an order of the Board of Directors, made on the 23d day of July, 1874, so many shares of each parcal of such stock as may be necessary, will be sold at pnblic auction at the company's office, 411½ California street, Boom 3, San Francisco, on Saturday, the 15th day of August, 1874, at the hour of 2 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expensee of tha sale.

E. E. RICE, Secretary.

Office—Room 3, 411½ California street, San Francisco, California.

Annual Meeting—Hasloe Mill and Mining

Company. Location of principal place of huelness, San Francisco, California. Location of works, Mariposa County, State of California.

Notice is hereby given that the annnal meeting of the stockholders will be held at the office of the company, 408 California street, room 14, San Francisco, California, on the 12th day of August, 1874, at 12 M., for tha purpose of electing Trnstees for the ensuing year. By order of the Board of Trustees. J. W. TRIPP, Secretary.

Plumbago Gold Mining Company—Cer-

tificate of incorporation dated and filed in the office of the County Clerk of the City and County of San Francisco, California, June 24, 1864, No. 3340. Mine and works at Plum bago Ledge, Sierra County, Cal.

TO ALL WHOM IT MAY CONCERN TO KNOW: The representatives of two-thirds (⅔) of the capital stock and stockholders of said corporation, having made and filed with the Board of Trustees, on the 4th day of August, 1874, their written assent that the place of business of said corporation shonld be changed from the City and County of San Francisco, to Minnesota, in Forest Township, Sierra County, Cal,

Notice is hereby given, that it is the intention of said corporation to remove its principal place of business from the City and County of San Francisco, to Minnesota, in Forest Township, in Sierra County, immediately after publication of this notice for the period of thirty days from its first insertion in the MINING AND SCIENTIFIC PRESS, a newspaper printed and published in the City and County of San Francisco, Cal. Done by order of the Board of Trustees:

S. B. DAVIDSON, Secretary Pro. Tem.

August 4, 1874. 6w29-1m

Providence Gold and Silver Mining Com-

pany—Location of principal place of business, San Francisco, State of California. Location of works, Hayden Hill, Lassen County.

Notice is hereby given, that at a meeting of the Directors held on the 10th day of July, 1874, an assessment (No. 1) of Ten Cents per share was levied upon the capital stock of tha corporation, payable immediately, in United States gold coin, to tha Secretary, at tha office of tha company, No. 331 Montgomery street, room 18, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 17th day of August, 1874, will be delinquent, and advertised for sala at public auction, and unless payment is made before, will be sold on Monday, the seventh day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sala.

WM. H. KNIGHT, Secretary.

Office—No. 331 Montgomery street, room 18, San Francisco, California. jy18

Taylor Mill and Mining Company—Loca-

tion of principal place of business, City and County of San Francisco, California. Location of works, Garden Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, hald on tha first day of July, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to tha Secretary, at the office of the company, No. 607 Montgomery street, in the City and County of San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the eighth day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the twenty-eighth (28th) day of August, 1874, to pay the delinquant assessment, together with costs of advertising and expenses of sale. SAMUEL S. MURPEY, Secretary.

Office, 607 Montgomery street, City and County of San Francisco, California. jy4

Stockholders' Meeting—Tolman & Miller

Mill and Mining Company. Principal place of business, San Francisco. Location of works, Calavaras County, Cal.

Notice is hereby given that a meeting of the stockholders of the above named company will be held at the office of the company, 306 Montgomery street, on tha 10th of August next, at 2 o'clock P. M., to adopt a code of By-Laws for the company.

D. A. MILLER, Act. Precident.
2t JAMES L. TRASK, Secratary.

Virginia Consolidated Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Kearsarga Mining District, Inyo County, State of California.

Notice is hereby given, that at a meeting of tha Board of Directors, held on the 31st day of July, 1874, an assessment of seven cents par share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to tha Secratary, at tha office of the company in San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 7th day of September, 1874, will be delinquent, and advertised for sala at public auction, and unless payment is made before, will be sold on Wednesday, the 30th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office, No. 318 California street, San Francisco, Cal. Room No. 13. ag8

Machine Builders.

THE RISDON
Iron and Locomotive Works,

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CAPITAL.....$1,000,000.

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JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
24v17-qy

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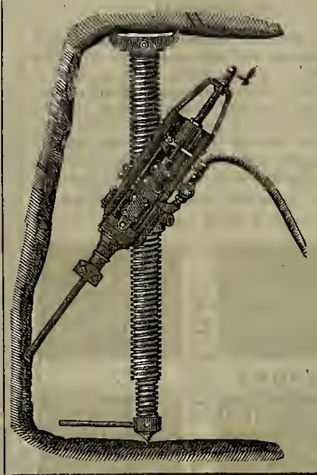

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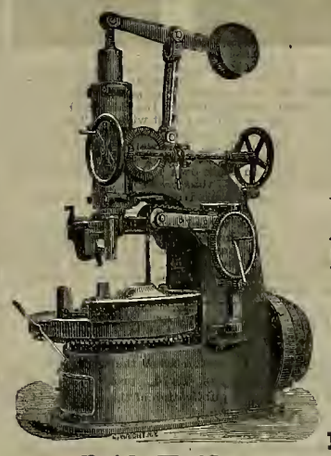

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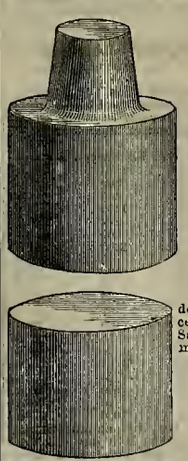

CAST STEEL SHOE & DIE CO.,

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[PATENTED MAY 26TH, 1874.]

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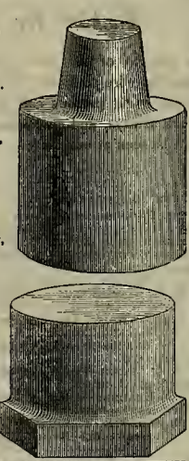

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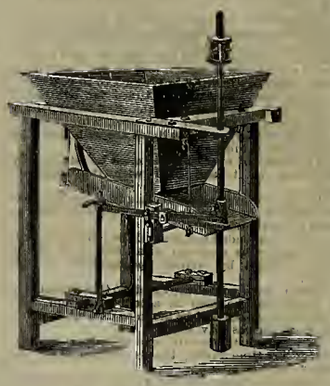
Machinery.

Tulloch's Automatic Ore Feeder.



At the request of Mr. Jas. Tulloch, we have carefully examined his patent Ore Feeder for Quartz Mills, now on exhibition in this city at the Pacific Foundry, and in view of its simplicity of construction, directness of action, durability and compactness, as well as its small weight and the low price at which they are held by the patentee, so as to place them within reach of all mill owners, are free to state our unqualified opinion that we regard it superior to any Ore Feeder of which we have any knowledge in actual work. We are confirmed in this opinion by the severe tests to which it has been put, doing its work thoroughly well on ores of all kinds. We find the delivery to the mortars of the ore-stuff, whether dry, damp or wet, to be entirely uniform and regular, and that even slimes and slush can be worked in them under perfect control.

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San Francisco, July 3, 1874. 2v29-1m

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Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ⅝ 78.73; ¾ 82.63; ⅞ 82.90. Percentage of whole gate, 83.14.

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A. CARR, Manufacturer & Proprietor.

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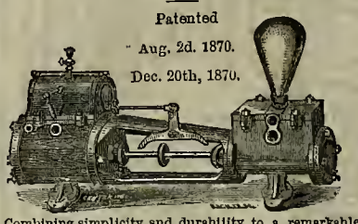

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Examination solicited. 9v28-1y

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OVER $3,500 PER MONTH SAVED

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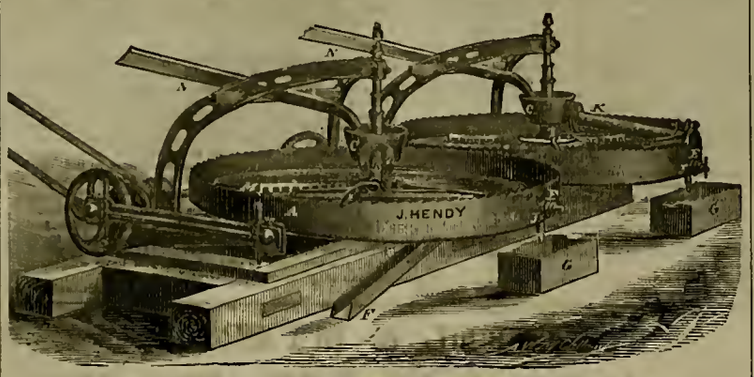

Can be seen at the Manufactory, 32 Fremont Street, San Francisco.

SAN FRANCISCO, April 27, 1874.

JOSHUA HENDY, Esq.—*Dear Sir:*—As a practical miner and millman, I take pleasure in recommending the use of your Concentrators in all mills where gold or silver ores are reduced. No mills should be without them for the following reasons:

1st. They are good sizers (no perfect concentration in pulverized ores can be effected without first sizing).

2d. The best Concentrator I have ever known—(the concentrated stuff only containing 5 per cent. of sand).

3d. They are good amalgamators, light (feathery) particles of amalgam and particles of coated gold, by attrition are brightened, and from their specific gravity and the action of the pan, fall to the bottom and adhere.

4th. They require but little power and attention to run them, and with ordinary care will last for years.

I have been familiar with the workings of your Concentrators for four years past; have run them myself in the North Star Mine, Grass Valley; am familiar with their practical workings on the Empire Mine, Grass Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this testimonial. For further information you are at liberty to refer to,

Yours respectfully,
JAS. H. CROSSMAN, M. E.

409 California street, or Cosmopolitan Hotel.

SAN FRANCISCO, February 10, 1874.

OFFICE SUPERINTENDENT OF KEYSTONE CON. M. CO., AMADOR, AMADOR COUNTY.

MR. J. HENDY—*Dear Sir:*—In answer to your inquiries as to your concentrators furnished our company last July, I would say that I am more than pleased with them; and the saving to the company has been over $3,500 per month more than with the blankets and buddles formerly in use. O. C. HEWITT, Supt.

References:

Reference is made to the following mills, some of which have had HENDY'S CONCENTRATORS in use for over four years:

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LUCY MINING CO. (3 Concentrators).....Owyhee District, Idaho
EL TASTE CO. (3 Concentrators).....Sonora, Mexico
ST LAWRENCE MILL.....Georgetown, El Dorado Co
ST. PATRICK MILL.....Newcastle, Placer Co
JULIAN MILL.....Newcastle, Placer Co
VIRTUE MILL.....Oregon
KEYSTONE MILL. (22 Concentrators).....Amador Co

CAUTION—All of HENDY'S PATENT CONCENTRATORS are marked thus: "J. HENDY, Patented April 17th, 1866, and May 19th, 1868."

For full description send for Circular. Orders or letters of enquiry, address,

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Twenty-three Standard Styles.

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Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottome, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely sheorbed.

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Silver-Plated Copper Amalgamating Plates, for Saving Gold.

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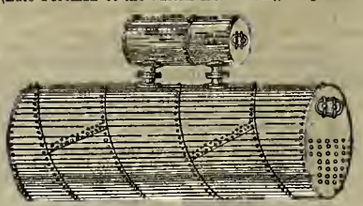

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Will open in the pavilion for printing business, address and visiting cards, labels, circulars, notices, etc., for Exhibitors and Visitors. The Nonpareil (new style) job press will be n-ed, with new and unique type.

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Office of the MINING AND SCIENTIFIC PRESS and PACIFIO RURAL PRESS, No. 224 Sansome, Cor. of California Street. July 16, 1874.

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The sum paid hy ns for the best editorial talent obtainable for our special class journal; for engravings, for interesting news and correspondence, and for printing a large-sized, handsome sheet, is unequalled hy that of any other American weekly west of the Mississippi.

As a PRACTICAL MINING JOURNAL it has no rival on this Continent.

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Miners, Assayers, Millman, and Metallurgist in the United States should take it.

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ining Engineers, Snnerintendents, Metallurgists, Mine Owners and Mine Workers throughont the world should profit by its illnstrations and descriptions of New Machinery, Processes, Discoveries and Record of Mining Events.

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Principals are responsible for their agents.

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Signatures in lead pencil are good in law.

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The acts of one partner hind all the others.

Contracts made on Sunday can not he enforced.

A contract made with a minor is void.

A contract made with a lunatic is void.

PLAINFIELD, July 4th, 1874.

MESSRS. DEWEY & Co.—*Dear Sirs:* I acknowledge receipt of yours of 2d inst., inclosing my Letters Patent. I thank yon for the interest yon have taken in obtaining the same. Yours truly, M. W. OCON.

A COMPLIMENT.

PLAINSBURG, MERCED Co., CAL., June 22, 1874.

DEWEY & Co.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which yon have displayed in procuring my patent.

Although yon were entire strangers to me when I first communicated with you, I soon felt satisfied you were gentlemen of integrity, and shall always be happy to represent yon as such. Very truly yonrs,

H. W. RUCKER, M. D.

THE SCIENTIFIC PRESS.—This valnable jonrnal entered upon the seventeenth year of its pnblication on the 4th of July. The steady advance in charscter, that every reader has noticed in the paper, renders it unnecessary to make any splnrge of improvement, and the publishers simply content themselves with the aunouncement that they will continue to make their paper as interesting as possible. That it is interesting to a large class of readers, the wide circulation and extensive influence of the PRESS, is sufficient evidence.—*Placer Argus.*

TRUCKEE, CAL., Jnly 10, 1874.

MESSRS. DEWEY & Co.—*Gentlemen:* My patent is just received, and is entirely satisfactory. Permit me to tender you my sincerest thanks for the care and attention, the promptness and interest you have displayed in managing my affairs. Gratefnlly yours,

C. F. MCGLASHAN.

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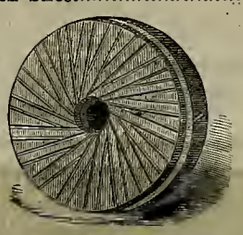

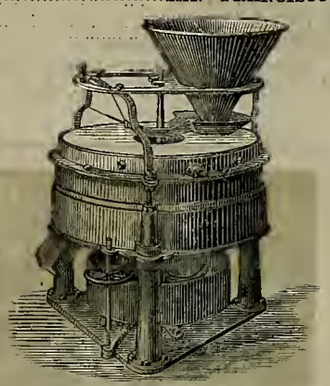

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Mill Stones Balanced with FELLENBAUM'S PATENT BALANCE, of which I am sole proprietor for California Oregon, and WashingtonTerritory.

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HE ONLY SAFE BLASTING POWDER IN USE.

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For hard and wet Rock, Iron, Copper, etc., and Snbmarine Blasting.

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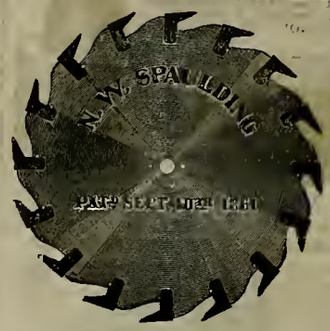

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[Covered by Letters Patent of July 2d, 1872, and recent applications.]

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Added to a battery of stamps this machins constitutes a full system of ore concentration, sufficient in most cases for the requirement of western mines, with a capacity of 12 or 15 tons per 24 honrs.

For particulars apply to,

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At Denver, Colorado. Lock-Box 2225, or 243 Sixteenth street. ag8-16p

ANDERSON & WOODS'

AMERICAN CAST STEEL.

Price, 18c. per lb,

Every Bar Warranted and Guaranteed eqnal to any English Brand.

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Sole Agents for the Pacific Coast.

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Certificate of Partnership.

We certify that we constitute a partnership, transacting the business of Printing in this State; its principal place of hnsiness is San Francisco, California; its name is SPAULDING & BARTO. The full names and respective places of residence of all its members are signed hereto.

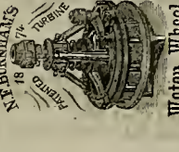
Dated San Francisco, Aug. 5th, 1874.

GEORGE SPAULDING,
HARRISON BARTO.

Indorsed. Filed Aug. 5th, 1874.

WM. HARNEY, County Clerk.

6v29-4t By W. STEVENSON, D. C.



Water Wheel.

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6v29-3m

MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, AUGUST 15, 1874.

VOLUME XXIX Number 7.

Improved Road and Farm Locomotive.

The traction engine and train of wagons we illnstrate are the mannfacture of Messrs. Aveling & Porter, of Rochester, England, and were awarded the prize medals for progress and merit at tha Vienna Exposition of last year. The steam road rollers, built hy the same firm, were also awarded similar medals for progress and merit. The engraving represents a scene in a quarry, with the locomotive hanling blocks of stona in heavy wagons. Thsra are many places on this coast whera this apparatns conld ba introdnced with great henefit.

Since the very important trials of road engines at Paris, in 1867, and Wolverhampton, England, in 1871, tbeir value as snbstitntes for animal power, as feeders for railroads, as pioneers in new districts, and eventnally as snperseders of horse-drawn portsble engines, is becoming genarally and intelligently recognized. The nnmher of these engines hnilt np to this tima, hy Messrs. Aveling & Porter, exceeds one thonsand, and the trade is rapidly developing.

The economy in the cost of removal of heavy material in certain localities, is certainly very great, and the manufactnrers claim that the cost does not exceed ona-tbird that of doing the same work by horse power. The variety of nses to which tha engina can be applied, snch as thresbing grain, hanling farm produce, plowing by direct traction, pnmping, sswing, etc., materially add to its nsefulness, and maka it applicable for different kinds of work all the year ronnd.

The engines are very strongly and simply made, and manifest the greatest care in thsir construction. The facility with which they are guided and driven, hoth operations heing performed hy the sama man, exhihits mnch progress and ingannity. Tbe simplicity of the machines enables them, it is claimed, to hs worked at a small cost for wear and tear, and the lishility to accident from hreakaga is redneed to a minimnm. A large amonnt of hoiler room is givsn to aach engine, and the fnrnsces are constructed to hnrn aither wood or coal. Their economy in this respact is stated to he very great. At the Wolverbampton trials an Aveling 10-horse engine, fitted with a single elida and ordinary link motion, indicated 35-horse power with a consnmption of three and one-fifth pounds of coal per horse-powar per honr.

The following testimony of Mr. D. Brennsn, the President of tha Talford Pavement company, of Orange, N. J., who has two of these road locomotives, is givsn, as showing their vslue for hanling pnrposes: "We have nsed, for hauling stone, one of tbe Aveling & Porter six-horse power traction angines, pnrchssed of yon, and with very satisfactory results. We hanled with this angine (with engineer and one assistant) abont 75 tons per day, a distsnce of a mile and a qnarter, over a new road. Thera is no donht that even better results can he obtained at longer distances, whera tha delays of loading and nnloading ara not so freqnent, especially if on a good road. Wa consider that tbese engines will do hanling for one-third the cost of tha same work done by horses, at $5 per day for team and driver, hauling ona and a half tons at a load; and we ara making preparations for a more extensive nse of them in tbe futnra."

Mr. W. O. Oastler, 43 Exchsnge Place, New York city, is Messrs. Aveling & Porter's agent in tha United Ststes.

AVELING & PORTER'S ROAD AND FARM LOCOMOTIVE AND WAGONS.

The Largest Mine Ventilator.

The largest mine ventilator in the world is a Guihal fan, 45 feet in diameter, 12 feet fsce, at the Usworth colliery, near Newcastle-on-Tyne. This fan runs ahont 45 revolutions per minnte, and is said to circnlate 200,000 to 250,000 cubic feet of air per minnte. It is driven hy two first motion enginas, 30 inch. diam. cylinders, three feet stroke. The npcast shaft is 10 feet dismeter, and 600 feet desp. The workings in three seams ara vantilated throngh it. Tha ontpnt of the Usworth colliery is ahont 1,500 tons per day. The mines ara very extansiva. All the nndergronnd hanlaga is performed by machinery; two of the three seams are worked on the bord and pillar system; tha other is worked on the long-wall plan.

Small air engines stationed on the 1,400-foot lavel of the Consolidated Virginia mine, and nsed for hoisting from the north winze of that level, and to fnrnish air for the minars, prove a complete snccess, and a most invalnabla anxiliary for the prosecntion of work of that kind.

The decision of the Secretary of the Interior in tha mstter of the contested survay of the rancho Caslamayomi leaves tha qnicksilver minas ontsida of the honndaries of the Montenagro grsnt.

CORRESPONDENCE.

El Dorado County—Canals and Mining.

EDITORS PRESS:—No time within the last 12 years has the future outlook for El Dorado county appeared so bright as it doss to-day. New developments are daily hsing made in mining and agriculture, and manufactures ars sure soon to follow in the wake. On the north side of the county the California Water Co., hy enlsrging and extending thsir canal, and furnishing an abundance of water to miners and agriculturists at rsssonahls ratss, have inspired confidencs in the people, who are working their claims or tilling their lands.

On the north side of the South fork, not far from the Chili Bar bridge, Messrs. Holmss (of yonr city), Reiggs & Petsrson havs made a discovery of what appears to be gold-hesring soapstone. The ledge—or soft rock—lies much like a vein of quartz, running north and sonth with a dip to the esstward, slate rock wall on the wsst, with a soft, grssn granite or marl for an esst wall. The vein is some 20 fsst wide, holding thst averags to the depth they have sunk—35 feet. At lsast four times as mnch of the ore can he minsd out and crushed in the same time by the same power, as could bs of qusrtz. The owners are now having several tons of the ore brought to this city for reduction. Estimatss of its yield run from $12 to $30 per ton. Herewith I ssnd you a small piece of the rock presented ms hy Mr. Holmes. You can sse and judge of it for yourssIf.

Similar mines to this, hssides those of quartz snd gravel, are hsing developed in thst vicinity.

Mines Near Placerville.

The Gross quartz mine, situated just north of this city, ie still being worked. Mr. Grose had several tons of rock brought to town and crushed last week. The yield wss $123 per ton, being $50 less per ton than the previous crushing. It is conceded by miners to be a valuable mine, although it is not as fully developed as it should be. Brewster & Co., on Oregon hill, are still sinking, being now some 400 feet from the surface, with fair prospects.

Prospect Flat, Robinson & Co's cement and grsvel claim, I am informed, is yielded remarkahly well, they hsving a hreast of gravel six feet in thickness, which is extremely rich. This claim hae paid lsrge dividends for more than three years. Dickeroff & Goyan's cement mill is paying well, I am informed. Thie mill has paid from the commencement.

Patridge & Co. sometime ago purchased the Crusen clsim at Smith's Flat. This is the claim from which several dismonds have bsen taken. The purchasers soon after found that for drainsge and to make the claim a success, they must hsve the Granite tunnel claim and mill, which they purchssed and went to work extracting grsvel from the claim and crushing it. After a run of scme three weeks they concluded to look for the "color," but it was hardly perceptihle on the plates—which caused sorrowful looks smong the owners—hut on an examination of the mortsrs, a large yield was obtained sll in large chunks, rangiug from one dollar to twenty, which were unable to pass through the screen; the sight of which brightened up the countenances of our English friends, for it had been whispered thst when the Granite company sold, they came to the conclusion that they had succeeded in getting an elephant off their hands.

Judge Turner, from the Silver State, was here a short time since, looking after a qusrtz claim which he owns, and which I understand is soon to he put in working order.

The most important thing I hsve to chronicle is the constructing of

The El Dorado Water and Deep Gravel Mining

Company's canal. This is a mammoth work. Already nine miles hsve heen dng, and there is a force of from ten to twelve hundred men at work upon the line, and constructing dams st the outlet of the lakes in the mountsins, converting those lakes into catchment basins to hold the water caught up in winter for use among the foot-hills in smmmer. The canal is of sufficient size to float lumber to within a short distance of this city, and will deliver five thousand inches of water every ten hours for mining, manufacturing or agricultural purposes along the hills and gulches in this vicinity. It is hardly to be expected that this work will he completed before another summer, yet a large amount of water will he run through it the coming mining season.

Right here allow me to digress a little from my subject. As a rule every large town has a class of persons who may be styled "hummers" and "croakers;" who by hook or crook dress well; who are in everybody's mess and nobody's reckoning, unless thoy have horrowed a dollar from you; who stand upon the corners of the streets ready to "bum" a drink of whisky at some place where they can obtain a free lunch, after which they will perch themselves in front of a hotel, and pick their teeth until the stage arrives, looking out for new comers, to whom they cau disclose their wonderful knowledge about things they do, or do not kuow. Placerville is not an exception to the rnle. Not long since an agent for an English company was sent here with letters to a gentleman of this place, who at the time was away from town. The agent's business was to examins some mines preparatory to purchssing. It sssms that this agsnt fell into the hands of one of those affahle croakers, who informsd him that the new ditch company hsd a monopoly of the water and mining ground in this vicinity; that if any one had olaims, this monstsr company would "freezs" them out by extortion or preventing thsir having water, and finally possess themssIves of the whole country. Thia sgent concluded if that was the gsme to bs plsyed here, ths soonsr he rsturned to San Francisco the bettsr, and he left by the next conveyance, and reported to his principsls whst he had lsarned; who soon informsd their correspondsnt here of ths result. Now a more infamous pisce of croaking and downright lying was never put aflost, than was told to this agent. The El Dorado W. & D. G. M. Co., whsn they purchased the csnal and watsr rights of the South Fork Canal Co., also purchased the Excelsior mining claim, of the sams partiss. This claim comprises ahout forty acres and has from tsn to two hundred feet in dspth of gravel.

Their first proposition wss to purchsse the canal and watsr rights only, but the gentlemen who orgsnizsd this compsny being some of the best business men in the State, deemsd it advisahle to have this claim on which they could nse thsir surplus water and purchased it, paying a large sum for ths same. I sm informsd by an officer of the company that this claim is ths only plscsr mining grsnnd sver purchssed or ownsd by this company. The capacity of the csnal is 12,000 inches per 24 hours: Now, allowing for leakage, evaporation and waste in mining, 2,000 inchss, there will remsin 10,000 inches for uss, of which the company cannot use ovsr 3,000 inches, leaving 7,000 inchss for sale at rsssonsble rates. which croaksr or any one else can havs in such quantities as thsy may wish, by paying for it. After having constructsd a work at a cost of $400,000 or more, the company ars not going to throw away their profits in order to "freezs out" some poor minsr, as croaker would hsve etrangers to believe. A coat of tar and feathers is what crosker needs.

A Woolen Mill Wanted.

There is no place in the State which sffords such favorahle facilities for a woolen mill as does Placerville at this time. Lumher can be floated near to town of which it could he constructed; the wool passes here upon the sheep to and from the mountains in spring and fall, which could he sheared and purchssed at the factory door; the power conld be obtained et a price not to exceed twelve dollars per day, for mills equal in capacity to the Mission mills at San Frsncisco; while we have plenty of boys and girls, young men and young women—not Chinamen, hut Americans—that sre willing to work and would be glad of such a chsnce to earn a livelihood; besides, transportation of the products could he done at a low figure, hy freight tesms, which haul goods from the rsilroad for our merchsnts snd now return empty. Gentlemen capitalists, who are seeking chances for good investments, give our town a visit, and see for yourselves the advantages we possess; but avoid hummers aud croakers on your arrival. E. N. S.

Placerville, Aug. 4th, 1874.

WOON BOOKS.—In the museum at Cassel, Germany, is a library made from five hundred European trees. The hack of each volume is formed of the hark of a tree, the sides of the perfect wood, the top of young wood, and the bottom of old. When opened, the book is found to be a box, containing the flower, seed, fruit and leaves of the tree, either dried or imitsted in wax. At the Melbourne Intercolonial Exhihition, of 1866, Colonel Clamp exhibited specimens of Victorisn wood converted into smsll boxes of book form, sccording to a design suggested hy that gentlemsn at the Victorian Exhihition of 1851, and then suggested hy Bsron Ferd. Mueller. Nothing could be more convenient and more interesting than a librsry (to spesk allegorically) of suoh imitation hooks, representing the different timber of various countries, which could he systematically, or alphabetically, or geographically arranged. Australia alone could furnieh of euch a collection more than a thousand volumes. At the Paris Exhibition of 1867, Russia showed a similar oolleotion of wooden books, cleverly designed, showing the bark as the back hinding, and lettered with the popular and scientific names of the wood. Each book contained samples of the leaves and fruit of the tree, and a section and shaving, or veneer of the wood. —*Jour. of Ap. Sci.*

CADMIUM YELLOW.—Of all the substances which have hitherto heen used to impart a vivid handsome yellow to toilet soaps, the sulphide of cadmium has given the best satisfaction in practice. The light of the sun and time do not alter the appearance of the soap colored with it, and only a proportionally small addition of the color to the soap is needed to produce a handsome yellow. This addition is effected by rubhing the cadmium oarefully to a very fine state of division with a little oil, and then adding to the soap mass while the latter is continually stirred. The color is not dissolved in the soap, but very finely divided in it. Two ehades of the cadmium yellow, one of lemon and the other of orange color, are furnished to the market.

GOON RUN.—The Manzanita mine, in Nevada county, pans out well. At the last clean up over $20,000 were realized. A clean np, a few weeks ago, gave a large amount. Mining is not quite played out in that vicinity.

The "Batea."

Mr. H. G. Hsnks fnrnishes the *Alta* with the following intsresting facts in rslation to the introduction and use of this useful instrument, which should bs used much more than it is in prospecting, and for testing purposes at ths mill and mine: This spparatns originated in Brszil, where it is in common use in ths diamond aud gold mines. As found in Brszil, it is simply a shallow wooden howl. But the skill of the miners in using it is somsthing remarksbls. Mr. Attwood (the wsll known mining expert of this oity) has greatly improved its form. As he constructs it, it is a turned circular dish, of dark colored hard wood, of about ons foot in diameter, sometimss more. The csntsr of the disc is depressed, the radii forming sn angls of about 160°. This appsratus gives remsrkabls rssults. If only a minnte trsce of cinnabar or msrcury is contained in the rock, it will bs seen. The msnner of using the *batea* may bs describsd as follows:

Quite a quantity of water will be required. This may he contsinsd in s tank or lsrgs tub, or may he a convsnient place near the hank of a strsam or lake. The pulverizsd ors—sevsral pounds at a time—is placsd in ths *batea*, which is grsdually sunk in the water. Ssvsral times it is broksn down with the fingers, while the *batea* flosts on the wster. When ths ore is thoroughly wst and formsd into mud, the *batea* is tsken by the rim with both hands and again sunk in the water. A circular motion is then imparted to it (soon lesrned by practics). The lighter particles will continuously flow over the edges and sink, while the hesvier ones collect at the center. When only a small portion remsins, the *batea* may he lifted, and the watsr held in the dspression caused to swssp round the centsr, while one edgs is slightly depressed. This motion will grsdually rsmove the heavier particles toward the dspressed part. If thsrs is any gold, platinum, gslens, cinnabar or other unusually heavy substance, its grsvity will resist the power of the water, while the comparatively light particles move slowly forward. The form of the vessel is such that the heaviest matter forms a point and can be closely observed. If there is s particle of cinnabar present, it will be found at the point of the prospect, olearly distinct from all other substances. The value of the *batea* to the prospector cannot be too highly estimsted, and it should come into more general uss.

Fecundity of the Lower Animals.

The lower sn animsl stands in the scale of organizsd beings, the more it is snbject to destructive agencies, which would soon cause the race to become extinct were it not that nature hss compensated this by provisions for the most prodigious fecundity. This ie forcibly illustrated in the case of fishee, which produce so many eggs that if vast numhers of eggs and fish were not continually heing destroyed, they would at last fill up sll the waters. For instsnce, msn alone takes ahout 60,000,000 or 70,000,000 codfish from the sea anuually around the shores of Newfoundlaud. But even that quantity seems small when we consider that esch cod yields something like 4,500,000 eggs each scason, and that even 8,000,000 hsve been fouud in the roe of s single cod. Suppose the 60,000,000 cod caught on the coast of Newfonndland were left to breed, the 30,000,000 femsles producing each 5,000,000 egge every yesr, it would givs a yearly sddition of 150,000,000,000,000 young cods. Other fish, though not equslling the cod, are wonderfully productive. A herring six or seven ounces in weight is provided with about 30,000 ova. After making all ressonahle allowances for the destruction of eggs and of the yonng, it hss been cslcnlated that in three yesrs a single pair of herrings would produce 154,000,000, and Buffon cslculsted thst if a pair of herrings could be left to breed and multiply nndisturbed for a period of 20 years, they would yield an amount of fish in bulk equal to the globe on which we live.—*Manufacturer and Builder.*

PRACTICAL SCIENCE AS A TRAINER.—Professor Williams, in an interesting article in *Nature*, relating to the practical achievemeuts of Count Rumford, says: The main interest of the career of this wonderful man appears to me to lie is this, thst it affords a magnificent demonstration of the practical value of scientific training, and the methodicsl application of scientific processes to the hueiness of life. I have long maintained that every father who is able and willing to qualify his son to attain a high degree of success, either as a man of hnsiuess, a soldier, a sailor, a lawyer, a statesman, or in any responsihle department of life, should primarily place him in a lahoratory, where he will not merely learn the elements of science, hut he well trained in carrying out original physical research, such training being the best of all known means of affording that discipline of the intellectual powers upon which all practical success depends.

ADVERTSING.—There is a man in Msssachusetts who has exploded the popular fallacy that a man has to advertise to succeed in business. He commenced business forty-seven years sgo, with a capital of $800; he hasn't spent a cent in advertising since, and is now worth $805.

THE top dirt in the Illinois mine at Moore's flat gave a clean up of $16,500 last week. They expected to begin working gravel from the bedrock on Monday, and after this much heavier results are anticipated.—*Tidings.*

The Centennial Exhibition.

The resdsrs of our paper are probably wsll informed as to the general plan of our great Internstional Exhibition which is to bs held in Philadelphia, 1876. For the bensfit of those who desire more explicit information on the subject, below we give the rulss and regulations of the Exhibition. Commissioners from all the States and Territoriss have beeu appointed. J. Dunbsr Creigh, Ssn Francisco, is the Commissioner for California. Alternste, Benjamin P. Kooser, Santa Crnz. Mr. Creigh is also one of the Vics-Presidents of the Commission. Jossph R. Hswley of Connecticut is President of the Commission for the yesr 1874-5. John L. Campbsll of Indiana is Secrstary for the same tsrm:

RULE I.—The Exhibition will be held at Fairmount Park, in the City of Philadelphia, and will be opened on the 19th day of April, 1876, and closed on the 19th of October following.

The ten departmsnts of the classification which will determine the relativs location of articles in the Exhibition—except in such collective exhibitions as may receive special eanction—and also the arrangemsnt of names in the Catalogus, ars as follows:

I. Raw Materials — Mineral, Vegetable, and Animal.

II. Materials and Manufacturss used for Food, or in the Arts, ths rssult of Extractivs or Combining Processes.

III. Textile and Felted Fabrics; Apparel, Costumes, and Ornamente for the Person.

IV. Furnitnre and Manufactures of general use in construction and in dwellings.

V. Tools, Implements, Machinss and Processes.

VI. Motors and Transportation.

VII. Apparatus and Msthods for the increase and diffusion of knowledge.

VIII. Engineering, Pnhlic Works, Architectnrs, etc.

IX. Plastic and Graphic Arts.

X. Objects illustrating efforts for the improvsmsnt of the Physical, Intellsctual, and Moral Condition of Man.

RULE II.—Applioations for space and negotiations relative thereto should be addressed to the Director-General, International Exhibition, Philadelphia, Penn.

RULE III.—Exhibitors will not he charged for space. A limited quantity of steam and water power will he supplied gratuitously. The quantity of each will he settled definitely at the time of the allotments of space. Any power required hy the exhihitor in excess of that allowed will be furnished by the Commission at a fixed price. Demands for snch excess of power must also he settled at the time of the allotment of space.

RULE IV. — Exhibitors mnst provide, at their own cost, all show-cases, shelving, counters, fittings, etc., which they may require; and all countershafte, with their keys, belting, etc., for the transmission of power from the main shafts in the Machinery Hall. All arrangements of articles and decorations must be in conformity with the general plan adopted hy the Director-General.

Special constructions of any kind, whether in the buildings or grounds, can only he made upon the written approval of the Director-General.

RULE V.—The Commission will take precantions for the safe preservation of all objects in the Exhibition, but it will in no way be responeible for damage or loss of any kind, or for accidents hy fire or otherswise, however orignating.

Favorahle facilities will he arranged hy which exhibitors may insure their own goods.

RULE VI.—Exhibitone may employ watchmen of their own choice to guard their goods during the houre the Exhibition is open to the public. Appointment of euch watchmen will be subject to the approval of the Director-General.

RULE VII.—Exhibitors, or such agents as they may designate, shall be responsihle for the receiving, unpacking, and arrangement of objects, as well as for their removal at the close of the Exhibition.

RULE VIII.—The transportation, receiving, nnpacking, and arranging of the products for exhibition will be at the expense of the exhibitor.

RULE IX.—The installation of heavy articles requiring foundation should, by special arrangement, begin as soon as the progress of the work upon ths building will permit. The general reception of articles at the Exhibition Building will commence on January 1st, 1876, and no articles will he admitted after March 31st, 1876.

RULE X.—Space not occupied on the 1st of April, 1876, will revert to the Director-General for reassignment.

RULE XI.—If products are not intended for competition, it mnst he so stated by the exhibitor; and they will be excluded from the examination by the International Juries.

RULE XII.—If no authorized person is at hand to receive goods on their arrival at the Exhibition building, they will be removed without delay, and stored at the cost and risk of whomsoever it may concern.

RULE XIII.—Articles that are in any way dangeroue or offensive, also patent medicines, nostrums and empirical preparations whose ingredients are concealed, will not be admitted to the Exhibition.

RULE XIV.—The removal of goods will not he permitted prior to the close of the Exhibition.

RULE XV.—Sketches, drawings, photographs, or other reprnductions of articles exhibited, will only be allowed upon the joint assent of the exhibitor and the Director-General; but views of portions of the building may be made upon the Director-General's sanction.

RULE XVI.—Immediately after the close of the Exhibition, exhibitors shall remove their effects, and compiete such removal hefore December 31, 1876. Goods then remaining will he removed by the Director-General and sold for expenees, or otherwise disposed of under the direction of the Commission.

RULE XVII.—Each person who becomes an exhibitor thereby acknowledges and undertakes to keep the rules snd regulations established for the government of the Exhibition.

Special regulations will he issued concerning the exhibition of fine arts, the organization of international juries, awards of prizes, the sale of special articles within the buildinge, and on other points not touched upon in these prelliminary instructions.

RULE XVIII.—An official catalogue will he pnblished in four distinct vereions,—viz., English, French, German and Spanish. The sale of catalogues is reserved to the Centennial Commission.

RULE XIX.—Communications concerning the Exhibition should be addressed to "The Director-General, International Exhibition, 1876, Philadelphia, Penn."

The Centennial Commission reserves the right to explain or amend these regulations, whenever it may be deemed necessary for the interest of the Exhibition.

A. T. GOSHORN, Director-General.

JOHN L. CAMPBELL, Secretary

Philadelpia, July 4th, 1874.

A PRACTICAL ARGUMENT IN FAVOR OF CREMATION.—The "catacombs" of Rome comprise forty-two lahyrinthine undergronnd cemeteries, with 587 miles of galleries, and it is estimated that between four and seven millions of bodies have found sepnlture therein. What a pestilent breeding hole it must bave heen.

MECHANICAL PROGRESS.

Writing Machine.

A medal has been given by the Emperor of Austria to Rev. Malleny Hansen for an ingenious apparatus known as "the writing ball," which is described as follows: The instrument consists of a half sphere of gun metal, pierced with radial apertures to the number of 52, all converging to the center. The half-sphere rests on a frame firmly fixed to a bed plate. Each of the holes in the half sphere or ball has a piston ground off horizontally at its bottom, upon which is engraved a letter or figure. When a piston has been pressed in, a spiral spring raises it when it has been released. These pistons, when pressed down, impinge upon a level writing plate, which can be moved through the center of the writing ball. This table has four wheels running upon rails, which rails again are fixed to another movable frame. The plans of the movement of the lower frame is at right angles to that of the upper one. Upon the writing table is arranged a kind of tympan to hold a sheet of white paper by its edges. Upon the whits paper is laid a sheet of carbonized paper. On pressing one of the knobs the lower end of the piston impresses a type on the paper; the knob then touches the spring under it, whereby electrical contact is established. The pistons corresponding to the letter to be printed are depressed in their order, and the letters appear on the paper in a line vertical to the operator. Speed is considerably augmented by the arrangement of the knobs or pistons into groups, easily covered by the whole of the 10 fingers.

After some practice the pistons can be worked at the rate of 10 per second, or three or five times quicker than ordinary writing with a pen. All kinds of paper can be employed, and of any thickness, by means of a vertical adjustment of the writing ball. If 10 layers of thin paper are employed, with interposed layers of carbonized paper, all 10 pieces receive the same impression. By passing these 10 impressions with interposed tissue paper through rollers, double the number of copies are obtained.

Diver's Outfit.

Reports of experiments made in England, to test a new apparatus, are at hand. Hitherto an insuperable difficulty has been experienced by divers, in being unable to communicate verbally with the attendants above, the principle usually adopted by divers being to give preconstructed signals by so many pulls on a signal line. This, however, appears to have been at length overcome. In the trials just completed in Chatham harbor, an experienced diver equipped in an improved diving apparatus, made the descent, and during the whole time he was under water was enabled by means of the new apparatus to converse freely with those above, every word spoken by him being distinctly heard and understood. It is stated that the invention would be further improved upon, so as to facilitate its use in all diving operations connected with the harbor works, and for laying stone blocks, etc., in connection with subaqueous operations. The diver signals the attendant, who places his ear to a small cone at the top of the tube, whence a message can be distinctly heard. The diver has the apparatus completely under his control, and by placing his mouth to the mouthpiece, inside the helmet, and then turning a cock on the ontside, can communicate instantly with the attendant. The apparatus can, it is stated, be easily applied to any description of diving dress. The value of the invention will be readily understood and appreciated by every one interested in the science of diving, from the simple fact of the great confidence a diver will gain from being in his isolated position enabled to speak directly to those in whose hands his life for the time being is literally placed.

MICROSCOPIC.—The *World of Wonder* records the following: In the twentieth year of Queen Elizabeth, a blacksmith, named Mark Scaliot, made a lock consisting of eleven pieces of iron, steel and brass, all of which, together with a key, weighed but one grain. He also made a chain of gold, consisting of 43 links, and having fastened to this the before mentioned lock and key, he put the chain about the neck of a flea which drew them all with ease. All these together—lock and key, chain and flea—weighed only one grain and a half. Oswaldus Nothingerus, who was more famous than Scaliot for his minute contrivances, is said to have made 1,600 dishes of turned ivory, all perfect and complete in every part, yet so small, thin and slender, that all of them were included in a cup turned out of a peppercorn of the common size. Johnnes Shad, of Meiteband, carried this wonderful work with him to Rome, and showed it to Pope Paul V., who saw and counted them all by the help of a pair of spectacles. They were so small as to be almost invisible to the eye.

THE *Federation Artistique* says that a Venetian founder, named Giordini, has discovered a new process of casting, by the operation of which and at a single flow of the liquid metal, not only large statues, but groups of the most elaborate complexity, can at once be produced, and with so fine a finish that no supplemental chiseling is required.

What is the Best Rail?

At the recent meeting of the Association of Civil Engineers, the committee on the "Manufacturs of Rails," reported that the English system of rails, which requires great strength, is not applicable to this country, where endurances is the chief requisite. Strength is the first consideration where the wear is heavy; but where the wear is light, the rails should be as light as is safe. The greatest amount of metal should be at the head of the rail, where there is more wear; and the theory that a head 2¼ inches wide will endure more than one 3 inches wide, is erroneous. Low, wide rails are better than high, narrow ones, with the present heavy machinery. Rails might be made more rigid if the foundation were better and there were no frost; but, as it is, a moderately flexible rail is best. A square rail would be too flexible, and those with a stem and base are much better. It would be advisable to put 60 per cent. of the metal in the head were it not for the fact that a double-headed rail wears out fast. The average wear of an iron rail is equal to a pressure of 4,000,000 tons dead weight, or 10,000,000 tons gross weight. The stone ballast of the American roads has been too large; and on a good road a rail would last fully 25 per cent. longer than on a bad one. In cold weather the metal is more brittle than in summer; consequently the breakage of rails in winter is greater in proportion. In the absence of definite figures as to the comparative value of iron and steel, the committee were of the opinion that a steel rail was 20 per cent. better than a good iron rail, 40 per cent, better than a fair iron rail, and 100 per cent. superior to the ordinary rail used on many roads.

MASTS OF IRON.—An exchange, in speaking of the construction of the new P.M.S.S. "City of Peking," dwells particularly upon the masts: These, three in number, are of iron, 138 feet in length, with a diameter from eight to thirty-six inches. They are formed of heavy rolled plate iron, and their construction was a work of difficulty, patience and labor. About 50 men were engaged actively in their completion, some of whom were obliged to work inside. There is barely room for a man inside, and his progress through the iron tunnel was analogous to ascending a tight chimney, with all the advantages in favor of the sweep, inasmuch as the latter can keep his head perpendicular, while the workers must lie horizontally, and that, although sheds were erected over the masts, water poured on to keep them cool, and air introduced by pipes, the men could not remain in their iron prison house more than fifteen minutes.

A NEW DOUBLE SHIP.—Some years ago there were employed between New York and Brooklyn, a set of steam ferry boats having double hulls, propelled by a paddle wheel placed in the middle, between the hulls. The two vessels were coupled together by strong beams, and covered by a broad deck. Recently, in England, they have launched a new ferry boat, built on the above general plan, intended to ply across the English channel. At present they run very small boats, and passengers are greatly troubled with sea sickness. The new boat has two hulls, each 17 feet wide and 290 feet long, separated 26 feet, and united by a deck or superstructure 60 feet wide and 183 feet long. This makes a broad and comfortable boat for passengers. She will be propelled by a central wheel, with engines of great power. Each hull has a rudder at the bow and stern, making four rudders in all.—*Exchange.*

BRICK-MAKING MACHINE. — An English exchange, *Iron*, speaks of a brick-making machine which compresses 1,500 bricks per hour, but which is capable of producing, if required, a much greater quantity. On a revolving horizontal table are fixed six dies for compressing the clay. On one side of the table stands a man who fills each die with clay, and a man on the other side removes the clay after it has been compressed. Each die is fitted with a hinged lid and a sliding bottom, and as the table revolves the die passes under a fixed plate which compresses the clay. The clay is delivered in a column down an incline from the pug-mill, and is cut into blocks of the required size by a very simple apparatus worked by a man who fills the dies.

RENOVATING STONE FRONTS BY A JET OF STEAM. Hanover church, London, which had become incrusted with a thick mass of black smoke, has been restored to its natural color without tooling or drugging the surface of the stone. A workman, whose head and hands were sheathed in a protective covering, directed the nozzle of a pipe connected by tubing with a boiler on the pavement below. At a pressure of 56 pounds to the square inch, the wet steam, assisted by the action of wire and hair brushes, was found effective. At first, strong lyes were used, in the form of a wash previous to applying the jet, but they were found unnecessary, and were soon abandoned.

A NEW life-saving invention has recently appeared in Paris, in the shape of a durable garment, which covers the entire body. It is made of rubber, and is provided with a flexible tube, which has a mouthpiece. By blowing into the latter, the person in danger inflates the garment, which buoys him up when in the water.

THE first vessels constructed of iron were built for the canals of Great Britain. There is extant a published drawing of one, dated July 28th, 1787, and a description written in Birmingham, England.

SCIENTIFIC PROGRESS.

Sun Spots.

In the course of a lecture on the sun, Mr. Proctor state that it had been found that the spots gradually increase and diminish in number until they disappear, and the period during which they thus waxed and waned was 11 years. After that it was noticed that the magnetic influences of the earth waxed and waned in intensity. The magnetic needle was exposed during the course of every day to the swaying motion by which it seemed to try to follow the sun—a very slight influence indeed. That change underwent variation, sometimes greater and sometimes less, and it was resolved to watch that progress and the period in which it took place, and the result showed that in a period of eleven years that slight swaying of the magnetic needle underwent a change, and that change corresponded with the number of spots upon the sun. When the spots on the sun were most numerous it swayed greatest; and when they were not so numerous it swayed less.

There is an intimate connection between the spots and condition of the sun and these seemingly terrestrial influences. The subject had been receiving much attention, and suddenly, in the year 1859, on the surface of the sun a bright spot made its appearance, and it was found that the magnetic needle at Kew had made certain changes. The whole surface of the earth had been affected by magnetic tremblies, and everything proved that the sun had at that moment spread magnetic influences not alone over the earth, but over the entire planets. A new bond of harmony had been found within the solar system. What were these surfaces in the sun; were they clouds, were they mountains in the moon, or ruddy mountains of flames? During the eclipse of 1868 that question was answered, and it was found that they were no mountains, nor clouds, nor flames, but a mass of glowing hydrogen. This discovery was made by the spectroscope.

EXPANSION.—Prof. Guthrie says: As a rule, gases expand more than liquids and liquids more than solids for the same increase of temperature, and so, according to the well-known law of mechanics, we should expect to find the force of expansion of solids greater than that of gases. Accordingly the force exercised by expanding solids is almost irresistible. Iron rods are bent or snapped when their centers are pulled by contracting metals. A semi-solid mass, as of glass, suddenly cooled, becomes brittle. A drop of hot glass cooled in water becomes solid and rigid on its outside; then the inside cools and shrinks so that the whole, when cool, is in a condition of internal strain or unstable equilibrium. Disturbed in one place, the whole crumbles to pieces in its endeavor to assume the proper size due to its temperature. The process of annealing depends upon the so gradual cooling of a soft body that the parts get to their proper distances. The bursting of pipes in winter time proves two things: first, that ice is lighter than water; and second, that ice is almost incompressible. Water frozen in a bomb-shell two inches thick will burst it.

COMBUSTION is a chemical process, consisting usually in a combination of one of the elements of our atmosphere (the oxygen) with the fuel. The main substance of fuel, especially when it is coal, is carbon, and the chemical equivalent of this, 12, combines with 2 chemical equivalents, 2 x 16, or 32 parts by weight of oxygen, which is equal to 2¾ parts of oxygen for every part of carbon. A pound of coal requires thus 2¾ pounds of oxygen for its perfect combustion; as now 1 pound of this gas under ordinary atmospheric pressure occupies a space of some 12 or 13 cubic feet, or 2¾ pounds of oxygen a space of 34 cubic feet, which in the air is diluted with four times this amount of nitrogen, it requires five times this quantity, or not less than some 170 cubic feet of fresh common air to furnish the oxygen required; it is therefore necessary to pass 170 cubic feet of air through the furnace grate in order to secure the perfect combustion of every pound of coal. If less air is passed, the combustion is retarded or imperfect; while an excess of air cools the furnace, and is thus conducive of loss. This shows why the regulation of a proper draft is of so great importance. — *Manufacturer and Builder.*

PYROLITH.—A fuel, burning without smoke, needing no attention after lighting, and said to be especially adapted to heating railway carriages, has been patented. It consists of a mixture of pulverized charcoal or coal with some material affording oxygen when heated, as nitrate or chlorate of potash, etc. Some cementing substance, such as gum, starch, or water glass, is employed to form into cakes, which are compressed and dried at a gentle heat. A special apparatus has also been devised for its combustion.

NEW MEAT PRESERVING PROCESS. — M. Sacc has obtained excellent results by using acetate of soda in powdered form. The meat is placed in a barrel and the acetate placed in, when it is left for 48 hours. Thus prepared, the meat, it is said, will keep for any length of time, and may be prepared for cooking by soaking for 12 hours in water, to every quart of which a quarter of an ounce of sal ammoniac is added.

New Method of Lighting Gas.

A foreign exchange says a novelty in gas-lighting apparatus has been tested on the street lights of Preston, England, with satisfactory results. The apparatus is described as resembling a small globular inkstand of glass, surmounted by a tube of the same material, with a metallic top; and by screwing off this burner it can be very easily attached to any lamp, chandelier pipe, or ordinary gas jet. The base or globular portion is filled with a deep red colored liquid—a simple chemical mixture with no combustible properties, almost without smell, and so cheap that threepenny worth of it will serve one lamp for twelve months. Over this liquid, and within the glass tube, there is a plate of zinc, with a piece of graphite or gas coal, and between these and a thin coiled platinum wire, fixed over the cap of the general vessel, into which a gas burner is inserted, galvanic communication is obtained. Ignition is effected in the following way: A pipe, to be screwed to that up which the ordinary gas supply flows, runs through the base of the vessel to about the center of the surmounting tube; pressure brought to bear upon the gas in this pipe causes, by small collateral openings; a simultaneous depression upon the chemical solution which occupies a lower level in two side tubes; the gas occupies the vacuum caused by the displaced liquid, and then ascends to a chamber in connection with the burner, while the displaced liquid is pressed into two side tubes, effecting contact with the zinc and graphite, generating galvanic activity, which is communicated to the platinum wire, and exciting the catalytic power of the wire, which, when exposed to the ascending jet of gas, results in immediate, almost instantaneous ignition. The mechanism is of the simplest construction, and can be applied to any kind or number of gas pipes, either remote from or proximate to the works, to street as well as to office or shop lamps, and the light can be extinguished as quickly as it can be ignited.

CHEMISTRY ON THE STAGE.—The papers tell us that a new sensation is to be introduced on the stage. An actress fixes a dose of poison for her rival; then in a French fit of virtue and remorse, gulps the dose herself, directly has a pain, a worse one, a pang, a cramp, and finally convulsions, during which her face, neck and arms go through the changing hues of white to gray, gray to purple, and purple to black; when she very properly dies. This is accomplished by the application of some wash to the skin, and the turning on at the proper moment of some vapor or gas, which acts upon the chemical property of the cosmetic worn. The effect is startling and very sensational. A well-known actress from another theater fainted at the first performance of this death and its variegated complexion. It is not difficult to perform, however. The cosmetics contain bismuth or lead, and the floor or pillow upon which her head rests is sprinkled with a solution of sulphuretted hydrogen.

NITROGEN AND PLANTS.—In a notice of Deherain's work on agricultural chemistry, recently published, the important question is raised—In what form is nitrogen assimilated by plants? Kuhlmann maintains that nitrates are not taken up until reduction has taken place, and their nitrogen has entered into an ammonical combination. On the other hand, Cloez holds that ammonical salts are inactive till their nitrogen has passed into a nitro-compound. Neither of these views has as yet been demonstrated. M. Deherain combats the view of M. Ville that plants can assimilate directly the free nitrogen of the atmosphere; but he holds that in soils containing decomposing organic matter, the nitrogen of the air forms ammonia in the absence of oxygen. Carbonic acid is formed and nascent hydrogen unites with the atmospheric nitrogen to form ammonia.—*Chemical News.*

FOSSILS OF THE DEPARTED.—A German inventor, Dr. Von Steinfels, seems to have hit a happy medium for disposing of the dead, which is at least free from the objections urged against burial, while it does no violence to the feelings which naturally shrink from destroying by fire the corpse of a beloved friend. It is proposed to place the body in a sarcophagus made of stone, and to pack around the corpse artificial stone or cement in a plastic state. The latter being allowed to harden, the remains become like a fossil embedded in the solid rock, and, if need be, the deceased finds his grave and his monument in one and the same mass —*Scientific American.*

M. ALVERNAT has devised an ingenious apparatus which shows that an electric current will not pass equally well in two directions. Two glass tubes are connected together at the ends by arched pieces, and in one the points of a number of small glass pipes are turned in the opposite direction from those in the other tube. The current instantly passes through the tube in which the points are apex toward the negative poles. The tubes are filled with hydrogen, showing the oscillation of the luminous zones with great clearness.

THE discovery of alcohol in organic liquids is often of great difficulty, owing to the small quantity of liquid which the chemist has at his disposal, and the absence of any distinguishing test.

RED COLORING MATTER OF THE BLOOD.—M. Béchamp has isolated the red coloring matter of blood, which shows the presence of iron.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Aug. 12, 1874.

NAME OF COMPANY.	IN MINE.	SHARES IN MINE.	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo		6000	12TH	11¼M		¼
Alpha Con	300					
Alta	3600					
American Flat		20000	7TH	6¾T		
Bacon M. & M	65	24000	3½W	3¾W		
Baltimore Con		54000	7¼W	7W		
Belcher	1040	104000	66TH	61¼M		1
Best & Belcher	224	22400	25T	24T		
Bowers	20	5000				
Buckeye		16000				
Bullion	2500	25000	1¾S	1⅝S		
Caledonia	6000	20000	1⅝T	1S		⅛
California			39W	37½M		½
Challas-Potosi	2800	28000	54S	50M	1½	
Confidence	130	24960	12T	11M	1	
Con. Gold Hill Quartz	34½	28000				
Con. Virginia	1160	108000	78S	73T		½
Cook & Geyer	1600	24000				
Crown Point	600	100000	73W	68M	3	
Daney	2000	24000				
Dardanelles	1200	24000	11½T	11W		½
Dayton			5⅝W	5½T		
Eclipse	75	25000	6½T	5⅞W		
Empire M. & M	75	50000	7⅛S	7⅛W		⅛
Exchequer	400	8000	65W	61M	1	
Fairmount						
Flowery	3000	12000				
Franklin			1¾T	1⅝S		⅛
Globe		20000	1⅞TH	1¾T		⅛
Gould & Curry	1200	48000	19TH	18W		
Hale & Norcross	400	16000	44TH	40M		
Imperial	184	100000	8¼M	TW		¼
Indus						
Inenrance	2000	30000				
Jacob Little						
Julia	2000	30000	2¼TH	1¾T		¼
Justice	3000	21000	7⅛M	7T		⅛
Kentuck	95	30000	14W	13S		⅛
Knickerbocker	1200	24000	4⅝M	4⅝W		½
Koeenth			1W	1W		
Lady Bryan						
McMeane	3600	36000				
Mint	1600	50000				
Nevada	3000	40000				
New York Con	3200	36000	2⅜TH	2⅛S		¼
Occidental	800	10000	3½TH	3S		⅛
Ophir	1400	16800	21¾W	19½TH		¼
Overman	1200	37400	33½T	30TH		1½
Phil. Sheridan	1200	24000				
Pioton	2000	20000				
Rock Island		24000	2¼T	2W		
Savage	800	16000	69F	66M		5½
Seg. Belcher	160	6400	78T	72F		3
Seg. Caledonia		10000				
Seg. Rock Island						
Senator			1TH	⅞M		
Sierra Nevada		100000	4⅜TH	3⅞T		
Silver Hill		54000	7TH	6½W		
South Comstock						
Sun Overman		24000	60S	58cW		
Succor M. & M	1600	22800	1¼T	1¼T		⅛
Sutro		24000	1⅞TH	1⅞TH		
Trench		50				
Tyler	2200	33000	⅜TH	60cW		
Union Con	3000	20000	12T	10½S	1	
Uteh		20000	3⅜S	3W		¼
Woodvilla	1100	68000	3W	2⅝S		¼
Yellow Jacket	1200	24000	74½TH	69W		1½
NEVADA.						
Adams Hill		50000				
Aips	800	30000				
Amador Tunnel						
American Flag M. & M		30000	2½S	2TH		¼
Arkansas	300	30000				
Belmont			4⅞W	4⅝S		⅛
Bowery		30000				
Chapman M. & M		30000				
Charter Oak	1000	30000				
Chief of the Hill		30000				
Chief East Exteneion		30000				
Columbus M. & M	10000	50000				
Condor		25000				
El Dorado South			1⅝T	1½T		⅛
Eureka Con		50000	12W	11F		¾
Excelsior		12000				
Harper		30000				
Hayes						
Hermee	1000	30000				
Home Tickat						
Huhn & Hunt	3500	30000				
Ingomar	1000	40000	¾M	20cW		
Ivanhoe		30000				
Jackson		50000				
Josephina						
Juniata Con	5000	50000				
K. K. Con			3W	2½M		
Kentnoky	1000	30000				
Kinston	1000	30000				
Lehigh	1000	30000				
Lillian Hall	1000	15000				
Louise	2400	30000				
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24025	60000	7¼W	6¾M		⅛
Mocking-Bird	1200	30000				
Monitor-Belmont			1⅛W	1S		⅛
Murphy	2000	60000				
Newark	800	32000	1¼TH	1⅛T		¼
Pacific Tunnel						
Page & Panaca	2400	40000	⅛W	45cT		
Peavine	1000	30000				
Phoenix		50000				
Pioche	1000	20000	5S	4⅝T		⅛
Pioche West Ex		25000				
Pioche-Phoenix		40000				
Portland						
Raymond & Ely	5000	30000	15F	1¼M	2	
Rye Patch			1F	⅞T		¼
Silver Peak						
Silver West Con		30000				
Standard M. & M						
Ster Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mountain		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole	200	20000	¾M	⅞S		⅛
Watson						
Yellstone						
CALIFORNIA.						
Alpina	1200	12000				
Bellevue	8000	20000	1M	¾W		⅛
Calaveras	3200	20000				
Cedertey		24000	2TH	1¾TH		
Chariot Mill			6¾F	7⅞M		
Jon. Amador						
Cottonwood Creek		20000				
Dandenberg M. & M						
El Dorado						
Eureka	1650	20000				
Gillie		24000				
Independent	1800	25000	¾TH	⅞TH		
Keystone		10000				
Mt. Jafferson	1500	25000				
Oakvilla						
St. Lawrence M. & M						
St. Patrick	1800	20000	½W	46cW		
Teoumseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000	2½TH	1¾W		
Golden Chariot	750	30000	9M	8W		⅛
Ida Ellmore	1306	10000	1W	⅞W		⅛
Mahogany	720	10000	3W	3W		⅛
Red Jacket			1⅝TH	1¾W		
South Chariot	660	20000	9¾W	8¾F		½
Wasie	1000	10000	2⅝F	2½T		⅛
WHITE PINE.						
General Lee	1000	20000				
Mammoth	1800	36000				
Noonday	1000	20000				
Orig. Hidden Treas.	800	21333				
Silver Wave						
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
OREGON.		50000				
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business
Adame Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Alpina Gold M & M Co	Amador Co Cal	7	1 00	Aug 10	Sept 14	Oct 5	J F Lightner	438 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	E Landers	507 Montgomery st
Belmont M Co	Nye Co Nevada	3	1 00	July 17	Aug 22	Sept 12	O H Bogart	402 Montgomery st
Bast & Belcher M Co	Washoe	9	50	July 13	Aug 17	Sept 12	W Willis	419 California st
Buckaya G & S M Co	Washoe	11	50	July 21	Aug 18	Sept 16	G A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	8	3 00	July 15	Aug 22	Sept 11	R Wegener	414 California st
Carolina M Co	Ely District	5	25	June 30	Aug 3	Aug 31	R H Brown	402 Montgomery st
Chief East Exteneion M Co	Ely District	3	10	July 7	Aug 12	Sept 9	R Wegener	414 California st
Chief of the Hill M Co	Ely District	5	25	Aug 11	Sept 11	Oct 1	C S Neal	419 California st
Condor S M Co	Ely District	3	25	July 17	Aug 25	Sept 15	Geo T Grimes	240 Montgomery st
El Dorado North M Co	Belmont Nevada	1	50	Aug 4	Sept 15	Oct 6	G E Houghton	215 Sansome st
El Dorado South Cons M Co	Nevada	4	1 00	Aug 7	Sept 14	Oct 1	W Willis	419 California st
Europa M Co	Waehoe	2	25	July 14	Aug 18	Sept 10	F G J Margetson	418 California st
Eureka M & Smelting Co	Eureka Nev	4	25	July 14	Aug 19	Sept 7	T P Beach	424 Montgomery st
Golden Chariot M Co	Idaho	10	3 00	July 3	Aug 7	Aug 27	L Kaplan	Merchants' Ex
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 19	W Willis	419 California st
Indus G & S M Co	Washoe		10	July 30	Aug 31	Sept 17	D Wilder	Merchants' Ex
Josephine Cone S M Co	Nye Co Nevada	1	15	July 20	Aug 22	Sept 12	O H Bogart	402 Montgomery st
Julia G & S Co	Nevada	19	1 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Julia G & S M Co	Washoe	19	1 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Kossuth M Co	Washoe	1	25	June 29	July 31	Aug 18	F E Stone	419 California st
Lady Washington M Co	Washoe	1	50	July 1	Aug 3	Aug 21	H C Ribbe	419 California st
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	C B Higgine	402 Montgomery st
Mammoth S M Co	White Pine		10	July 13	Aug 17	Sept 15	D A Jenninge	401 California st
Mint M Co	Washoe		10	June 30	Aug 5	Aug 27	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	July 7	Aug 13	Sept 7	W W Hopkins	411½ California st
North Bloomfield Gravel M Co	Cal	33	1 00	Aug 11	Sept 15	Oct 5	Thos Derby	320 Sansome st
Page & Panaca S M Co	Ely District	7	50	Aug 4	Sept 8	Sept 24	H P Bush	Merchants' Ex
Pauper M Co	Idaho	2	25	June 16	July 25	Aug 17	D Wilder	Merchants' Ex
Pioche M Co	Ely District	Nevada	1 00	July 29	Sept 7	Oct 2	C E Elliot	419 California st
Rock Island M Co	Washoe	4	1 00	July 17	Aug 21	Sept 8	J W Clark	418 California st
Rye Patch Cons M & M Co	Nevada	3	25	July 21	Aug 24	Sept 19	D F Verdenal	409 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	July 27	Aug 27	A C Ryce	308 California st
Sierra Nevada S M Co	Washoe	39	1 00	Aug 5	Sept 8	Sept 29	R Wegener	414 California st
Silver Cord M Co	Idaho	4	50	July 7	Aug 3	Aug 31	F Swift	419 California st
Silver Hill M Co	Washoe	3	2 00	June 25	July 29	Aug 20	W E Dean	419 California st
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Table Mt Alpha M Co	Cal	4	25	June 18	July 28	Aug 18	T F Cronise	438 California st
Union Cons S M Co	Washoe	6	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
Washington & Creole M Co	Ely District	12		July 21	Aug 24	Sept 16	F D Cleary	Merchants' Ex

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
Enterprise G & S M Co	Nevada		10	June 22	July 22	Aug 25	E E Rice	411½ California st
Edith Quicksilver M Co	Cal	1	12½	July 23	Sept 26	Oct 26	W Stuart	113 Liedeedorff et
Germania M Co	Utah	2	1 00	Aug 5	Sept 12	Oct 2	J W Tripp	408 California st
Gold Run M Co	Nevada Co Cal	7	25	Aug 7	Sept 15	Oct 7	C C Palmer	Cor Market & Spear ate
Greenhorn G M Co	Cal	4	10	Aug 10	Sept 15	Oct 6	J F Lightner	438 Montgomery st
Hartford M Co	Washoe	2	20	July 13	Aug 13	Sept 1	E F Stone	419 California st
Heckerdorn G & S M Co	Cal	13	25	July 7	Aug 10	Aug 29	P J Roberts	620 Washington et
Magenta G M Co	Grass Valley Cal		1	50	June 27	July 30	L Kaplan	Merchants' Ex
North Fork M Co	Plumas Co Cal		4	1 50	July 24	Aug 24	A Martin	520 Washington st
Omaha Alpha M Co	Amador Co Cal		8	75	June 23	Aug 31	L Kaplan	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada		2	10	July 1	Aug 6	C S Neal	419 California st
San Marcial S M Co	Mexico		14	1 00	June 18	July 28	C F Schulze	426 Montgomery st
Stanislaus River M Co	Cal		3	15	July 20	Aug 19	W Stuart	113 Leideedorff st
Starr King S M Co	Nevada		6	25	June 11	July 14	L Kaplan	Merchants' Ex
Tecumseh G S & C Co	Cal			25	Aug 5	Sept 5	J W Clark	418 California st
Umpire Tunnel & M Co	Utah		3	5	June 29	Sept 2	P A Eakins	230 Kearny et
Wonder G M Co	Cal		2	10	July 18	Aug 18	David Buck	331 Montgomery st
Wyoming G M Co	Nevada		3	25	July 23	Aug 31	Sept 18	W J Gunn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Baker Hill M Co		Frank Swift	419 California st	Annual	Aug 26
Exchequer M Co	Washoe	Called by Trustees	Merchants' Ex	Special	Aug 29
Seg Caledonia	Washoe	A C Ryce	308 California et	Annual	Aug 27
Segregated Caledonia M Co	Washoe	A C Ryce	308 California st	Annual	Aug 27
South Comstock M Co	Washoe	J M Buffington	Marchants' Ex	Annual	Aug 17
Ward Beecher Cons M & M Co	Nevada	David A Jennings	401 California st	Annual	Aug 18
Yellow Jacket S M Co	Gold Hill Nev	Called by Trustees		Special	Aug 19
Yellow Jacket M Co	Washoe	G W Hopkins	Gold Hill	Special	Aug 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Baar Quartz M. Co.	Cal	W. L. Oliver,	316 California st,	30	July 27
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Aug 10
Cederberg G. M. Co.	California.	D. M. Bokes.	420 Montgomery st.	50	Feb. 9
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Aug 10
Con. Amador M. Co.	Cal.	F. B. Latham.	402 Montgomery st.	50	April 8
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	July 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	July 13
Diana M. Co.		N. C. Faseet.	220 Clay st.	1 00.	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California et	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California et	1 00	Dec 1
Keystone Quartz M Co		L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Novada.	E. B. Minor.	411½ California st.	50	Dec 5
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Providenca G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

The stock market has been feverish during the past week. The general tone of the market has been no better, but there have been one or two efforts to move up in certain stocks. In the Comstocke an npward movement in Savage and Opbir was noticeable. Reymond & Ely and Meadow Valley at Pioche also showed a slight advance. California and Idabo stocks remain very dull.

Belcher turned out 12,300 tons of ore last montb, which yielded $694,000—$56.50 per ton. The expensea were $316,000, and from the $378,000 tbat remained, $312,000 was paid out as a dividend on the 10th inst.

The Chariot mill and mining company hae paid ite first dividend of 40 cents per share. This mine paid its owners bandeomely before it was incorporated, and we have expected to see it in the list of dividend-paying mines.

Tbe Trustees of the Yellow Jacket miniag company have levied an assessment of $5 per share, amounting to $120,000, delinqaent September 15th. This is tbe eighteenth time that stockholdere have been summoned to respond to a simiiar call from tbe Board, and they are becoming tired of tbe monotony. It is just three years since tbe last dividend wae paid, and the total amount tbns disbursed ie only $1,878,000. The eighteen assessments levied amount to $2,304,000. Witb the collection of the present levy, tbe Yellow Jacket mine will have oost stockholders $426,000 more than tbey have got ont of it in dividende.

The Eberbardt mining company to be in faehion proposee to increaee tbe capital stock. The traeteee have called a meeting on tbe 29tb of August to take into consideration the propriety of increasing the capital stock from $2,400,000 in 8,000 shares to $10,000,000 in 100,000 sharee.

Tbe Opbir sqnabble has been settled, the last stumbling-block having been removed by the agreement of both sides to psy their own legal fees. A meeting of the stockholders bas been called by Judge Stanly, at the request of the holders of two-thirds of the 108,000 ehsres, to be beld on Satarday, to conelder the propriety of choosing a new Board of Trustees.

Prices have varied this week as follows: Alpha, $11.25 and $12; Belcher, $61.25 and $66; Beet & Belcher, $24 and $25; California, $37.50 and $39; Chollar, $50 and $54; Cons. Virginia, $73 and $79; Crown Point, $68 and $73; Exchequer, $61 and $65; Gonld & Curry, $18 and $19; Hale & Norcross, $40 and $44; Imperial, $7 and $8.25; Kentuck, $13 and $14; Ophir, $19.50 and $21.75; Overman, $30 and $33; Savage, $56 and $69; Seg. Belcher, $72 and $78; Silver Hill, $6.50 aad $7; Union Cons., $10.50 and $12; Yellow Jacket, $69 and $74.50; Eureka Cons., $11 and $12; Meadow Valley, $6.25 and $7.25; Raymoad & Ely, $11.75 and $15.

Prominent advancee from highest prices of last week are aa follows: Belmont, 62 cents; Eureka Cons., 75 cents; Meadow Valley, 75 ceats; Raymond & Ely, $2; Best & Belcber $1; Californaia, 50 cents; Chollar, $1.50; Confidence, $1; Crown Poiut, $3; Exchequer, $1; Jnstice, 50 cents; Overman, $1.50; Savage $5.50; Seg. Belcher, $3; Union Cons., $1; Yellow Jacket, $1.50. Prominent declines from highest nrices of last week were as follows: Pioche, 50 cents; Bellevue, 50 cents; Chariot Mill, 50 cents; Mahogany, 50 cents; South Chariot, 50 cents; Belcher, $1; Cons. Virginia, $3.50; Dardanelles, 50 cents; Knickerbocker, 50 cente; Occidental, 50 ceute.

THE town of Colnmbia Hill is nesrly mined away. Tbere is nothing left but a narrow strip of land, not more than 250 yarde wide, on whicb the bouses are situated. Were the houses removed, not a foot of tbe ground on whicb tbe town now stands wonld be visible in a month afterward. Great efforts, we learn, are being made to indnce the house owners there to remove tbeir house, so that tbe owaers of the mines can wasb away tbe gravel on wbicb the town is built. Tbe honse owners are stnbborn, aad won't yield.

MINING SUMMARY.

THE following ie mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALAMEDA COUNTY.

LIVERMORE COAL MINE.—Livermore *Enterprise*, August 8: Tbe body of coal now being worked is daily improving in qnality snd qusntity. The company sre expecting to ship a quantity of coal to msrket in a short time. The followiag is a list of coal mining and cosl prospecting compsnies in onr county, eome of wbich ere incorporsted, and others with the intention of being so. Is ours a mining county? Livermore Co., nesr Livermore; Blsck Hawk Co., near Miles; Worland Co., near Hsywood; H. A. Co., nesr Haywood; Heller miae, four miles from Haywood; Oakland Co., nine miles from Haywood; Call Canon, five miles from Haywood; New Prospect Co., niae miles from San Leandro; and Tunnel Co., five miles from Ssn Leandro.

ALPINE COUNTY.

MILLS STARTING.—*Chronicle*, Aug. 1: On Moudsy next, tbe Exchequer quartz mill and Monitor and Northwestern Co.'s mill end furnsce will start np. The Excbeqner will run ou a lot of the richest ore mined in this county. It is thonght there is sufficient higb-grade ore now at tbe mill to enable the manager to pay off the indebtedness of tbe company before working the low-grsde—$30—ore. High-grade ore ie being tsken from the upper tunnel of this miue.

AMADOR COUNTY.

FIDDLETOWN.—Amador *Ledyer*, Ang. 18: This town does not present as lively an appearance as it did in the flush times of placer mining. Instead of depending on tbe mines alone for its support, tbe town hss become the bnsiuess center for a large section of rich agricultural conntry in this snd El Dorado conntiee. Jndge Pnrinton supplies water throngb bis large ditch to the enrrounding country for mining and irrigation parposes. It is valnable property, and csn be extended with small expense to quertz mille at Lower Rancberia, Drytown and Amador City, where tbe water can be nsed to great advantage by tbe mills and mines; and tbe time is not far distant when the extension will be made.

THE Valparaiso mine bids fair to be one of the best in the conuty. The rock is of good character, showing free gold and snlphnrets of the best quality. Tbe ledge is large, well defined and easily worked. Tbe main shaft ie 130 feet deep, and all that is required is a mill and machinery to make it a good paying mine.

STILL IMPROVING.—*Dispatch*, Aug. 8: Reporte from the Amador quicksilver mine continne to be more and more favorable as the work of development progresees. A well defined lead or vein has already been discovered and explored for a considerable distance, but the full extent of the vein is, of course, not yet known.

BUTTE COUNTY.

NEW DIGGINGS.—Chico *Enterprise*, Ang. 7: A discovery has just been made of new and important diggings on the ridge of tbe west bank of the Feather river, about 5 miles from Dogtown. More than 2 miles of the ridge has been staked off into cleims. The prospects made, having been thorough, leave no donbt of the richness of tbe mines, and every preparation is being made for working them. At present, ditches are being dug to briag water from the Hendricks ditcb, bnt tbis is only intended for temporary use, aa Mr. Whitman, from Sau Francisco, is about to construct a ditcb from the bead-watere of the Feather, which will lead tbe water directly upon the claims. Onr iaformant says that in a week or two there will be employed from 150 to 200 ditchers. By D. Boyer we were shown specimens of the gold taken ont by prospects. It is clear, bright, lamp gold; and snch specimens are the best indications of gold in large qnantities.

CALAVERAS COUNTY.

UPPER COUNTY MINING ITEMS—WEST POINT DISTRICT.—The Zacatero continues to supply the mill with a fair quality of ore. Tbe mill consists of ten stamps, weighing 750 pounds eaoh; 2 Hendy concentrators, and 2 Wheeler psns, at present. The Modocs are extracting pay rock pretty lively. The waterpower boisting works of Haskins & Co.. are completed; work in tbe mine has been resumed. A Frenchman who has been ranning a tunnel into a lava ridge, near the old Hatfield ranch, etruck good gravel a short time ago which will insnre him $10 per day, even working in the manner he is now.

FURTHER FROM THE SAN BRUNO.—Thursday of this week the crushing of 100 tons of San Bruno rock, in Garland's mill at Mosqnito, was concluded and the batteries cleaned np. The ore netted an average of $25 per ton. An immense chute of pay ore hss been developed in the San Bruno. A tunnel 200 ft. in length bas been run on the ledge since striking the cbimney, and still there are no indications of reaching the end of it. Rock is being miaed rapidly, and another crusbing of 200 tons will soon be in readiness for tbe stampe.

RICH STRIKES AT THE SHEEP RANCH.—A correspondent informs us that new diecoveries in qnartz have recently been made in Sheep Ranch distriot, and that tbings generally, in that loosility, are in a flouriehing condition.

EL DORADO COUNTY.

SOAPSTONE LEDGE.—*Republican*, Aug. 6: Fif-

teen or twenty tons of the ore taken from ths Sospetone ledge at Chili Bar, ie being haaled to the Breweter mill, in order to test its richuees. All indications thus far werrant the belief that it will prove a good paying ledge.

INYO COUNTY.

Sylvania.—*Independent*, Aug. 1: Messrs. Darrah & Gregg returned from thie dietrict a dey or two eiace, having taken a look at about every location in the district. The sum of their couclusions is eimply thus: That the district everywhere ehows on the surface an ahnadance of the very best smeltiag ores. That the bullion is fully twice as rich as that from Cerro Gordo, and cau be produced, ton for ton of ore, fully 30 per ceat. cheaper. While the workinge, so far, all of which are merely surfaoe comperatively, show as flatteringly as could he wished, yet the fact remains to be demonstrated by deepor aad more extensive workinge whether large nud permaaent bodiee of ore exist there, sucn as to justify the erection of reduction works on a large ecale. For this purpose much more capital than the miners now poseess is imperatively required.

MARIPOSA COUNTY.

Quartz Mining in Oathay's Valley.—*Gazette*, Aug. 8: Last week our correepondent noted the new diecoveriea made in quartz in Cathay'e valley. Seversl veins have been taken up quite rocently, aad the prospect ie favorable for an exteneive paying district.

MERCED COUNTY.

Fortune Huntino.—*Valley Argus*, Aug. 8: Thos. G. Agaew, an experienced quartz aud silver miaer, and ex-Sheriff S. M. Brown, left here on Thursday moraiag last, properly eqaipped and provisioned for an extended tour in the Sierra Nevada rauge of mountaine in search of new and rich gold aad silver fields. Their object is to develop a lode discovered some years ago by Mr. Agnew, from the croppings of which he obtained some rich specimene of rock.

NEVADA COUNTY.

Moore'a Flat Items.—Cor. Nevada *Transcript*, Aug. 8: Onr mines are all rnnning full handed. The Blue Bank Co. have got about ready to clean up, and will, in all probability, do so this week.

The Boston Co. sre running 1,600 inches of water, aad are trying to clear out the digginge which were filled up by a elide last wiuter. The new tunnel is heing driven ahead very rapidly.

The Illinoie mine ie now being "hottomed up," and powder drifts sre aleo being run.

Joseph Ollson is running his mine at Orleans Flat, snd will make a clean-up in a few days.

The Milton Co. are tearing up the ground at a lively rate, and have got their ditch dug around to Chalk bluff, four miles ahove Moore's Flat. At the rate they are makiag the ditch it will take but a few weeks to reach this place. One yesr from the time water is turned into the new ditch, Moore's Flat will be one of the best mining camps in the State.

A number of accideats hsve occurred here lately. Sam Blight was hurt last week in the Boeton tnnnel hy a large howlder falliug on him; but he is now up snd around ngain. Walter Wells, while down in the cañon of the Illinois claims, repsiring some flume, made a misstep and fell over a 30-ft. dump; he was all right again, however, ia a few days. Peter Hueeton, a miaer employed in the Orleans Flat mine, got his eye badly hurt. Phil. Carl got his leg badly hurt while workiug on the ditch, by a log rolling on him. Joseph Miller got his toe mashed, by a piece of rock falling on it from the top of a cut in which he was working.

Inaho.—*Tidings*, Aug. 8: The 900-ft. level is now heing opened and several levels above are turaing out good rock iu large quantities. The mschine drills coatinue to do work iu the most eatiefactory manner aad the foundation for the immense new pump will soon be laid.

Eureka.—This mine is still in su nncertain state as to its future. The ore chute which at one time rendered thia mine second to none in the State, the pitch or dip of which carried it into the Idaho grounde, plsciag that mine on the high plane it now occupies, is nearly if not qnite exhausted; and though several levele have been sunk below, no new honanza has yet been found. We underetand that a grand downward movement of two hundred feet without stopping to drift is now in progrees and very soon to be finished, when the ledge will again he thoronghly prospected and—well if good ore ie found on this level it will be a great thiag, not only for the Eureka but for the general mining interests of Grass Valley.

The Coe mine, believed to be a direct continuation of the lode upon which are the Eureka and Idaho mines, is being vigorously and at the eame time economically explored. The ehaft ie now down 500 feet and drifts runniag each on the ledge.

A pan of decomposed stuff from under the New York Hill lode where lately cut acroes, wae washed out in onr presence one day this week and full four dollars in gold the reeult. Several pans taken from near by were nearly as rich.

It pays to go after theee old abaadoned mines sometimee and prospect them with the improved appliances now extaat. The following from the North San Juan *Times* showe what resulted from one such eeekiug: "Henry Fowler of this place reports that he and a company of prospectors have made a rich etrike in the old Urisco diggings, situated near McMurray'e saw mill, on the Moore'e Flat road. From one doller to five dollars to a nan of gravel are ths resulte. These diggiags were worked eome years ago with poor resuits and were evsntually abandoned by their original owners."

PLACER COUNTY.

Mining Operations.—*Argus*, Aug. 8: A few days since through the courtesy of eneriatendent Croesmaa we had the pleasure of looking through the mines under hie charge. We found operations progressing very favorably in the Bellevae miae, end the prospects looking well. Coneidernble quantitiee of high grade ore are heing taken ont, and everythiag looke favorable for the developmeat of a first-class mine. The clean-up from the St. Patrick mill on Moaday, which is running on ore from the Bellevue, wae highly eatisfactory. The resnlt from 208 tone orushed, is 446 ouaces of gold velued at $14 an ouace, or $6,244. Thie would be a yield of $30.04 per ton, and to thie muet be added the valne of fifteen tons of high grade eulphurete from this and the previous ran, which will be shipped to San Francieco for reduction.

Mining at Gold Run.—The Englieh company which bought the old Brogan olaim st Gold Run, have been engaged in sinking a ehaft in order to teet the value of their ground, and within a few daye have reached the hed rock at a depth of 180 feet, finding abundant evidence of the richness of their claim. The company has made an arrsngement with the Gold Run mining company, for the use of their tunnel to wash through. The importsnce of the result of opening this shaft can be understood when it is remembered thst this shaft penetrates the Great Blue Gravel beds, on which the hopes of miners at Gold Run and Dutch Flat now hang, and for the working of which two coetly tunnels are being run. The extraordinary richnees of the lower bed fixes the vnlue of the blue gravel, and assures the mining future of these important towas. Were it not for the tuanel of the Gold Run mining company whioh is now being driven, this valuable bed of gravel could not be worked, aad mining would be at an end. As it now is, for the next fifty years, we may look for heavy yields of the preoions metale.

The Orleans Mine.—Mr. Gordon informs us that both the Eclipse and Green mills are etesdily poundiag away on ore from the Orleans, crushing ahout eleven tons a day. The mine is turning out a high grade of ore, and the prospect continnes of the moet favorable character.

The Eveaing Star mill on Rock creek is heing fitted up, and will in a few days start up on ore from the Auburn mine.

SAN DIEGO COUNTY

Shenandoah.—*World*, Aug. 8: Mr. Nash, who arrived yesterday from the Shenandoah mining district, reports splendid results from his ledge. He is now down 60 ft., and says the character of the ore being brought to the snrface surpaeses his most sangnine expectations. Mr. Nash will leave for San Francieco in a few days to make arrangements to purohase a 10-etamp mill and place it in immediate operatiou.

SANTA BARBARA COUNTY.

The Cinnabar Mines.—*Index*, Aug. 8: Work is progreesiag on four of the locatioas on the great cinnabar ledge in Santa Ynez valley, juet north of Santa Barbara. A shaft is down fifty feet on the Jones location, and a tunnel has been carried in 52 feet on the Barolay claim. Twenty-four feet more aud the ledge will be reached at a point 180 feet below the surface.

TULARE COUNTY.

Work in the Mines.—*Times*, Aug. 8: We are iaformed hy parties who have just returned from Mineral King district, that many companies are busily engaged in working their claims. The tunnel in the White Chief is now about 15 ft. in length; that in the Sir John Franklin about 10 ft. We were shown some specimens of rock from the latter tunnel comiag 30 ft. from the croppings of the lode. They have the sppearance of containing a high grade of ore, aad good judges eay they contain both silver and gold. Parties are aleo tunneling in the Black Wolf, Lady Alice, Lady Franklin and Salt Grsss lodes.

TUOLUMNE COUNTY.

Chappaaal Mine.—*Union Democrat*, Aug. 8: This miae, adjoining the Buchanan, bids fair to become very valuable. This week the superintendent brought down the result of 8 tons, worked in arrastra, which paid $60 to the ton, of retorted gold.

Daniel Hennessy and P. King, who have worked steadily for a long time on a quartz vein on Saw Mill flat, we learn, made a good strike on Tuesday, and have a fiae prospect ahead.

VENTURA COUNTY.

Oil Springs.—Cor. *Signal*, Aug. 8: I will give you a description of the petroleum springs discovered laet week in the northeast part of Ventura county on a branch of the Sespe creek, about twenty miles from the coast in a direct line. They are situated on the bank of a gulch, and there are within a distance of three-quarters of a mile at least 100 flowing springs, and in such quantities that it flows into the gulch where it stands in pools from one to three feet in depth. There are now at least one hundred and fifty barrels in the gulch that could be dipped up without any trouhle; and by opening the eprings the flow could be increased to at least oue hundred barrels per day. They have heen taken up and men will be put to work on them immediately.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Gold Hill *News*, Aug. 6: Daily yield, 300 tons of ore. The ore breaets, both north and south, on the 1,300-ft. level, are yielding ore of a fine grade, while those on the 1,400-ft. level sre openiag out richer every day. The north winze, No. 2, from the 1,300-ft. level, will connect with the 1,400-ft. level to-day, which will greatly aeeiet in the ventilation aad cooling off of that portion of the mine. A large force of workmen are employed on the new mill, snd most of the hesvy frame and sill timbers are finished ready for erection. The foundation walls ars fast approaching completion and much of the machinery ie alresdy on the ground.

Opnir.—The connection has been completed duriag the past week hetween the up-raise from the eouth drift on the 1,700-ft. level, and the winze sunk to meet it from the 1,465-ft. level, giving the long-desired ventilation of the 1,700-ft. level, cooliag it off, and enabling the commencement of preparations for cross-cutting and developing that portion of the mine. The ore breasts, on the 1,465-ft. level, contiaae to improve, while the ore hodies being prospected in both cross-cute No. 1 and the winze heing sunk from the 1,300-ft. level ehow better every dsy. At the present rate of extracting ore from the mine, a gain of 300 tone of ore in the dumpe, over the amount orushed, hse been mede during the paet three weeks.

Sutro Tunnel.—With the efficient aseistsnce of the Burleigh drills, the main-header is now progreesing nt the rate of nearly 70 ft. a week toward the Comstock lode. Length of tunnel to-day from the mouth to the face of the main header, 6,434 ft. Owing to the cooler weather of the laet few days the temperature at the face of the tuanel is conaiderably decreased, allowing the workmen to make hetter progrese than they have hitherto been able to accomplieh. The Lyon county *Times* gives the following as the indioations of the thermometer: Temperature at 12 M. header, 76 deg.; shaft No. 1, 74 deg.; mouth of tnnnel, 50¼ deg. Total length of tunnel, includiag the portion completed from the bottom of shaft No. 2, now ahandoned, 6,834 ft.

Crown Point.—Daily yield, 550 tons of ore, which is being extracted from the 1,000, 1,200, 1,300 and 1,400-ft. levels. The mine is looking haadsomely in all parts. The new incline machiaery is working succesefully, and fully meets the expectations of the Superintendent. It is calculated that its introduotion into the miae will effect a great saving in ropes and other hoisting machinery. While work in the mine was suspended by the putting-in of the new machinery, the Superintendent improved ths opportuaity by having all the various drifts put in good working condition.

Siebra Nevada.—A portion of the hoisting mschinery has been tested, and found to work with utmost smoothnees and perfection. Daily yield, 65 tons, keeping the mill steadily running. The ore-breaete in the old upper portions of the mine are looking well and yielding finely.

Florida.—New shaft down 226 ft. to-day. During the last 20 ft. the character of the rock has changed, and granite has become predominant.

Sutro.—The main west tunnel is still driven vigorously ahead, the face in hard rock, which blaets out splendidly and admite of excellent progress.

Savage.—Sinking the msin incline helow the 2,000-ft. level is making steady headway. All cross cutting and proepectiag on the 1,900-ft. level has beeu stopped for the present. Driving the main south drift on the 2,000-ft. level to connect with the north drift from the Hale & Norcrose for ventilation purposee, is being prosecuted with all the vigor possible.

Justice.—Sinking the main inoline is making good progress, the rock in the bottom working finely. The seepage of water continnee qaite strong. Work on the lower levels of the old Waller Defeat eection of the mine is again being vigorously prosecuted. Daily yield, 40 tons of ore.

Tyler.—The esst drift at the eecond-station level is sgain being driven ahead.

Leo.—The ledge is about four feet wide, and carries numerous seame and feeders of favorable looking quartz whioh will doubtlees concentrate into another good ore hody when the rock gets soft again.

Succor.—The hoisting works of the Grand shaft are again in full operatioa. Cleaning out and retimhering the shaft prsparatory to resuming sinking is nearly completed. The mill is again in full operation.

Occidental.—The east drift started to crosscut the ledge 88 feet helow the tunnel level is in 11 feet, the face in ore that assays from $24 to $27 per ton.

Daney.—There are evident indioations of a near approach to the main ledge.

Silver Hill.—The face of the main south drift at the third station is in a body of brown hard quartz of a very favorable character.

Lany Beyan.—Sinking the main shaft is making excellent headway, the bottom oeiag in a mixtare of olay, quartz and porphyry, with a considerahle flow of wster, indicating a near approach to the main ledge.

Crown Point Ravine.—The ore in the face of the main south drift on the 300-foot level ehowa much of an improvement during the week.

Buckeye.—The extraction of the ore at the eouth winze on the first station level has been commenced.

Knickebbocker.—The 600-foot station is completed and a drift started to cut snd prospect the ledge.

Mint.—The ehaft ie down 280 feet, the bottom in hard hlastiag ground.

Union Consolidaten.—Still driving north oa the 1,300-foot level of the Ophir shaft, following the west wall, and occasioaally ontting bunches of quartz of a very favorahle character.

Genesee No. 2.—Plenty of timber heing received, and work will he reeumed einking the new ehaft next week.

Caledonia.—Re-timbering a portion of the main shaft is making excellent headwsy.

Baltimoae Consolidaten.—Driving the prospectiag drifts to cnt the ledge on the 750-foot level ie making rapid progress.

Koseuth.—The new machinery ia working with the utmoet perfection, and sinking the msin ehaft has been reeumed.

Imperial-Empire.—The connection of the south drift on the 1,850-ft. level and the winze from the 1,700-ft. level wae completed two daye ago, ventilatiag the level and enabling ths commencement of croee-cute, and further prosuscting operatioas to determine the value of the ore vein. As eoon ns air was obtained, sinking a winze below the 1,850-ft. level wae oommenced, the bottom of which is still in fins ore.

Hale & Norcross.—Dsily yield, 40 tons of ore, from the old breaete on the upper levele, which show no change of interest. Sinking the main incline below the 2,000-ft. level ie making fair progress.

Belcher.—Daily yield, 450 tons, from the 1,200, 1,300 and 1,400-ft. levels. The new air ehaft is down 360 feet. The ehaft starting from the 850-ft. level to meet it is up 70 feet. Work at hoth ends is being pushed ahesd with all poseible diepatch. The temperature of the lower levels ie improving considerable of late. The various stopee and ore bresete throughout the mine are looking finely.

Bullion.—The air facilities being too poor to admit of fair progress in the north drift on the 1,700-ft. level of the Imperial shsft, the company have erected a separate blower and put in large 10-inch squsre sir boxes for conducting ths air directly to the fsce of thsir drift, thereby enabliag the workmen to now receive it freeh and cool from the eurface.

Overman.—Sinking the main shaft is progreesing at the rate of 2 ft. per day, the rock at the bottom still heiog very tough and hard blasting.

Dardanelles.—The new working shsft is down 73 ft. to-day, and timbering ie commenced. This is one of the moet important shafts heing sunk on the southern portion of the Cometock, as owing to its location it will strike the same good ore body sready developed in the Overman, and which runs into the Dardanelles.

Gould ann Curry.—The prospecting operations on the 1500-ft. level have developed nothing of value during the week. At the fourth station level a large hody of hsrren quartz hae been developed, but no ore found as yet, that will pny for extraction and milling.

Chollar Potosi.—Daily yield of ore, 100 tone, the assay value of which is $30 per ton. There is little or no change in either the looke or yield of the ore-producing sections of the mine.

Globe Consolidaten.—The ore brests above the tunnel level are looking finely. The fsoe of the north drift from the upraise is still in fine ore. The west drift from the bottom of the winze, 95 ft. from the head of the incline, is still in ore of a fine quslity, greatly resembling the genuine Cometock ores.

Pictou.—The main tuanel is now in about 480 ft., and the rook in the face ie softer at preeent than it has heen for eome weeks pset. A blacksmith ehop, csrpenter shop snd other convenient and necessary arrangements have been erected at the mouth of the tunnel.

Utah.—The flow of water from the hottom of the shaft still contiaues, although not eo strong as heretofore.

Woonville.—The crosscuts north on the 300-ft. level have developed a fine, continuous vein of pay ore 300 ft. in length. The ore body soath of the shaft is aleo opening out very favorably. It is expeoted that the Ramsdell mill will be started up on ore from this mine during the coming week.

Yellow Jacket.—The main east drift on the 1,750-ft. level ie being steadily driven toward the ore vein, the ground in the face working quite favorahle.

Julia.—The enlargement of the msin shsft is rapidly approaching completion. The pump etatioa at the 750-ft. level is nearly completed.

Dayton.—The water has been reduced 10 ft. helow the atation level, where it was first tapped, proving conclusively that the pocket has been drained.

Nevada.—The new tnnnel, to open the second level of the mine 100 ft. beneath the present good ore developments, is heing actively driven ahead.

Mining Notes in Kern County.—A correspondent from Sageland, under date of August 1st, favora us with the following items concerning mining affairs in that vicinity: The St. John ie still at work, and ie going to put up larger hoieting works in the course of a month or two. Mr. Denker is working quite lively since he started; and, as I hear, with the most satisfactory results. The Piute is working away as hard as ever. Ths machinery for the Big Blue ie arriving and will aoon be up. The Havilah tunnel is stopped, and the town is ahandoned, except by a few, who still live iu hopes of better times. The weather ie pleasant, though we had a storm a few days ago.

Quicksilver in San Luis Obispo County.

We condenee the following from the San Luie Obiepo *Tribune* of Auguet 1st, under the head of

The Cochrane Mine.

This mine is near the head-watere of the Santa Rosa creek, a dietence of about five milee from Cambria. It wae discovered a year ago, but attracted no epecial attention till qnite recently.

Dr. R. A. Cochrane, of San Francisco, came to tbis region some few monthe ago for the pnrpose of inspecting our mining intereets. He examined several mines, and selected this as being the best in the district to inveet in. He accordingly bonded tbe claim, embracing 4,500 feet, being a conecolidation of three separate locatione, for the sum of $47,000, paying $2,000 down and the balance withiu twelve months. On purchasing the claim he immediately weut to work doveloping it, and he has already demonstrated tbat he has got bis hands into one of the richest corners ever found in thie region.

Tbe mine is a vast deposit. The matrix of the ore is composed of a coerse sandstone and a conglomerate interstratified. This conglomerate ie composed prinoipally of shale and quartz pebblee cemented together by silica. The lodo can be traced superficially in length east and west from 3,000 to 4,000 feet. The main depoeit, so far as known, ie where the three olaims join, the principal work having been done there. The greateet width of the vein is 100 feet. There are two mein tunnele penetrating the hill. The ore does not lie in epots, with here and there a specimen in aight, like some mines, but there seems to be a vast body which cannot help making its possesors rich. They have already in these tunnels, backs of 75 feet and for every foot of tnnnel the backs increase a foot and a half, owing to the abruptnese of the hill.

The doctor hes good ideae of how the cinnabar got into these hills. The preeence of eand and pebbles, he argues, demonetratee that it ia an aqueous formation produced by currents. The mode of occurrence is through fumes. There are alwaye terminal springs found in connection with cinnabar. Each particular pebble in this conglomerate appeare covered with cinnabar. Small boulders—the hardest kind of flint rock—are fonnd aleo. All eround thie flint rock, on the eurface, cinnabar is deposited, it not having been able to force its way into thie hard subetance. On breaking thie mass of silica no indiceetion of cinnabar ie seen, showing that tbe fumes of vapor could not impregnate it.

Near the Cochrane mine there are several extinct hot eprings indicated. It is our opinion that thie is the moet recent formation of any mine on tbis coast. Fossil remains found there demonstrate tbis. Everything evidencee that the hill ia of comparative recent origin. Among quicksilver men the more recent the formation the better the mine ie conaidered, because there is lesa danger of internal heat to volatilize the cinnabar. There are other evidences of its recent origin than those we have referred to. From the top of the chimney to where they are now working, tbey find disseminated all throngh the mass iron pyrites, which show not the least indication of decomposition. In otber mines, ae, for inetance, the Pine Mountain region, evidently older in formation, the surface ia covered with red oxide of iron, produced by decomposition of iron pyritea.

In the Oceanic tbese iron pyrites are sometimes cubical and regular maseos, having a firm radiated structure, and even experts havo mietaken them for copper or gold.

It is Dr. Cochrane'e intention to put up a fifteen-ton furnace near the mine, in the course of a few montbe. The facilities for working the miue are excellent; plenty of wood and water being in close proximity to it. If the body of ore whioh is now in aight continues to be of the eame grade for a few hundred feet furtber in the mountaiu, it will develop a mine aecond not even to tbe Almaden, which, for twenty years, bae flooded the markets of the world with quickailver.

Argentiferous Lead Mines in Arkansas. Great exoitement haa been oreated recently by the discovery of extensive silver-beering lead depoeits in Montgomery county, Arkaneee, forty miles weet of Hot aprings. Tho vein is enclosed in a matrix of quartz, of all degrees of richneee, from ten up to sixty per cent. of gelena, or from aeven up to forty-five per cent. of metallic lead, with no contaminating metals but eilver and arsenio. It is cleseed as forty to fifty ounces silver ore. The wall rook ie hornblende elete; the ledge aeven feet in width at a depth of fifteen feet. Forty claims have already been located, ae per advices to the St. Louie *Mines, Metals and Arts* of July 23d.

Mining Machinery Removed.—The extensive machinery, batteries, etc., of tbe Banner mine, near Nevada city, have been sold, and will be removed at once and put in place at other mines—a portion will go to the Wyoming mine and the remainder to Brnce Dee's mine, upon both of whioh mills are to be erected. Both of these mining propertiee are giving every encouragement of making first-olaes mines, and tbe development which has been made upon them warrante the building of mills without further delay.

How Thermometers are Made.

A writer iu the Polytechnic *Bulletin* givee the following description of the method of making thermometers at a manufacturing establishment in Chester, Pa.:

The glass tubes, ae received, are about a yard long. A boy picks them with a bard steel knife, and breaks them into the lengths required. The bores, whioh are flat, are compared by meane of a lene with those of ten standard eizes, and the tubes assorted accordingly. They are then paeeed to the blow pipe table. Eech glass blower has a foot bellows, and ueea an oil lamp. Melting the glass at one end of the tube, he blows it into a bulb by preesing the aides of a hollow india rubber ball attached at the other, proportioning the size of his bulb to the bore of his tube, and ascertaining tbe size by using a pair of callipers. While the bulb is hot the tube is inverted in mercury, which, as the bulb cools, partially fills it. The tube is then withdrawn and a short India rubber tube attached at ite open end. Into this mercury is poured; thet iu tbe bulb is boiled to expel the air, which riees up throngh tbe mercury in the India rubber tnbe and an atmosphere of the vapor of mercnry now fills the glass tnbe and bulb. Ae this condenses, the mercury in the India rubber tube takes its place, when thie tube, with auy mercury remaining in it, ie removed. The tube is now warmed, end the open end of the glass tube is hermetically aealed.

The bulb and a portion of tube are immersed in melting ice, and the hight of the mercnry marked; they are then traneferred to a bath at 62° Fahrenheit, and the hight marked; next, to a bath of 92° and the hight marked agaiu. The length of the three apaces of 30° each are now carefully measured. If they are exactly equal, tbe bore of the tube ie aupposed to be uniform, and the degreea laid off on the brase scale of the thermometer are all made of the eame length. If the apace of 30° eaeb are not fonnd to be exactly equal, tben, by means of a highly ingenious dividing engine, the degreee on the acale are made to increase in length as the caliber of tbe tube diminishes. When the plate has been divided and tbe figures and lettere punched in, it ie passed, laterally, betweeu two rollers, to remove the burr left by the tools. Were it rolled lengthwise the accuracy of the dividing would be impaired. The plete ie then silvered and lacquered, the glass tube attached, and tbe whole slidden into the well known japanned tin case.

The East River Bridge.—Work upon the great euepension bridge between Brooklyn and New York, whicb haa been temporarily suapended, is now resumed. The Brooklyn tower has reaohed au elevation of 222 feet obove high water mark, leaving 40 feet of maaonry yet to be laid. The workmen are engaged upon the arches, several coursee of which are in position. The keystones will weigh 10 tons each, and conatitute the heaviest blocks in tbe atructure, the ordinary stonee weighing about three tons. It is expected that before winter the "saddlea" or eastings over wbich the oebles paes will be iu position. The New York tower is now 123 feet high, and will probably reach 200 feet during the present scaaon. The anchorage on the Brooklyn side is aix feet high, and containe 8,334 feet of masonry. Its total elevatiou will be 66 feet. Ou tbe New York auchorage or on tbe approaches, work hae not yet been begun.

Elasticity of Masonry.

Experiments witb a pendulum at the Bunker Hill monument have rendered the fact familiar to most readere that the eolid maeonry of tbat structure is eensibly deflected by the heat of the sun, which gives a twisting motion to the entire structure every day, commencing with the effect of the rays of the early morning sun on its easterly side, and thence the noonday heat upon its southern face, and tbe afternoon rays upon ite western side. A pendulum hung from the oenter, at tbe top, is thus made to describe a circle at the bottom dnring the day.

A very interesting observation, and one more directly involving the elasticity of masonry, has recently beon made iu connection with the testing of the great bridge recently constructed over the Mississippi river at St. Louis, which bas been deecribed by a correspondent of the *American Manufacturer* ae follows:

Tbe testing of tbe great arcb bridge over tbe Mississippi, at St. Louis, on July 2d, furnished an interesting illustretion of the perfect elasticity of masonry. The bridge has three main spans, a center span of 520 feet iu tbe clear, and two side spans of 502 feet each, with heavy stone abutments and stone piere. The system of the super-structure is tbat of the upright arch, exerting a thruet on the abutmenta and piers. It was e question of interest to the engineera making the tests, whether tbe thrnst created by tbe movable load ou one side spau would have a perceptible effect on tbe pier, and by means of a leveling inetrnment tbe crown of the arch over the midd'e apan waa observed to *rise* one-quarter inch when 14 locomotives were brougbt on the side span, and to *come back to its former elevation* as soon as the load on the eide span wae removed. Thie experiment proved that the thrust from these 14 locomotivee was sufficient to cauee a horizontal deflection of tbe pier of about one-twelftb of au inch. Thie deflectiou must have taken place iu that part of the pier extending from tbe spring of the arches down to the depth at which the pier may be conaidered firmly imbedded in the sand of tbe river bed, wbiob I eetimate at about 65 feet below the spring of the archee. Tbie pert of the pier is, ou an average, about 36 feet wide and 60 feet long, and oonsists of the very best clase of masonry, laid with large stoncs in hydraulic cement. The etone is magneeian limestone, from the quarries at Grafton, Illinois. Above low water the pier is faced with greuite.

Abandoned Yet Rich.—It very frequeutly happens that mining cleims, both quartz and gravel, are abaudoned, or allowed to remain idle for yeers, while there is plenty of gold in such abendoned or idle claims. There are hundreds of instancea of the kind in this district. The North San Juau *Times* of Saturday gives a late instance as followe: Henry Fowler of thia place reporte that he and a company of prospectors have made a rich strike in the old Urisco diggings, situated near McMurrey's aaw mill, on the Moore'a Flat road. From $1 to $5 to a pen of gravel are the resulte. These diggings were worked aome years ago with poor results, and were eventually abandoned by their original owners.—*Grass Valley Union.*

A recent invention makes it possiblo to send four messages simultaneously in opposite directions over a single telegraph wire. If four, why not 44?

A Balloon Expedition Proposed to the North Pole.

Tbe failnre of all North Pole expeditions to discover the secret of the Arctic regione hae stimulated the Aeronautic Society of Paris to attempt an Arctio balloon voyage. Extravagant ae the notion may appear, it is not more extravagant than Professor Wise's project of croesing the Atlantic ocean in a balloon. One advantage of an aerial Nortb Pole voyage ie the temperature of the Arctic regions, which prevents the escape of gas from the balloou to such a degree that it is supposed to be quite feasible to conetruct a balloon which will last a three monthe' voyage. Another advantage is the absence of darkness in the Northern regions. If the balloon leavee in the eummer time, the sun will illuminate the heavens during the whole trip. Tben, again, the permanency in the direction of the winds around the regious of the North Pole would be another point in favor of the trip to the North Pole over that across the Atlantic. Tbe size of tho proposed balloon ie fixed at about 18,000 cubic metres. It is calculated to cerry ten men, three months' provisions, apart from the ballast, a number of instruments, an anchor, and a dragging rope, which will touch the ground, should the balloon eink too near to the earth.

An ingenious arrangement hae also been made to prevent the balloon from rising higher than 800 metree, or about 2,500 feet. The boat of the balloon is to be lined with ebeepskins, and heated with lamps, eo that even if the temperature shonld fall to 32 degreee below zero, outside, it will be five degrees above zero inside. A veesel is to carry the men, the balloon, and the ingredients for the manufacture of the necessary amount of gas, to about eeventeenth degree of latitude. This will leave a trip of about 300 milee to the North Pole for the balloon to accomplish; and the voyage there and back could be made within twenty daye. Everything, however, ie to be prepared for a full three months' trip. Tbe enterpriee ie exciting unueual interest amongst the ecientific meu of Europe; and ie, indeed, one of the most wonderful echemes ever conceived by tbe human mind.

Chinese Market Scene.

Our illnstration represents a eoene in a Chinese market place. The stalls or booths of the sellere are of ratber primitive conetruction, eome of them consisting simply of rude umbrella-shaped roofe and no sides. A Chinese merchant can set himself up in businees ou a very small capital, his stock in trade being limited to a few articles, and hie warehouse portable. This may be seen by any one who takes the trouble to walk through tbe Chinese quartere of San Francisco. On Sacramento street betweeu Kearny and Dupont, for instance, one eide of the street is completely taken up by atalls of all kinds. Tbe butcher shopa are in the atores, while on the eidewalk, on the atepe, and in every possible corner, eit moon-eyed Celestiale with amall traye or baskets, offering for sale vegetables and uninviting Chinese delicacies of every deecription. In the scene shown in tbe engraving, are several cate in cages; but we have never seen any of tbeee animala for eale here. If tho tales be trne that rate are a delicacy with the heathens of tbe Flowery Kingdom, it may be that cate are a more necessary adjunct to the domestic conveniencee of theee people thau tbey are to ue; in which caee they would be marketable produce as well as anything elso.

A CHINESE MARKET SCENE.

The Old Ophir Ore Body Reappears.—On the 1,465-foot level of the Opbir mine a body of ore haa juet beon cut into, whicb containe ore precisely aimilar in appearance to that found in the early daye in the old mine. It is the eame black sulphuret ore, flecked here and there with the eame bright, goldeu-hued pyrites. Thoee who were here iu the early daya of Washoe recognize thie ore iu a moment aa being the same ae that formerly found in the lower levels of the old mine. The ore deposit aeems to have jumped from where it was lost in the old to where it has been found in the new mine. We eey "jumped," but it would more correctly describe the situation if we eaid that e huge maes of porpbyry came in between the two points and cut tbe ore off. It is expected that tbe raiee from the 1,700-foot level will be completed to-day. The moment an opening is made between the two levele nemed, their perfect ventiletion will be secured and prospecting operations may then be advantageously conducted throughout the lower aections of the mine. The new ore-body can theu be properly developed and ite ooarse and extent fully defiucd. Rich developments may be expected upon the 1,465 and 1,700-foot levels, as on both there are vaet areae which heve not yet been explored.—*Ter. Enterprise, July 31th.*

Improvement in Joining Gas Pipes.—A new method of joining gas pipes hae been perfected. Inetead of the usual projecting end, the pipes have creases or channela around them. When placed in contact, end to end, a etrip of soft lead is bound about tbem, and pressed tightly against tbe pipes by a wrought iron ring. The advanteges claimed are that the pipes are lighter and more easily cast; lesa lead is required to make tbe joint tight; no heat ie required for applying it; it is quickly done.

Useful Information.

Bleaching Bones.

The curators of the anatomical museum of the Jardin des Plantes in Paris have found that spirits of turpentine is very efficacious in removing the disagreeable odor and fatty emanations of bones or ivory, while it leaves them beautifully bleached. The articles should be exposed in the fluid for three or four days in the sun, or a little longer if in the shade. They should rest on strips of zinc, so as to be a fraction of an inch above the bottom of the glass vessel employed. The turpentine acts as an oxidizing agent, and the product of the combination is an acid liquor which sinks to the bottom, and strongly attacks the bones if they be allowed to touch it. The action of the turpentine is not confined to bones and ivory, but extends to wood of various varieties, especially beech, maple, elm and cork.

If there is any authority on the subject of preparing skulls, it would seem that if only in accordance with the external fitness of things the *Phrenological Journal* should be posted. We notice that in answer to a correspondent the editor of that journal says: The best possible way of cleaning small skulls, such as those of birds and small animals, whose skulls are very thin and not united very firmly by sutures, or cartilage, is to place them by an ant heap, one of the large ones, and in 24 hours the skeleton of a squirrel or small bird would be thoroughly cleaned of the flesh, the ants eating it entirely away. In this case, if it be not allowed to remain too long, the skeleton will be entire, the cartilages holding the bones in place while the soft parts will be all gone.

Human skulls, or skulls of large animals, may be put in a loose sack, or netting, and placed in a running stream in warm weather, and the flesh will be removed; and then the skulls may be bleached on the top of a house by the sun. Some boil the flesh off from both large and small skulls. The best, the only complete way to clean skulls entirely from all oily matter, without injuring the bone, is to submerge them in a bath of ether, contained in a glass vessel with an air-tight cover. The finest preparations are made in this way. Lime, or alkali in any form, takes all the animal matter out of bones, making them dry, brittle and chalky. A little soda, or other alkaline substance, may be applied, in solution, to skulls without seriously injuring them.

Spontaneous Combustion.—We question very much, except under the most extraordinary circumstances, whether either silk or sheep's wool is liable to spontaneous combustion, even in the process of abundance of any kind of oil. On the contrary, cotton, jute, all kinds of hemp and flax, mixed with oil, have an invariably tendency to spontaneous combustion at summer heat. All chemists well know that vegetable substances are more readily decomposed in any way than animal substances. Of course this arises from the more ready oxidation of the ternary vegetable compounds (containing only carbon, hydrogen and oxygen) than the quaternary animal compounds, consisting of the same elements combined with nitrogen. Hair, for example, will withstand decomposition for centuries, while woody fiber, even of the oak or other tree, will rarely last more than a few years if exposed to air and moisture, simply owing to the rapid oxidation of woody fiber. It is common in many of the marsh lands of England to see the pith of a willow tree catch fire spontaneously in summer time. The only apparent remedy seems that of maintaining constant ventilation in all wastes, etc., containing oil. Frequent turning is essential, and we have tried successfully the sprinkling of such waste with waste leys or lime water. It is remarkable that jute warehouses are peculiarly liable to catch fire, in fact all members of the hemp and flax family are to be more feared than varieties of cotton. —*Engineering.*

New Refractory Material.—A scientific correspondent of an Eastern paper communicates the results of some experiments made by him with silica and alumina, in which he claims to have discovered a more perfect refractory compound than any heretofore known. The mineral is reduced to an impalpable powder, and moulded and shaped by the aid of white clay. A set of stove linings was made from these mineral powders, in equal proportions with white clay, which resisted the strongest heat. A sample of the material was placed in a gas retort at Schenectady, where the heat was uniformly 3,300 degrees, and kept there for 35 consecutive days. When taken out the sample was intact, even the sharp edges showing no sign of disintegration. This is a most important discovery. If it can be practically applied, it will prove of almost incalculable value in the manufacture of iron, and in the use of stoves, furnaces and many other directions. We should like to hear how this material compares with the wonderful Pancake rock, of whose merits there is no doubt.

Glue, if kept for some time after being dissolved in water, decomposes and loses much of its strength. Those who use glue occasionally should melt no more than they need at once. Glue is also greatly weakened by being burned or too highly heated.—*Technologist.*

To Remove Ink Stains.—Pyrophosphate of soda may be used for this purpose.

Black Leading of Iron.

Mr. W. M. Williams, in a recent paper on iron, says: In these days of general diffusion of chemical knowledge, it is scarcely necessary to state that the "black lead" or "plumbago" of commerce is not lead at all, or any compound of lead, that it includes no lead whatever in its composition. Neither is it a carburet of iron, as is sometimes stated. It is simply carbon; pure plumbago is pure carbon, impure plumbago is impure carbon. Its proper name is graphite, that is, writing stone. I may venture to describe it as the softest of all solids, and have often pondered wonderingly upon the apparently unnoticed, but very curious, chemico-mechanical paradox that the hardest and softest of all the solids existing upon this earth are, chemically speaking, the same substance: graphite and the diamond, being both carbon.

It is this wonderful softness, combined with persistent solidity, that enables us to smear it over any other solid surface, and thus obtain a solid paint, all body and no medium. For the class of castings to which it is commonly applied, where its application can be readily repeated, and where it is not exposed to the direct action of water, it is unrivaled as a protecting film to iron. Its chemical action, so far as it does act when cold, is reducing or anti-oxidising. Its color and tone are so similar to iron that Mr. Ruskin himself could scarcely make any æsthetic objections to its use, and the film is so marvelously thin that it obliterates nothing. I have never met with any attempt to estimate the thickness of a well brushed film of graphite, but I suspect that, if a hundred strata of such films could be piled in contact with each other, their combined thickness would fall short of that of the thinnest gold leaf.

To Soften Hard Putty.—It is well known that common putty becomes exceedingly hard with age, which renders the removal of glass from sashes peculiarly difficult. A practical man tells us that he thinks himself lucky if he can take out one pane out of three without breakage. It is stated, however, that the putty may be softened by using a paste of caustic potassa, easily prepared by mixing the caustic alkali, or even carbonate of potash or soda, with equal parts of freshly burnt quick-lime, which has previously been sprinkled with water, so as to cause it to fall into powder. This is then mixed with water to a paste, and is spread on the putty to be softened. Where one application is not sufficient, it is repeated. In order to prevent the paste from drying too quickly, it is well to mix it with less water, adding some soft soap instead.—*Boston Journal of Chemistry.*

To Coin Collectors.—Old coins, in which letters or dates have become illegible through wear or corrosion, may oftentimes be deciphered by polishing the surface with a wheel-brush and fine emery. The reflected image, in some cases—particularly with bronze coins—will then show the figures distinctly. In a stamped coin these are darker than the rest of the disc, because the raised portions were less condensed. Numismatists have long been aware that when there has been a difficulty in deciphering a coin almost obliterated, they can frequently determine its date and character by heating it in the dark to a red heat sufficiently to make it self-luminous; the figures, though worn to the surface, having a different density, throw off more or less light, and can thus be distinguished.

To Transfer Pictures to Glass.—Engravings and lithographs may be transferred to glass as follows: Give the glass a coat of copal varnish and put aside till nearly dry, and only slightly tacky; apply the engraving face downwards on the varnish, and damp the paper with a wet sponge in order to get it to lie close to the varnish in every part; it must be again laid aside till the paper is perfectly dry; again damped with the sponge, and the whole of the paper rubbed off with the points of the fingers; washed in plenty of water to remove the particles of paper; allowed to dry hard, and finished by the application of a coat of copal varnish.

Chloral as a Preservative Agency.—M. Cuvellier lately exhibited to the Société de de Biologie, in Paris, the carcass of a dog which, after 55 days, exhibited no trace of putrefaction, although it had been kept in a laboratory in which there was a fire. The dog had been injected by the carotid with a solution of 100 grammes of chloral in a litre of water. The brain, placed in the same mixture, was also well preserved, so that it could be easily demonstrated, not having undergone the slightest appreciable alteration.

Composition for the Destruction of Bugs and their Eggs, Fleas, Etc.—This mixture, which has been patented in France, consists of 80 parts of bisulphide of carbon and 20 parts of essence of petroleum.

To free gas from naphthalin, coal tar, ammoniacal salts, particles of solid matter, etc., it is washed by passing it through water or chemical solutions in the form of bubbles or in continuous currents.

Skim-Milk Cheese.—A skim-milk cheese contains but 6 per cent. of fat, while some rich English cheeses contain 30 per cent.

Common experience has shown that the swallowing of ice instead of ice water, in hot weather, is perfectly safe.

Good Health.

The Human Frame.

No. 10—The Circulation.

The circulatory system of the human body is the great net-work of rivers and canals by means of which all parts receive their necessary cell food and send away refuse or worn out material. When we reflect that we cannot insert a fine cambric needle into our flesh without rupturing some tiny little aqueduct, and causing the blood to exude, we must be impressed with the magnitude and intricacy of this system. In a man of one hundred and fifty pounds, about 18 pounds of blood are moving all the time, up and down, in and out and through and through his tissues. These little streams never tire, never stop for a single instant during our lives.

The circulation of blood as viewed under a good microscope—in the web of a frog's foot—looks not unlike the rushing of water through a miner's sluice, which is bearing rapidly along an immense number of round boulders. Only there are millions of these sluices of different sizes and with currents of different velocities moving around, among, across and in opposite directions to each other, making a perfect labyrinth of confused regularity. The "boulders" are the blood cells; little disk-like bodies of only from one two thousand five-hundreth to one four-thousandth of an inch in diameter. They often move through capillary tubes of a less diameter than their own, and may be seen rolling, turning and impinging against the sides of the capillary walls.

But the blood is only a portion of the circulation of the body; a still larger amount of fluids passing directly through the tissues by means of secretion and re-absorption. These are the saliva, gastric juice, intestinal and pancreatic juices, and the bile. Thus in a man of the above weight there would be secreted by glands at one point and taken up by absorbents at another, of saliva, about three pounds; of gastric juice, fourteen pounds; of intestinal and pancreatic juices, one third pound; and of bile, two and one-half pounds; making a grand total of nearly twenty pounds of fluids which appear where needed and disappear when their services are no longer required, with a mysterious readiness that far excels all the wonders of magic.

Yet even this does not constitute the whole of our circulatory system. Place certain substances, either upon or under the skin and they will be very quickly seized by myriads of "police" glands, called lymphatics, and transferred to another portion of our circulatory apparatus known as the lymphatic system. The food after being digested is also taken up by one division of these glands, and with the secretions of those all over the body—which are continually occupied in tearing down and absorbing decaying tissues—is poured into the thoracic duct, and from thence into the superior vena cavæ and mingles with the blood. How infinite the power that has thus formed a fluid which contains at the same time life and death—which hurries through the system guided by a far greater than human intelligence; depositing brain food here, muscle or bone food there; receiving the products of decay at still another place to surrender them again at the natural outlets of the body; doing, as it were, millions of different commercial transactions at millions of different points, yet never committing a single error! When shall we ever completely understand our mysterious bodies?

The Sphygmograph.—People can no more be cured by the sphygmograph than by feeling their pulse or looking at their tongue. If it does them good, it is their own imagination. The sphygmograph is simply an instrument which registers the beating of the pulse in regard to velocity, intensity, regularity, etc., on a strip of paper moved by clockwork, similar to some telegraph machines. If applied to a dead man, the pencil would mark a straight line, while a living pulse will cause in the line waves of different distances, hight and shape, all in accordance with the nature of the impulse given by the heart to the circulation. The nature of the heart's action and circulation in disease, and after the use of certain medicines, may thus not only be studied, but even recorded. Life insurance companies should order their medical examiners to enter the recorded indication of the pulse of applicants for insurance, so as to have surer data to go by than is at present the case.—*Artisan.*

Sponge Retained in Stump after Amputation.—*Le Mouvement Medicale* mentions the case of a man who entered a hospital in Paris with a large granulating ulcer on the stump of his leg, consequent on amputation four months previously, in the reign of the Commune. On examination, a sponge was found in the granulations. It had been applied as a hemostatic in the amputation and carelessly left there.

Tin Capsules.—Wittstein finds that capsules used for covering wine, liquor, etc., bottles contain from 90 to 99.4 per cent. of lead; on this account they are objectionable, especially if used repeatedly, as they are liable to come in contact with the contents of the bottles, drops of which may adhere to the outside of the bottle and dissolve some lead.

Germ Theory of Disease.

Dr. Barnard, in a recent paper on the germ theory of disease, said: About 40 years ago the yeast plant was discovered by Cagniard de la Tour, and almost simultaneously by Schwann. Till that discovery, the chemical theory of disease had a strong support in the imagined analogy of fermentation. To the suggestion, after the discovery, that fermentation is probably a consequence of the rapid growth of the plant, there was at first a very general and rapid dissent; but, when, in 1843, Helmholtz made a direct experimental test of the question, by placing a fermenting liquid side by side with one of the same kind not fermenting, both being contained in the same vessel but separated by a membrane which permitted the mingling of the liquids, but prevented the passage of the plant, that analogy lost its force, for the fermenting liquid continued to ferment, while the quiescent liquid remained quiescent. The case of fermentation assumed new significance quite the contrary of that which it had before seemed to possess, and it began to be claimed quite as conclusive in favor of the germ theory, as it had before in favor of the chemical. This theory, however, though among its advocates have been, and continue to be, counted many of the most distinguished physicians and physiologists of the past and present generation, has never met with universal acceptance. Serious difficulties present themselves, which it fails to explain, among which are the objections strongly put by Dr. Bastien, that the theory demands a belief in the existence of about 20 different kinds of organisms never known in their mature state, and whose existence is not demonstrated, but simply postulated; and that these germs, if they exist, are not the germs of any known organisms, because such germs have been experimentally shown to be incapable of producing the particular diseases these are assumed to cause. Moreover, feeding on putrid flesh, as is habitual among the Kalmucks, is followed by no injurious consequences, though such flesh swarm with bacteria, and, as the author just referred to affirms, the organisms of ordinary putrefactions may be introduced even into the blood of men and animals without producing any of these specific diseases. The same writer asserts that in sheep pox the blood and the secretions are not infective, though the disease is silled to, and even more virulently contagious than human small pox.

Cocoa Nut Trepanning.—There is a well known trick performed by the clowns in pantomimes, to the mystification of the juvenile portion of the audience, which consists in shooting a hole in a man's head, and then artistically plugging up the orifice with a carrot, thus completely curing the apparently assassinated individual. While this is, of course, very ridiculous, it is no more so than a somewhat similar operation practiced by the inhabitants of Uvea, an island in the Loyalty group. These queer people have a notion that when a person gets a headache his skull is cracked, or that the bone is pressing down on the brain. Consequently they proceed to cure the trouble by cutting open the scalp, and scraping a hole in the cranium with a bit of glass, and then stopping the aperture with a piece of cocoanut shell rubbed smooth. Sometimes the surgeon scrapes too far and injures the *pia mater*, when the patient is killed; but ordinarily the boring proceeds to the *dura mater*, leaving a hole in the skull. It seems that few adults are without perforated heads, and that the cocoa nut patch is common.—*Scientific American.*

Poisoned at a Chemical Lecture.—A very tragic occurrence lately took place at Bucharest. Dr. Bernath, the principal of a public laboratory, in that city, was giving a popular lecture on chemistry. Among his hearers was a Madame Davila. The lady was taken ill in the course of the lecture, and the doctor prepared a draught for her, in which he intended to mix some quinine, but by accident used strychnine instead. The unfortunate victim was taken out into the street, and died almost instantly.

Treatment of Burns.—The New York *Medical Record* states that at the Roosevelt hospital white-lead paint has been found, after trying almost every plan of treatment hitherto proposed, to be the best and cleanest application. Mix as for painting, but considerably thicker, and apply with a brush. A very neat and satisfactory dressing in superficial burns consists in coating the surface with mucilage, and then covering it with powdered lycopodium.

Glazier's Putty as a Surgical Dressing. According to the *Medical Press and Circular*, ordinary mixed putty has been found by Mr. Couvall to be the softest and most applicable means of treating excrescences or tumors of various kinds where compression is desired, as it moulds itself so nestly to the skin. He believes it to be superior to dextrine, silicate of soda, or plaster bandages. It is cheap, and always attainable.

Chloral Hydrate and Camphor in Neuralgia.—It is said that the intimate mixture of equal parts of hydrate and camphor will produce a clear fluid which is of the greatest value as a local application in neuralgia.

The Use of Oxygen in Consumption.—This is of doubtful efficacy as a permanent remedy. It may give some relief. It is not to be lost sight of, and is worthy of trial.—*Hutchins.*

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:
Saturday Morning, Aug. 15, 1874.

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Advantage of Large Wheels.

The building of hurdy-gurdy water-wheele for high falls preeents certain obstaclea. The high apeed of the water through the pipes from great falls is ueed to greater advantage by the use of hurdy or water-wheels of larger diameters, with a gain of higher percentage of power. Of course, in the mining regions of thia coast, wherever the advantage of water power can be had, the quartz mills are always run hy water. Unfortunately, there are not many places where the mills can be run hy this power, since there eeema to be a natural perversity in quartz veins by which they locate themaelvea in rough parts of the conntry, and in positions where water is not plentiful. There are, however, qnite a number of mills in the Paoific States and Territoriea which are run by water power; either by large under or overahot wheels, or hurdy-gurdies. To thoae who live in a location where water power ie uaed, the following item, furnished us by a correspondent, may he of interest.

To illnstrate the advantage of large-aized wheels over amaller ones, where there is a high head of water, he aays: The fall of water at my mill is 100 feet. The first hnrdy waterwheel built was seven feet in diameter. Thia wheel made 160 revolutions per minute, empty. With five atampa weighing 700 pounde, with aix-inoh drop, this wheel made 56 drops per minute; with 10 atampe it made 38 drope per minute, on trial, ueing 60 inches of water, miners' measurement. The seven-foot wheel being replaced by one of 14 feet in diameter, with the aame quantity of water and seven-inch drop, it gave, on trial, 82 dropa per minute with five atamps, and 57 drops per minute with 10 stamps. It made 75 revolutions, empty, and 44 revolutiona per minute with the 10 stamps hung on. The buckets were oast at the Risdon Iron and Locomotive works, in San Francisco.

Quicksilver.

The price of quicksilver still remaina at $1.45 per pound in this market, hut is qnoted at $1.60 per pound, gold, in New York, and £22 and £23 per flask in London. Our mines here will have to be actively worked to meet the increasing demand. The product of the New Almaden haa fallen off materially, and the Redington now stande at the head of the producing minea. Only a few of the new mines are yielding quantities of any moment, though many of them are heing steadily developed. By far the largest proportion, however, of the new "minea" are simply "proapecta," and have done nothing, aa yet, to prove their worth. It takea capital to erect furnaces and work these mines properly, and the capitalists will not invest iu cinnabar nnlesa there is a very good showing made. A mere hole in the gronnd, with a few houldera ahowing oinnabar, is no inducement to them; so it has become neceaaary for the quicksilver proprietors to do a good deal of work before they can get capitalaata to even look at their claims. Theae clsima or prospects aro scattered all over the coast range from Santa Barbara to Del Norte conntiea, though a very amall number of them are entitled to the distinction of being called mines.

Several emall claims, however, are producing a few flaeks a week with retorts, which may, in a few montha, develop into good producing mines, and enconrage their owners to erect proper furnacee and work them more extensively. Until thia ia done, however, and some of the more prominent mines increase their production materially, we may expect high pricee for quicksilver. Several mines, brought prominently hefore the puhlic, such as the Borax Lake company's property, for instanoe, *promise* ua a heavy eupply in the future; bnt as yet not more than six or eight outside of the Almsden and Redington are making much of a show in iacreasing the product of the State. The Borax company's furnaces will be resdy for their first run next week, aud we ahall then see how that 70 per cent. ore pana out, of which there has heen so mnch talk. We opine, however, that their five per cent. adobes will produce more quicksilver in the long run than the 70 per cent. ore will do.

The Oakland qnicksilver mine, near the Lost Ledge, ia doing well and more retorte are being pnt np to donble the capacity. The Missouri mine ia doing well with its retorts. On the Rattlesnake mine a new Riotte and Luckhardt furnace of thirty tons capacity is being pnt up. It ia expected that with the new furnace the Sonoma mine will turn out ahortly 40 flaska per month. The Great Weetern ia a most promiaing mine and ia turning out qnicksilver every month to the value of $40,000 or $50,000. The Ida Clayton haa out some 250 tons of rich ore ready for the furnace. The Yellow Jacket is having a new furnace put up, and the Knox and Oshorn furnace for the Ida Clayton and Yellow Jacket mines ie nearly completed.

Outeide of our boundariee we learn that valnable depoeits of cinnahar have heen found in Queensland, and the Australian minera are busy in trying to make themaelvea independent of the supplies from this country and Spain. In Mexioo new discoveries have also heen made, and the claims are to be thoroughly prospected. A correspondent at Acapulco writes as follows concerning theee minea, nnder date of August 2d, 1874: In a previous letter I wrote you that the owners of the newly discovered qnicksilver mine in this State had entered into an agreement with some Mexican capitalists to keep up the price of this important material. This is fortunately not the case, hecause Governor Diego Alvarea, who, jointly with Andreas Laucedo, of thia port, owns the mine, has only taken in the millionaire Don Pio Bermijillo, of Mexico, to open the mine, to have the ores properly tested, and to form a new company open for inveetment for all who have confidence in the husiness. By last steamer a large assortment of these orea have heen sent to San Francisco, and though they are very different in appearance from the cinnabar oree which I have seen before—being mostly of a hlack, yellow and grayish appearance—your assayers will soon find out whether they are as rich in qnioksilver aa the assaya of Mr. Castillos make them appear. Under theee oirenmstancea it appeare likely to me that the owners of this mine are disposed to have the new company center at Sau Francisco, provided your capitalists shonld he disposed to take the matter in hand. Anyhow, the necessary machinery has to be imported and San Francieco will he our nearest market, as well to ohtain the needful material as for disposing of our snrplus.

THE tunnel through which the Southern Pacifio road will pass out of and into San Fernando valley, Los Angeles county, will be nearly a mile in length, and will rnn through a range of hills out of which coal oil ia conatantly oozing. Experienced oil minera are confident that the tunnel will tap so many small veine of oil that a considerable quantity of orude petroleum will run steadily from its month. One enthusiastio San Fernandoite predicts that the oil from the tunnel will flood the San Fernando valley. Certain it is that the oil is exuding from the mountain through which the tunnel must be cut.

THE shipment of bullion through the office of Wells, Fargo & Co., in Virginia City, for the month of July was $1,422,790.13.

Gold and Silver Plating in San Francisco.

The San Francisoo Plating Worka, 653 and 655 Miesion etreet, are the largeat of the clasa on this coaat. Every description of gold and ailver plating on all metals is done, hut the proprietor, E. G. Denniston, makes a specialty of silver-plated amalgamating plates for miners' use. For this pnrpoae he has a vat containing over 700 gallons of solution, so aa to be able to tnrn out platea of any required aize. The use of theee platea results in the saving of a much lsrger percentage of gold than can be obtained hy the ordinary platea, the copper and silver combined causing the quicksilver to adhere much more tenaciously to the plates and also presents a greater attraction for the gold than when copper alone ia used. The following extracta from a letter from a mining snperintendent will give aome idea of the manner of preparing the plates for nae and uaing them.

"I find that the plates which I washed first with a light solution of sulphnric acid, without the use of cyanide of potasaium, amalgamated the best. It will give you pleasure to learn that the firet, or upper lying, platee in the sluices, each of them, eave, in 24 hours, from 16 to 18 pennyweighte of hard amalgam, while copper platea in the aame place would not have aaved half of it.

I take, every 24 hours, from 15 silver plates, from 8 to 9 ouncee of hard presaed amalgam, and thie every day. The rest of the plates, (the front copper plates, ahove the silver plated platea, and eome other copper plates) give me, regnlarly, from 3 to 4 onnces more, ao that I clean np every day, from the ontside plstee of my battery, from 11 to 13 onnces of hard gold amalgam. This paya my running expenses and the contents of the batteries will be the surplus. * * * * I take the plates out once in 24 hours; take the amalgam off with a piece of India rubber—I am careful not to have any sand on the plates—brighten them again with quicksilver and lay them in the slnices. * * * * You oan nse, after the amalgam ia taken off, daily, either a wash of light sulphuric acid or a mild aolution of cyanide of potaasium, and then again charge them with quickailver, but this is not absolutely neceesary, although it cleanaee the surface so much more and the qnicksilver will adhere hetter. After you place the plates in the sluices, let them lie till next day undisturbed; but I found out by experience, thst it ie decidedly better to have the amalgam takeu off daily, just the reveree with the copper platea. The expense is saved hy getting so much more amalgam in a few weeks."

These plates are made any size, acoording to order. The copper is usually covered with about one onnce of silver to ths square foot, hut aometimes lese ia used, if desired. It takea from 17 to 24 hours to deposit one ounce of silver to the square foot of copper. Theae plates are made here, and sent all over the coast; and recently some 250 feet of copper, prepared in this manner, were sent to Japan for a quartz mill.

All descriptions of goods, including table ware, from which the silver is worn, are now replated at these works. Watches, jewelry, etc., are alao plated with gold. Over 2,000 gallona of aolution are kept constantly on hand, and six men are employed to turn out the work. These works ohtained the first premium silver medal at the last fair of the Mechanics' Institute, and a handsome display will also he made this year. Articles are plated light or heavy to suit orders, and the goods compare favorahly in beanty and finish with any prodnced in the Eastern States. Thia is another one of onr home industriee which ie turning out goode at pricee which will compete with the East.

IT ia an intereeting fact, saya the Virginia *Enterprise*, that the climate of California is a sure oure for diaeaae engendered in the climate of Nevada, *vice versa*. Our atmosphere is light and dry, while that of California, particularly near the sea coast, is heavy and moist. Nevada cures the rheumatism engendered hy the moist climate of California, while the moiat air of California cures the rheumatic dry-rot of Nevada.

THE Hepburn Iron Mining Company, which owns what is helieved to be an extensive and valuable deposit of hrown hematite ore, located in the vicinity of Doak's ranch, about six milee sontheast of Mokelumne hill, has put a force of workmen npon the ledge with a view to testing ita permanency and richness. Snfficient development has not yet been made to aettle the extent of the deposit, but the indications are wholly favorahle. The ledge shows fully 60 feet in width on top, and ore taken from any portion of it aasays 60 per cent. iron.

INFUSORIAL EARTH.—It appears strange, aaya the Virginia City *Enterprise*, that the manufacturers of giant powder and kindred explosives in California, continne to bring the infusorial earth they require in their bnsiness from Europe at great expense, when they might obtain it in this State at small cost. A few miles north of this city, near the line of the Central Pacific railroad, is an inexhauetihle bed of this peculiar earth—a bed from which car-loads of the material may be quarried at the very surface. The earth may not only be obtained in almost unlimited quantity, hut may be obtained pure and unmixed with any foreign substance. Yet this substance is brought all the way from Europe—from some place in Germany, we believe.

Relief Map of Sierra County.

We had the pleaeure of examining this week a high relief topographical map of Sierra oonnty, made and compiled by Charles W. Hendel, C. E., United States Mineral Snrveyor for California. It showa the topography of Sierra (and parts of adjoining countiea), its mountain chains and peaks, valleys, watercoureea, lakea, principal towns and mining campa, rivers, mining ditches and canals, roada and trails, etc. Also the indications of the oonrses of the ancient river beda or hlue gravel channels, and the geological formations thereof.

The map is 30 inches long by 18 inchea wide, on a scale of one and one-half milea to the inch. It ie compiled and modeled from official surveye, and gives a hetter idea of the general surface of the conuty than any ordinary map possibly could. The rosds and traile are indicated by red lines; county lines hy red dotted lines; ditches by blue lines; towns and mining camps by red squares; placer ground marked out by yellow lines. It ahowa all the gravel minea as far aa worked up to date in correct proportion, width, shape, depth and area worked, etc. A tahle accompanying the map gives the namee of all the mines, correeponding to figures in the map, and also givee the namee of towns and ditches, hights of peaks, etc. The edgea of the map are cut in section, so as to ahow the geological featurea of esch particular locality.

Altogether the map is a very handaome and useful work, reflecting great credit npon Mr. Hendel, not only for the energy displayed in collecting the necesaary data, but for the skill with which he has modeled the whole. It is appropriately colored and lettered, and is made on a correct scsle. Mr. Hendel proposes to place his map in the Mechanics' Institute Fair, so tbat the general public may form an accurate idea of the prominent featnres of Sierra county.

Quicksilver in Del Norte County.

Quicksilver is being found all over the State, and haa recently been struck in Del Norte oounty—further north than it has been found before. The location to which we refer is 30 miles from Crescent City, in Rockland district, near what is known as the Diamond copper mine. As far hack ae 1864 it was known that quicksilver existed in thia locality, and the discoverers took out some two gallons of pnre quicksilver from a depreesion in the deposit. After sinking a shaft 30 or 40 feet deep, the mine waa ahandoned, as there was an abundant supply of the metal in those days, and no excitement and high price to induce men to develop the mines.

A man who knew of the discovery at that time recently went np to the place and located the old claim. A shaft haa been sunk 30 feet deep, and some very nice ore taken ont. The quicksilver ia found in a state similar to that of the Rattlesnake mine. It appears in a soft, grayish-white rock, in small glohnles. When the earth or rock is crumhled the quicksilver can be collected eaaily. The croppings were composed of rusty-looking, yellowish rock. The wall rock ia etained with vermilion, but the main deposit is the whitish rock mentioned above. Work has been discontinued on thia claim temporarily, nntil pumps can be pnt up to free the ahaft of water. The company owning it propose to go on with work aa soon as the pnmps are in.

This is the only claim in the vicinity which has been worked. There are, howevar, excellent indications within a few miles, but they have been prospected hy no one as yet. Our informant states that they have every appearance of being good for quicksilver, bnt have not been taken np. He thinks oinnahar will he found in many places in that vicinity aa soon ae one mine is opened and proves its value.

QUARTZ ON SALMON RIVER.—A special to the *Times* from Arizona says: "A party of three of our citizens left this place this morning on a prospecting tonr to Salmon river. It is rumored that some rich quartz discoveriea have been recently made in that section, and it ia generally supposed that the party, all being scientific men, have gone to make an intelligent examination of the mines."

THE quantity of wood lodged along the banka of the Carson river ie immenee. The sudden falling of the river has left atioks stranded in all possihle shapea and placea, and men, waist deep in water, are loosening the jame and setting the wood in the cnrrent at Dayton.

A PARTY of mountaineers is being organized at Montana to explore the new Geyeer hasin southeast of Mount Washhnrn, on the head of Wind river.

THE daily shipment of ore over the Virginia and Truckee railroad to the milla on Carson river, ia from 115 to 120 car-loads, inetead of the same number of tone, aa has been reported. Aa each car oontains ahont eight tons of ore, the difference ie apparent.

SEVERAL Salt Lakers have recently discovered at the mouth of Big Cottonwood canon a eix-foot vein of Bath hrick. It possesaes great advantagea over the imported article, heing lighter, whiter and more durable.

The Dismissal of Professor Carr.

The action of the Board of Regents on Tuesday last, in the unceremonious dismissal of Professor Carr from the college of Agriculture, will, we fear, be fraught with results of much evil to the State University. The impression has gone abroad, whether justified or not, that the Regents are disinclined to give the Colleges of Agriculture and Mechanic Arts that prominence which the "Organic Act," establishing the University, designed they should occupy, and which it is the desire of a large majority of the people should be fully and honestly carried out. This impression has long been gaining strength, by reason of what may be considered, at least, as tardy action in providing facilities for agricultural and technical education, and now, by the culminating and unjustifiable act of dismissing the agricultural professor, without the assignment of any but general cause, and against the earnest entreaty of a large and respectable minority of the Board, for particular specification of reasons, and investigation into the justice of such action. It is of the *manner* in which it was done, rather than of the act, that the people complain. We do not hold that Professor Carr is the only person competent to fill the chair of special Professor of Agriculture in the University; but we do hold that under the circumstances, and in common justice, even, the Board should have acted in a more conciliatory manner.

The Board of Regents owes its very existence to the will of the people, and even the University itself is the creation of law, and is dependent for success and maintenance upon public opinion. But from the action of the Board we are reasonably led to infer that the "supremacy of the people" is entirely ignored in their plans—indeed, that they have resolved to carry out in *fact* what was merely the *suggestion* of a late writer in the *Atlantic Monthly*, that our University should throw off State interference altogether and, to use a homely but expressive phrase—paddle its own canoe. That we may not be misunderstood, we will quote the precise language—"Many persons wonder why the friends of the University of California prefer State aid *plus* State interference, rather than private generosity *minus* State interference." It would seem from the action of Tuesday that some member of the Board must have been the author of the article in question, and at the same time the ruling spirit in the Board.

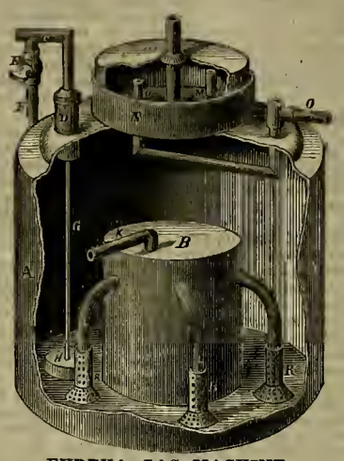
The singular and arbitrary action of the Board may possibly admit of some justification; if so they ought to make such explanation as will set them right before the people. The present is not the time nor this the place where any body of men, however high and honorable, and acting for the people, may with impunity wrap themselves up in their dignity and defy public opinion. If such action is persisted in they may find, ere long, that they have elevated their victim to the post of martyr, from which he may some day, as the head of the State Board of Education, come suddenly in to confound them in the very midst of their deliberations. This is all the more probable from the fact that no member of the College Faculty stands higher to-day before the people at large than Professor Carr—and that, too, notwithstanding the recent action of the Board of Regents. He has lectured extensively throughout the State, and wherever he has been he has secured friends for both himself and the University. We have frequently met him on such occasions, and speak of that which we know. We presume that the *people* will still find work for him to do in California, in the cause of popular education, although their servants at the State University have decided to dispense with his services there.

We are unwilling to believe that the Regents, in his removal, have intended the abolition of the Chair of Agriculture altogether; although we can scarcely realize that any man who possesses any respect for himself can accept of a chair from which he may be unceremoniously removed, without the assignment of particular cause, at the will or caprice of a body of men who pay but little deference to public opinion, and who appear to hold in very light esteem common justice and propriety between man and man.

We are far from joining in the wholesale denunciation in which some of our contemporaries of the press and many of our citizens and public bodies have indulged as to the earlier motives and acts of the Board of Regents, in regard to the Agriculture and Mechanic Arts Colleges. We do not hold that they have "totally ignored" those departments, or that they have given them only *one* professor or instructor out of the nineteen connected with the University. We fully recognize the valuable aid rendered in that direction by a majority of the professors and tutors. We freely recognize that important steps have been taken to secure the benefit of practical instruction in agriculture, in accordance with the suggestions of the very professor who has been dismissed—important, but tardy. We are aware that measures were also set on foot to secure a practical school of mechanic arts, and that those measures failed only by reason of the unfortunate and injudicious action and language of some of the honest friends of that measure—a sad result, which should teach the importance of magnanimity, and the necessity of the avoidance of hasty conclusions and hot words on either side.

We have never joined in the general denunciations of the management, by the Regents, of the agricultural lands donated by Congress to this State for the benefit of the University. We believe they have been honestly and advantageously disposed of, and their proceeds as properly invested.

We are fully aware of the difficulties encountered elsewhere in the solution of the problem of technical, and especially of agricultural education; of the disappointments, the changes and the discouragements which have been so generally met with in other parts of the Union; and we fully recognize the necessity of caution in our own case. But, with all that has been done, we fail to witness that manifestation of earnestness and interest in that direction, by the Board of Regents, which the people have a right to expect of them, considering the important position which those departments of the University are made to assume in the "Organic Act," which was, and still is, the will of the people who furnish the means, and who have elected these men to carry out their intents. So marked has been this lukewarmness that many of the University students have been emboldened to write and speak in most unmanly and unmannerly terms of efforts made on the part of the people to secure a proper recognition of practical education at the University. They have not only written and spoken, but have actually been allowed to print and circulate matter and language in relation to that subject, which one would expect to find only in journals of the lowest class in metropolitan centers—and that, so far as the public know, without reprimand from either Faculty or Regents. Such is the effect of bad example set by superiors over those who have been placed in their charge. We refer, more especially, to an article published in one of the college papers of November last, under the head of "State University Investigation." We would not like to pollute our columns with a reprint of the article.



EUREKA GAS MACHINE.

Whatever may be the equities of the case of Prof. Carr, certain it is, that under all circumstances, the people will not fail to regard the manner of the act of Tuesday last as the culmination of a "squabble," which has for a long time existed between the Regents and themselves, and which, in its manner of finality, partakes rather of personal than public considerations. In common with thousands of the more conservative portions of the masses of the people, we sincerely regret this whole matter, and believe that there has been a great wrong done to an individual and to the cause of education.

It is greatly to be feared that some of the Regents do not, and perhaps have not the leisure to devote that time to their duties in the Board which the importance of the position demands, and hence may allow themselves to be unwittingly misled by others. But we hope and trust the majority mean well; and that if they would manifest a little more candor and a reasonable consideration for public opinion and the true interests of the University, we believe they would be met more than half way by the people, in the path of reconciliation and good feeling. But if they continue to stand on their dignity, and to ignore the power that created them, the people of California will, most assuredly, have something decisive to say about the management of the University, through the next Legislature.

The water in the Carson river continues in good condition, and affords a sufficient supply for all the quartz mills. There is an immense amount of wood in the river, which is being taken out at Empire at the rate of 1,000 cords per week.

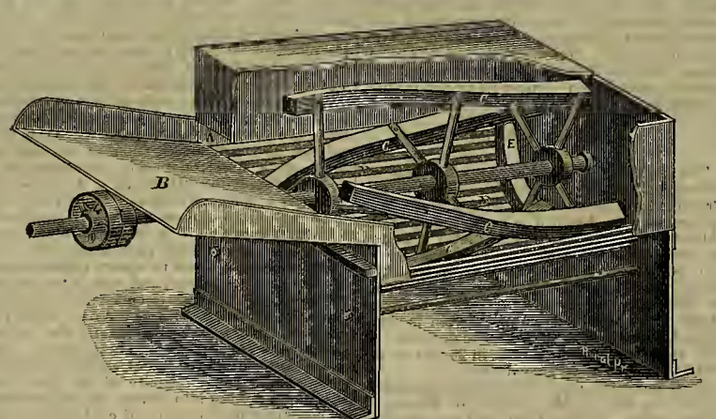
The hoisting works of the Webster mine, Nevada county, were destroyed by fire Friday night. Loss $2,200. The mine has been idle for some time, owing to litigation.

Improved Grape Crusher and Stemmer.

The accompanying illustration represents an improved grape crusher and stemmer, recently patented through the agency connected with this office, by George Johnston, of Sacramento, and William F. Johnston, of Folsom. The invention is an improvement in that class of grape crushers and stemmers in which a series of beaters are revolved inside of a box or case, the lower portion of which is formed of parallel slats. In this class of machines, as ordinarily made, the grapes are crushed in separate charges and the stems thrown out of the case after the grapes are crushed, by opening one side of the case, so as to permit the revolving arm to throw them out. The improvement in this machine consists in a peculiar construction of the case and revolving beaters, by which the grapes can be continuously fed into the machine at one end while the stems are automatically discharged from it at the opposite end.

The accompanying cut shows the machine with the cover broken away to give a side view of the interior. A shaft across the box has two or more sets of radial arms, upon which are placed the bars, *C*, so as to form spiral or screw shaped beaters. When the shaft revolves the beaters are carried around close against the faces of the slats. The grapes are fed in at the opening, *A*, from the table, *B*, and the berries are rubbed off the stems by the spiral beaters, *C*, through the grates, *D*, the juice falling into a tank placed below the machine, the stems being carried along by the spiral form of the beaters and discharged through the opening, *E*, at the opposite end of the machine. The beaters, *C*, run clear of the grates one quarter of an inch, and consequently no seeds can be broken.

The ends of the box are connected by the slats, *C*, which are so placed as to form a semi-circular trough-like box as shown. The grapes being fed into the opening, *A*, in bunches as they are picked from the vines, the rapid revolution of the beaters causes the grapes to be crushed, and separates them from the stems,



JOHNSON'S GRAPE CRUSHER AND STEMMER.

the juice and crushed grapes passing through the slats into the tank below, while the stems are thrown out through the semi-circular opening, *E*, at the end of the box.

The main features of this machine are the improvements for attaining a continuous operation. With one of these machines nine tons of grapes have been crushed and the stems automatically discharged in a thoroughly separated condition without the necessity of stopping or varying the operation of the machine. Two sizes are made, one weighing 350 pounds, which will crush and stem from 10 to 15 tons per day, with one horse, and more in proportion with two horses. The other size weighs 1,300 pounds, and will crush 60 tons per day of ten hours, if driven at the rate of 175 or 200 revolutions per minute, with one man to feed and another to take away the stems. Messrs. Lachman & Co., of this city, and the Johnston Wine and Brandy Manufacturing company, of Sacramento and Marysville, are using the large machine of this kind. For further information, address W. F. Johnston, Folsom, Sacramento county, or George Johnston, Sacramento, Cal.

There are said to be 800 paper mills in operation in the United States, with a capital invested of $40,000,000 and a total production of $70,000,000. These mills give employment nominally to 20,000 people, whose earnings are footed up at $10,000,000 annually. Last year was not a profitable one for the manufacturer,

The Eureka Gas Machine.

The accompanying illustration shows the Eureka gas machine, patent for which has been applied for through the Mining and Scientific Press Patent Agency by Lonie Marks of this city. The machine is of that class which is employed to saturate air with the light hydro-carbon oils, for the purpose of producing an illuminating gas, these machines being known as carburettors. This invention consists in an improved method of introducing the oil to the machine and regulating its flow, and also in the device for periodically stirring up the heavier portions of the fluid which have been increased in specific gravity, and utilizing them by again mixing them with the lighter portions. The air is introduced to a central drum, from which it is distributed by pipes and perforated plates, so that every part of the liquid will be made to give up its vapor and assist in saturating the air. By referring to the engraving the details of the machine may be understood. *A* is the outer or containing vessel for holding the liquid, and *B* is an interior air chamber. The outer vessel is kept filled with liquid from a reservoir, by means of a pipe, c, through which it is conducted. This pipe has two branches, one, *F*, extending down by the side of the vessel *A*, for a purpose hereinafter described, while the other opens into a valve in *D*, at the top of the chamber, *A*. A stop cock, *E*, prevents the flow of the liquid into the pipe until it is desired. The box, *D*, is provided with a valve, which closes upward. A long stem, *G*, extends downward from this valve and is provided with a float, *H*, within the containing chamber, *A*. By the operation of this float the valve is closed and the flow of liquid stopped. Whenever the chamber is filled to the desired height air is furnished to the machine by a suitable apparatus, and is conveyed from the receiver to the air chamber, *B*, by the pipe, *K*. From the top of the air chamber, pipes, *L*, lead to the bottom of the chamber, *A*, where they terminate in conical perforated or wire screens, *R*, which serve to distribute the air through the liquid so that it becomes thoroughly saturated with vapor from every part as it rises to the surface. As the air or gas rises to the top of the vessel, *A*, it is allowed to pass up through the pipe, *M*, into gasometer, *N*. From this gasometer the gas is passed out through the pipe, *O*, which is a distributing main.

As the liquid becomes relieved of its more volatile portions, it acquires a greater specific gravity, settles to the bottom and ceases to be valuable for gas-producing purposes; but can still be utilized for mixing with the more volatile portions, and occupying a portion of the space, so that it will not be necessary to introduce so much fresh liquid, as would be the case if all of this heavy portion were withdrawn. For the purpose of concentrating the heavy liquid at the bottom, the inventor employs pipes beneath the bottom of the chamber, *A*, which receive a part of this liquid as it settles. In order to stir it up and mix it thoroughly with the lighter liquid in the vessel, *A*, the stop-cock, *E*, is opened at certain periods and the fresh liquid is allowed to enter the pipe, *F*. This pipe connects with the pipes beneath the bottom of the chamber, and the current of new liquid being admitted under the heavy pressure has the effect of forcing upward all the heavy residue, and mixing it with that contained in the reservoir, *A*, above. This can be done at any time when desired or needed. For further information concerning the machine the inventor may be addressed as above.

Amador Mines.—The *Ledger* says: Reports from the developed quartz mines throughout the county are very encouraging; all continue their usual monthly yield, while lodes in process of development, as a general thing, give very flattering promise of future success. The placer mines, likewise, throughout the county are yielding satisfactory returns, and mining generally is in a healthy condition. New grounds are being located, and preparations are making for extensive prospecting as soon as water can be had. Altogether, the mining outlook throughout the county is very encouraging.

The Pacific Reduction Works, at Alameda, has been in operation for about three months, and has now commenced turning out refined silver. A lot of five bricks, said to be 995 fine, weighing 3,452½ ounces, was received from there this week. Several lots of refined silver have been received in this city before from the same source, but none of them reached such a high degree of fineness. The greater portion of the ores so far reduced have been received from Lower California and Arizona.

Under authority of the Board of Regents of the State University, Messrs. Hoffman & Craven have just issued a new edition of the map of California and Nevada, by the State Geological Survey. The map has been thoroughly revised.

Mining at Michigan Bluffs, Placer county, has been suspended for the season, the water supply having given out. The season has been fully an average one, and a great deal of gold has been taken out.

Jefferson Canon, the new mining camp near Belmont, has a population of 250 inhabitants, and building is extensively going on,

Prospecting for and Assaying Quicksilver.

Mr. H. G. Hanks writes to the *Alta* in regard to prospecting for qnicksilver as follows: "The best practical test, especially for the prospector, is to use the horn spoon, and treat the pnlverized rock as for gold. If the rock contains cinnabar an inteneely red powder, fringing the residue, will be obtained for a "prospect." If in a metsllic etate, minute globules will be the reenlt. After a few trials the prospector will feel the utmost confidence in his assays, aud will decide at a glance whether his ore contains mercury, and approximately the qnsntity. The best veesel for this assay is the "*batea*," or conical wooden bowl. [This instrnment is fully described in another columu of the present iesue.— Ens. PRESS.]

Wet Assay.

As the foregoing methods of assaying for mercury never give results absclutely correct, the aesayer mnst often practice the *wet assay* in caees where great accuracy is required. To condnct this asssy, all the appliances of an analytics! laboratory, and considerable skill in manipulating, are reqnisite.

The nsnal reduction agent is proto-chloride of tin. The mercury compound, if solid, must be digested with strong hydrochloric acid and carefnlly decanted. This process must be repeated nntil all the mercury is in solution. If tbe sclution of proto-chloride of tin is not clear, it must he made so by adding a drop or two of hydrochloric acid. The clesr solution mnst then be added to the mercury solntion in slight excess; the whole is then hoiled, bnt only for a moment, to prevent loss by volatilizstion. On cooling the meroury is fonnd in the form of a black precipitate. The supernstant liquid must then he removed with a syphon and the precipitate hoiled with dilute hydrochloric acid, which causes the mercury to form globules. It is then well washed, first with very dilute hydrochloric acid and finally with distilled wster. It is then dried, firet with bibulous paper aod then nnder a hell glass, over sulphnric acid. After which it is weigbed.

When it is necessary to estimate mercury in a solution containing nitric acid, this acid must be removed, which may be done by evaporation with hydrochloric acid. The addition of hydrochloric acid and evaporation must be continued nntil no more smell of chlorine cau be detected. It is very difficult to obtsin correct results in the presence of much nitric acid. It is best, in such a csse, to verify the results by some other method.

Purification.

Should the reader desire to obtain mercury in a state of purity, he will find no difficulty in doing so by observing the following directione.

The impure mercury mnst be distilled from an iron retort with tbe precantions alresdy described. A handful of small nsils must be pnt into the retort before putting on the cover. When all the mercury has come over, it must be dried as thoronghly as poseible with blotting-paper, after being repeatedly waehed with olean water. The distilled mercury mnst then be placed in a clean earthen dish and heated to a point not exceeding that of hoiling water, and nntil every partlole of moisture has been driven off. A filter of clean writing paper is then prepared, and fitted into a clean glass fnnnel, at the point of whioh a pin-hole has been made. Into this filter the mercury is carefully poured. It will pass through the pin-hole in a thin stream, leaving any mechanical impurity in the filter. In some cases this operation may require to be repeated. If filtered into a perfectly clean hottle, the mercury will be pure.

Reduction.

Tbe metsllurgy of mercury is more simple than that of any other metal. What has been said of the assay by sublimation, applies also to the recovery of mercnry from its ores in a large way, except that generally no re-agent is added to decompoee the sulphide of mercury.

In the great fnrnaces employed, the sulphur burns away. To explain the procese more fnlly, it may be said that the sulphnr, which is combined with the metal, oxidizes when subjected to grest heat, and the sulphurous acid so formed paeses off, leaving the mercurial vapor to condense in the capacious chambers.

Waste of Mercury.

The present high price of mercnry, cansed by the increased demand for metallurgical purposes, is a serious drawback to the mining interests of the Pacific Coset, and a loss to the world. As there is no certainty that the prodnction of mercury will be greatly increased, the miners should consider how to make the best use of what they can get. A moment's thonght will convince the intelligent reader that if there was no mechanical loss, the same mercury could be used over and over again, until the end of time, and it is well known that this loss is enormous. In all the cañone leading down from the Comstock mine, the ground is permeated with quicksilver, which has been lost, not to say thrown away, in working the ores.

If a specimen of tbe ordinary milling ore from tbe Comstock mines be examined microscopically, it will be found to coneist of certain silver minerals dispersed through a large quantity of qnartz. The proportion of quartz or silica in two samples analyzed by Mr. Arnold Hague, wae, respectively, 84 and 91 per cent. By tbe preseut proces this large proportion of worthlese matter must he saturated — so to speak — with mercury, to extract the silver from the small eilver-bearing portion. Experiments have fully shown that, owing to the greater specific gravity of the sulphurete, they msy cheaply be separatsd from the quartz. Wonld the metallurgists of Washoe subetitute a proper trestment, hssed on this general idea, and amalgamate the concentration only, the saving in mercury would be very grest.

Prices of Metals.

Althongh the price of mercury hss greatly advanced within a few years, still, oomparatively, it is not a high-priced metal. To allow the reader to oompsre it with other metals, tbe following table has been prepsred. The first five metals of the table are extremely rare, and sre only eold in minute quantities, but at ratee which would make the value of a pound as stated. It will be seen that the expression, "Worth its weight in gold," is by no means superlative.

Value Per Pound Avoirdupois.

Indium	$2,520 00	Silver	$ 18 85
Vanadium	2,520 00	Cobalt	7 75
Ruthenium	1,400 00	Calmium	5 00
Rhodium	700 00	Bismuth	3 63
Palladium	553 00	Sodium	3 20
Uranium	575 58	Nickel	2 50
Osmium	325 28	Mercury	1 35
Iridium	217 44	Antimony	36
Gold	301 45	Tin	33
Platinum	115 20	Copper	25
Thallium	108 77	Arsenic	15
Chromium	58 00	Zinc	10½
Magoesium	46 50	Lead	07
Potassium	23 00	Iron	0.021

Tri-Nitro-Glycerine.

This title is given by Mr. Mowbray to the glycerine made by his processes, and appears to be chosen to indicate the purity of the product, since all nitro-glycerine is a tri-nitro-glycerine, the impurities having a different compoeition. The conditions of making pure glycerine may be etated as follows: Nitro-glycerine is produced by the action of an extremely cold mixture of sulphuric and nitric acids on pure glycerine. The stronger and purer the materials the better will be the product; the glycerine mnst be dry and the acids must be as strong as they can he msde. The heat caused by chemicsl action is carried off hy a stream of oold air hlown into the acid mixture during the sdditiou of the glycerine, but mainly by externsl cooling with ice. The current of air insures a thorough contact of the glycerine with the acids. The oily product obtained is put into earthenware jars holdiog 60 pounds, and kept at a temperature of 70 degrees Fahreuheit for three daye. Tbus refined, it is ruu ioto equare tin cans holding 56 pounds.

Under these couditions the product is a colorless oily liquid of a epecific gravity of 1.6 at 60 degrees Fahrenheit; it has no odor, bnt an aromatio taste. A drop of it on the tongue causes a severe but transient headache. When the nitro-glycerine is quite pure and fresh the miners experience no distress from the gasee generated hy its explosioo, and the liability to explode or decompose spcutaneously is very small. But it seems certain that the pnrest nitro-glycerine will eventually decompose, as it is unstahle at slightly raised temperaturee, even when firet made. Decomposition eeems to increase the liahility to explosion, hence the absolute prohibition against its transportation in Europe.

Jefferson District.

The Belmont *Courier*, of August 1, has the following items in regard to this district: The Prussian mine is showing wonderfully rich ore, and ere long is destined to become very valueable property. In the 100-foot level a drift is in south from the main incline a distanoe of 125 feet. Assays from the face of the drift show from $131 to $2,200 per ton, the ore being in character very similar to that of the Comstook. Two feet in width of the vein is beiog sacked, the ore being of such a high grade. A drift in tho same direction is in 25 feet on the 200-foot level, showing good ore.

Geo. Nicholl showed us an assay hutton forwarded to him by Mr. Centras, of Empire or Tybo mioing district, from half an ounce of pulp from the Sclavonian Chief mine, whioh yields at the rate of $20,786 01 per ton. We also saw three certificates of assay made by him a few days ago from the same mine, brought to town by J. C. Baker. The results were as follows: No. 1, $6,273.50; No. 2, $1,279.69; No. 3, $299.33.

The town of Jefferson ie becomiug a place of coneiderable note. Straogers are hieing thither in considerable nnmhers, and many new buildings are in the conree of construction. Messrs. Dayton & Co. are erecting a stoue house to he used as a store. The arrival of sixteen mule teame from Wadsworth with lumber, is of almost daily occurrence. The mines are said to be improviog steadily as depth is attained.

STEEL RAILS.—The Central Pacific Railroad Company is experimentiog extensively with steel rails at various poiots between Emigraut Gap and Truckee. They have already about eixteen miles of the rails laid down across the Sierras. In front of the Truckee Hotel, about a year ago, they laid down a steel rail ou the main track, in place of the common rails in use. As nearly all the ewitching and making up of trains takes plaoe in front of the hotel, on the track mentioned, the wear and tear of the rails is enormous. Frequently trains paee over the spot from fifty to a hundred times a day. Since the steel rail has been laid down, the common iron ones have been taken up and replaced with new ones five timee, and the steel rail ie still in good serviceable condition. We nnderstand that twenty miles more of steel rails will be laid down this snmmer and fall across the Sierras.—*Truckee Republican.*

The Welding of Iron.

When two pieces of ice are rubbed against each other, fueion takes place between the surfaces of contact, at a temperature helow zero. As soon as the presenre ceaees, solidification is again produced and the pieces are weldod together.

It seeme to me thst the welding of iron is a phenomenon exactly similsr. The two pieces of iron are brought to a white heat, that is to say, more or less near to the fnsing point. The repeated blows of the hammer, or the pressnre of the rolls, lowers the point of fueion and canses a superficial liquification of the parts in contact, and thus welds the masses together; and thie, because, like water, iron dilatee in passing from the liquid to the solid state. Many other metals are similarly endowed; they all therefore may be welded like irou, if other conditions do not come in to oppose the manifestation of this property. Platinnm welds easily at a white heat, because its non-oxidizable surface, like ice, takes on a superficial fusion. To weld iron successfully, it is necessary that its surface should be clean, that is, free from oxide. Iron conteining phosphorus welds more easily than pure irou, becanse ite point of fusion is lower. Steel, which is more fusible etill, welds at a lower temperature than iron, but the process is a more delicate one. Silver, too, like iron and platinum, has the pronerty of expsnding when it solidifies; hnt as it melts at a cherry red heat, it is easier to form by casting than by welding. Bismuth and zinc are alwsys included in the same claes; but they are so very brittle near the fnsing points that no one would think of attempting to weld them by hsmmering or pressure. Irou, in welding, therefore, only follows the example of water.

The fibrons stste of iron ie not a mornal and regular one. All crystalline iroo, if the crystals are not too hard, breaks with a fibrous structure, if time be giveo in the brenking, for these crystals to be drawn out into fihers. Iron which is fibrons is only iron in which the primitive crystals, enrrounded by very thin films of slag—and thus separated from each other—have not heen welded together duriug the rolling, but have heen elongated into wires. A bar of such iron resembles a bundle of wire in its resistance to fracture, but it breaks with a granular fracture when exposed to a transverse blow, suddenly applicd.—*M. Jordan.*

Cloud-Bursts and Water-Spouts.

The Gold Hill *News* makes the following very oorrect distinotiou between these two classes of phenomena: Many of our oontemporaries seem to he under the impression that cloud-bursts and water-spouts are one and the same thing. Our own observation aud experience of them during several years' residence in this State, as well as comparing notes in the experience of others, inducee the helief that, although the phenomenal effects of each are very similar, yet there is a decided differenoe in their source aud formation. Water-spouts are met with on the ocean or on broad surfaces of water, whose huge moving columns of water are whirled up from the sea to the clouds, nnd whenever this column of water breaks, whether on land or upon some unfortunate ship, it descends in a body overwhelming all beneath it. A cloud-burst is simply a moet extraordinary shower or pouring down of rain—an ovsrladen cloud suddenly letting go its contents by the run. The hesvy, porteutoue clond may pass along over the earth, showering down its watery contente generously as it goes along, and were it to meet no obstacle or changing circumstsnce, notbiog unusual might come of it. At or about the heads of gulches or cañons among the mountain tops is where the cloud-burst occure. The cause may be looked for in sudden electrical disturhances, the electricity of the earth and the cloud comiug into coutaot or conjunction, or perhaps a huge current of cold air met with at that point may produce the reenlt. Be that as it may, the observer will simply notice a sudden aud furiously copious ehower or pouring down of raiu, and no definite body or column of water as in the case of a water-epout. The eteep hillsidee will he directly covered with flowing sheets of water rushing from all directions into the bed of the ravine, forming a great flood which sweeps along logs, brush, rocks and every loose thing it can gather in ite course, and thus driving along a huge front wall, as it were, of all sorts of debris seethiog with angrily foaming water, sweeping everything movable before it, and spresding ruin and devastation in its course. The flood-gates of the upper regions seem to open and the rain descende more in actual streams than drops. The watery composition of the cloud seeme to condense all at once, and the name of "cloud-burst" is peculiarly applicable.

CARSON ITEMS.—In the *Tribune*, of August 1, we find mining items concerning Esgle valley: A quantity of rock from the North Carson mine was sent up to Colonel C. C. Stevenson's mill for reductioo. Every possihle test has been made of the ore and with splendid results. It is a well conceded fact that good ledges exist in the immediate neighberhood of Carson. So, hurrah for Eagle valley, the oasis of the great basin. A party left town this morning armed with picks, shovels and sluice boxes. In the direction of the scene of the cloudburst they went, and from what we gleaned have struck a gravel lead that is nearly if not quite pure gold. The party were provided with flour sacks in which to pnt their gold after panning.

Quicksilver in Sonoma County.

We condenee the following from the Sonoma *Democrat* of Ang. 1et: So many discoveries of cinnabar in this section have been rsported that the people have got confused about it. We propose to give an nnexsggerated statement of those mines in and near the line of this county which are now prodncing or erecting works for the production of metsl.

First in order is the "Great Western" mine, sitnated on the Lake county side of the ridge which separates this and Lake county, a few miles north of the St. Helena mountain. The company have a patent for their mine and 2,600 acres for timber land around it. A ten-ton furnace has been for some time in operation and another of 30 tons capacity, with six iron condensers, ie just completed. The mine has been producing abont 100 flasks of quickeilver a month; the new furnace will swell the product to 400. Two tunnels have been run from opposite eides to the center of the hill—they are connected with a shaft 70 feet deep. From the shaft parallele have been run and the ore is taken out through the tunnel on the east side of the hill just above the reduction works. A tunnel has been commeuced below the works to run 1,600 feet, the whole length of the mine. The ore will be taken through this tunnel from above and from side drifts. The rock is soft; much of it crumbles and ie made into sdobes; it is very rich in mercnry. There is 1,500 feet of tunneling altogether, splendidly timbered. The mine is 25 miles from Santa Rosa.

The Ida Clayton, on the opposite side of the hill from the Great Western, is heiog actively worked. The site has been chosen and the bricks are on hand for the immediate erection of a furnace. About three miles north is the American mine. A ten-stamp mill and retort, with 12 condensers and a capacity of 10 tons a day, has just been completed.

In Pine Flat mountain, just beyond, an English compsny are prospecting a nnmber of locations. The next productive mine is the Sonoma, beyond Pine flat. Here a splendid Luchardt furnace has been st work for the past six months. The Superintendent, Mr. Clark, has been working surface earth and float rock of a low grade, producing about 30 flasks of metal a month; meanwhile he hss run a tunnel into the hill. Next, we have the Rattlesnake, where au immense amount of work has been done. The location for a furnace has been graded, the brick is on hand, and a large amount of ore is on the dump, carrying free metal, se rich as thst which characterized the mine on its first discovery. At the Missouri mine work has been psrtially suepended—the suit now pendiug having pnt a damper upon enterpriee in that direction. On the Oaklsnd, next heyond, work ie rapidly progreseiug. Lsst week the richest deposit of ore yet found in the district was struck in the iocline at the Oakland. The product of the small retort was doubled. Their yield this week will not fall ehort of 20 flasks. The Keutuck ie taking out ore which is reduced at the Miesouri retorts. Across Sulphur creek the Cloverdale mining company is building a furnace. We hear very favorable reports from the miues in the vicinity of the town of Cloverdale, of which R. & J. Crsig, of San Francisco, sre owners. It is probable that a furnace will soon be erected in that vicinity.

COLORADO MINING NOTES.—We glean the following Clear Creek county mining notes from the Georgetown *Miner* of Aug. 1: Mining is going on very actively all over the district. Several leases has been let the past week, and several new workings have been reported. A very rich body of ore, fine grained galena carrying over 300 ounces of silver, has been struck in Smith's shaft oo the Gates. The ore is full of gray copper and ruby. Frothiogham & Marshall, working on the Clift lode on Democrat mountain, have struck a fine body of ore at the depth of over 200 feet. This mine yielded well some time ago, being nn old discovery, but of late has not been worked much. It will now probably take rank among our good producing mines. Mr. Millspangh, of West Argentine, informs us that 180 pounds of ore brought down from the Brooklyn lode, in that district, brought the handeome eum of $43 at the mill. This mine is coneidered a very fine one, and promises to be one of the first-class mines of the couuty when developed. We have just seen a report upon ores sold from the Baker mine, in West Argentioe, which speaks well for the old mine. The lot of ore oompriced 37 eacks first-class, at 240 ozs.; 54 sacks eecond-class, at 118 ozs.; and 25 eacks second-class, at 106 ozs. Tbis mine, with tbe present development, will yield three tons of ore per week right along, and every week's work upon it will be increasing its ore-producing capacity.

THE LAUGHING PLANT.—In Palgrave's works on Central and Eastern Arabia, we read of a plant whose seeds produce effects eimilar to those of laughing gas. It is a native of Arabia. The seed pods are soft and woolly in texture, and contain two or three black seeds of the eize and ehape of a French bean. These seeds when pulverized and taken in small doses operate upon a person in a most peculiar manner. He begins to laugh loudly, boisterously; then he sings, dances and cuts all manner of fantastic capers. The effect contioues for about an hour, and the patient ie uproeriously comical. When the excitement ceases, the exhausted exhibitor for an hour or more sleeps, and when he awakes he is utterly unconscious that any such demoustrations have been enacted by him.

The Proposed Swap with Canada.

The best argument against the adoption of the so-called reciprocity treaty between the United States and Canada appears in the form of a cartoon in the *Daily Graphic*. The picture represents Uncle Sam offering to shake hands with the half-reluctant Cannck, saying: "Suppose we agree to swap again. I got riled at you during 'the late unpleasantness,'" and concluding with a degree of stupidity of which no Yankee was ever guilty; "but we will both profit by trading even." The cartoon surrounds the innocent (?) Canadian with pine forests, sawlogs, boards, ears of corn and strings of fish; while Brother Jonathan has stacked about his traditionary lank figure, clocks and watches, boots and shoes, hats and stockings, spades and hammers, knives, forks and spoons, tobacco, wagon wheels, lard oil, and sugar-cured hams. It will occur to the average American mind that we have sawlogs, pine boards and ears of corn enough of our own, and consequently don't particularly need to import those articles from Canada; and everybody who knows anything about the St. Lawrence fisheries knows that American fishermen get along very well outside the shore line. It follows that the innocent Canadian of the cartoon holds back from shaking hands with Uncle Sam out of a sense of shame for the beggarly show he makes as an offer of reciprocity. On the other hand, the magnificent display of American goods required by Canada, by which Brother Jonathan is surrounded, gives the lie to the language—"but we will both profit by trading even."—*Interocean*.

THE LARGEST BEAM OF IRON EVER ROLLED. Among the many branches of industry and enterprise, in our thriving city, there are few more deserving of mention than that of the Union Iron Company, now in successful operation. Through the courtesy of the president of the company, we were invited to witness a triumph of enterprise, of which few of our citizens are aware that we can boast, viz., that of rolling the largest and heaviest 15-inch beam ever rolled here or elsewhere. The "beam pile" when charged into the heating furnace was 13 feet 6 inches in length, weighing 3,800 pounds, and made when rolled a 15-inch beam, 52 feet long, weighing 200 pounds to the yard, or a total weight of 3,467¾ pounds. The pile was drawn from the furnace, was passed nine times through the rolls, and afterwards cut and "hot straightened" in five and a half minutes. The train on which this heavy work was performed is what is known as a "three-high," the rolls being 21 inches in diameter, and driven by a "condensing engine" of 45 inches in diameter of cylinder and 30 inches of stroke. Within a few days a light 15-inch beam (150 pounds to the yard) of a length greater than the above will be rolled, and being invited to witness the operation we shall take pleasure in informing our readers of the result. The great ease and dispach with which this work is performed is truly wonderful.—*Buffalo Express*.

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We certify that we constitute a partnership, transacting the business of Printing in this State; its principal place of business is San Francisco, California; its name is SPAULDING & BARTO. The full names and respective places of residence of all its members are signed hereto.

Dated San Francisco, Aug. 5th, 1874.

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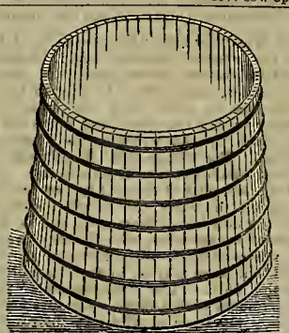

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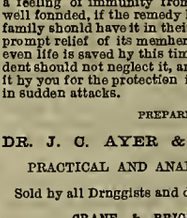

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The Emma Mine Again.

The famous Emma mine seems destined to hecome still more famous before the English shareholders get through with it. A reliable hietory in detail of all the affaire connected with this mine would be au interesting document for the mining public, though probably many of the English people wish they had never heard the name of the mine. The directors of the company have issued the following circular, which we append as a matter of interest:

LONUON, July 10, 1874.

To the Shareholders of the Emma Mining Company (limited): The Directors have the pleasure to inform you that the result of the poll demsnded by Mr. McDougall ou the 9th of Jnne, for the election of a Director, was as follows: For Mr. Hutton, 20,100; for Mr. McDougall, 10,746. With regsrd to the complaint made hy Mr. McDougall in a circular, as to keeping open the transfer books, psndiug the adjournment for the poll to be taken, the Directors call the attention of the shsreholdere to Section 18 of the Articles of Association, which compel the transfer books not to be closed for a period longer than thirty days in any one year; therefore, as that time had expired, they had no other alternative but to keep them open.

The Directors further observe, as to the proposed meeting to be called by holders of 10,000 sharee to transfer all the power and authority of the compauy to Mr. McDougall, or any other person—the Board simply observe that no such meeting can hand over to any person the authority or property of the compauy, and, even if this were possible, the preeent moment would be most inopportune and disastrous to the interests of the company, inasmuch ss the Directors have already, under the advice of eminent counsel, commenced proceedinge in America against all parties who, in the opinion of counsel, are in auy wsy liable to the company for their dealings in oonnection with the purchase of the miue, or their subseqneut transactions, and they have decided to refuse paymeut of any further moneys on account of Mr. Park's claim against the company. The Directors are determined to prosecute these proceedings, and believe the ahareholdera will have confidence in their power to conduct the same to a successful isene; any interference now will be fatal to the interests of the company. By order, W. H. TOOKE, Sco'y.

The suit epoken of has been instituted in New York city, aud we shall probably now learn in detsil more about the matters connected with the eale of the mine. So many prominent men were mixed up in the buainess at the beginning, that the general public will be pleased to learn exactly how muoh each of these gentlemen made out of the sale. The miue certainly advanced in price wonderfully between the original vendors and the iucorporated company. It would be well for the public to know exaotly how the eale was manaaed, and by what process the mine grew eo valuable in a ehort time. Whether those geutlemen who have received auch a large share of abuse will prove their innooence in thie trial, remaius to be eeen; but at all evente, if innocent, they must be rejoiced at a chance to clear themselvea of the wholesale accusations made againet them. Not only the English but the American public are interested in the result of the forthcoming trial, for there is little doubt that if the Americane perpetrated any frand, they had English associates to assist them.

THE Union Iron Works, of Ssoramento, employ at present 40 men, and are engaged ou the iron work for the court houses for Freeno and Tulare connties, which will require 60 tons of iron. They are also turning out the iron work for the Sacramento Smelting company. A great quantity of general jobbing ie being done. The buildings belonging to those wcrks cover a epace of 18,000 square feet and are two etoriee high, with a baseeut. Messrs. Root, Neileon & Co., are proprietors.

THE Santa Barbara *Index* states that work is progressing on four of the locations on the great cinnabar ledge in Ssnta Ynez valley, juet north of Sants Barbara. A shaft is down fifty feet on the Jonee location, and a tunnel hae been carried in fifty-two feet on the Barclay claim. Twenty-four feet more and the ledge will be reached, at a point 180 feet below the surface.

WOAK on the large tunnels near Dutch Flat —one emptying into Bear river, and the other into the American river—is being forced ahead with all poseible dispatch. When completed they will cost abont $100,000 each, and will afford an outlet to au auriferous gravel bed of about 400 acree, averaging, perhaps, 200 feet in depth.

THE famous "Stevens' Bsttery," now lying in the dry dock at Hoboken, is for sale. The Commiseiou having the vessel in charge have issued a pamphlet giving a detailed description of the vessel, with appropriate drawinge, etc. The representatives of four foreign governments have examined the vessel with a view to purchase.

RICH placer mines have been discovered 75 miles from Elko, near the old San Bruno mining camp.

THE Napa Plow Co. is now fully under way. Twenty-eeven skilled mechanics are employed.

Meeting of the University Board of Regents.

The Regents of the University held a specisl meeting on Tuesday last to take into consideration the question of Professor Csrr's further incumbency of the Agricultural Chair. Nearly all the Regents were present—a fact doubtless due to the importsnce of the action proposed. A resolntion was offered wherein the Secretary of the Board was instructed to notify the Professor that his eervices would be hereafter dispensed with on the general gronnd of unfitness. Some discussion followed by Regents Felton, Dwinelle, Hamilton, Estee, Hallidie and others. During this discussion Regent Hamilton enbmitted the resolutions of a Joint Committee of the State Grange, Mechanics' State Council and Mechanics' Deliberative Aseembly, which were read and referred to the Advisory Committee to reply to.

Resolution of Inquiry Defeated.

Mr. Hallidie offered the following substitute for the first resolution:

Resolved, That the Advisory Committee is hereby requested to examine into and report to this Board any irregularities, insufficiencies or incompetencies that may exist, or may have existed in the administration of any department of instruction in the Uuiversity, and if in ite opinion any ohanges shonld be made. The committee is empowered to add to itself any additioual members of the Board; to hold its sessions with open doors, or otherwise, and to adopt such measures to further the public interest, as their judgement may dictate or suggest, and report the faots to the Board.

The substitute was lost by a tie vote.

Prof. Carr Removed.

The originsl resolution was then carried by the following vote:

Ayes—Regents, Booth, Mills, Winans, Stebbins, Archer, Martin, McKee, Swift, Moss, Ralston and Haight.

Noes—Regents Estee, Hallidie, Dwinelle, Sachs, Felton and Hamilton.

Excused—Regent Hager. Absent—Regents Pacheco, Bolander, Carey, Bowie and Gilman.

A resolution was then offered that a committee of three be appointed to coneider and recommend the name of a suitable pereon to fill the chair of Professor of Agrioulture. The chsirman appointed Regents Stebbins, Hamilton and Haight to this committee.

After some further minor hueiness the Board adjourned. Some editorial oomments on the remarkable action of this meeting will be found in another column.

SAYS the Trinity *Journal:* "Quartz on the brain" has taken twenty-five men to the summit of Bullychop mountain. Several lodes have been discovered, and all prospect well. A etore and saloon have been eatablished, and Bullychop bids fair to rival Mt. Davidson.

THE CAOUOH ENGINE.—Four more of the patent system of superheated steam engines arrived at San Jose by the C. P. R. R. freight last Saturday evening. They make six already received. They are consigned to S. A. Bishop, and will be used in harveeting.

THE difficulty between the Union Pacific Co. and the coal dealere and owners of coal beds has been settled, or rather an arrangement has been msde by which Summit county coal can again be brought over the Union Pacific rsilroad.

WM. M. KILDUFF, for 23 years chief eugineer in the employ of the Pacific Mail Steamship Company, recently reeigned his poaition, and is now master mechanic of the San Francisco and Northern Pacific Railroad.

AT Red Dog, Nevada county, an Englieh company are driving a tunnel which will afford an outlet for a large number of gravel clsims known to be rich, and on ita completion lively times are expected.

Now that the Sierra Nevsda company are working their hydraulic mine, there ie more water running down Six-mile cañon than the millmen down that way care to see. It spoils the business of saving tailiugs.

CLARENCE KING, Director of the United Ststes Geological Survey, of the 40th parallel, and well known on thie coast, has been elected a Fellow of the Geological Society of London.

OSMIRIDIUM.—It is reported thst the rare mineral called osmiridium, an alloy of the two metsle oemium and iridium, hss been discovered in Gippsland, in the Colony of Victoria.

A NUMBER of proepecting parties from Los Angeles, well equipped and compoeed of experienced miners, are eugaged in exploring the adjacent mountains for the precious metals.

Two hundred and ten thousand cigars and twenty thoneand pounds of emoking tobacco were ehipped East from the Gilroy worke on Friday last.

SEVERAL veins have been taken np quite recently, aud the prospecte are favorable for an extensive paying district in Cathay valley, Mariposa county.

RETURNEU Piochers denounce the Stickeen mines as a etupendoue frand.

THERE will be more claime opened aloug the Klamath this year than there were last.

The Ninth Industrial Exhibition.

Matters connected with the approaching Mechanics' Institute fair are progressing favorably, and on Tuesday next the exhibitiou will be opened. Dr. W. A. Scott has accepted the invitatiou to act as Chaplain, and deliver the opening prayer. Seventy-five piecee of mnsic have been engaged for the opening exercises, and there will be 500 adults and 2,000 children join in the grand chorus and other pieces which have been selected. A card has been sent by L. P. McCarty, Chorus Manager, to the different musical societies in the city, inviting them to participste in the choral exerciese. The vocal mnsio will be accompanied with an orchestra, the choruses to be sung being, "Thanke be to God," from Elijah, and "Hallelujah Chorus," from the Messiah.

The bnildiug is fast beiug decorated and fitted up, aud applications for space continue to come in. Messrs. Fink, the gentlemen who eecnred the contract for the gas illuminatiou, have placed in poeition 208 30-inch reflectors of 10 burners each, and 18 84-inch reflectors of 56 burners each, at a cost of $8,000. There are 3,088 burners in the building, and the oost of lighting np each evening will amount to about $100. The coast connties will be specially favored dnring the continuance of the exhibition, by the Pacific Mail Co. and Goodall, Nelsou & Perkins issuing tickets at half price. Articles for exhibition will be traneported at one-half the nsual freight. Very few artioles have, as yet, been placed in their proper positions; bnt all is bustle and activity in the pavilion, and everythiug ie being etraightened as fast as possible. The art exhibition promises to be good, ae doee that in the machinery department. Altogether, it is anticipated that this fair will eclipse all former efforts of the Mechanics' Institute.

It is expected tbat the horticultursl display at the approaching exhibition will be an exceedingly fine one, the Bay Dietrict Horticultural Society having combined with the Mechsnics' Inetitute in getting up the fsir. This will undoubtedly excel all industrial expositions that have hitherto been given on this Coast. Science and art, mechanism and horticulture will here be enabled to exhibit themselves to the best advantage. The managerial machinery is running effectively, but noieelessly, and exhibitors are busy with their preparatione. The fair opene on Tueaday of next week, and iu the next issue of the Paess we shall probably be able to give our readere a general idea of tbe exhibition.

General News.

STATE INDUSTAIAL FAIRE.—The Ohio State Fair will be held at Columbus, September 7. The Northern Ohio Fair, at Cleveland, will be held a week later, partaking more of the character of an industrial exposition. An effort ie being msde to organize a Southern Ohio Fair Association, to hold a fair at Dayton. Tbe Indiana State Fair and Exposition will open at Indianapolis September 7, and hold thirty days. The Illinois State Fair will be held at Peoria, September 14 to 19. Iowa, at Keokuk, September 21 to 26. Kaneas, at Leavenworth, September 7 to 11. Wisconsin, at Milwaukee, September 7 to 12. Wisconein Indnetrial Aseociation, at Mineral Point, September 1 to 4. Minnesota, at St. Paul, September 8 to 12. Nebrsska, at Omaha, September 29 to October 2. Colorado, at Denver, September 22 to 26. Califorinia, at Sscramento, September 21 to 26. Michigan, at East Saginaw, September 14 to 19. The Industrial Exposition at Chicago will open September 9 and continue one month.

THE WRECK OF THE "GUATEMALA."—A letter from the wrecked steamer says: Some ten tone of freight was thrown overboard after the veesel struck, with a view to lighten her, but as this did no good, they discontinned the throwing over of the cargo, and some 370 tons were saved by the wreckers in pretty good condition. The "Guatemala" firet struck under the bow, which knocked a hole in her. After ward she was pushed forward by the sea, nntil ehe lay on the rocks underneath the engines, where she now hae a large hole, and is firmly embedded in the rocks, witn 15 feet of water in her. There is no possible ohance of her being floated, but there may be some chance of stripping the ship. The "Guatemala's" water compartments were ueeless. The firemen and engineers remained manfully to their duty, in water up to their necks, nntil ordered by the chief engineer to leave the fires.

ESCAPE OF MAASHAL BAZAINE.—There is great excitement in Parie, in consequence of the escape of Msrshal Bszsine from tbe ieland of St. Marguerite. The detaile of the manner in which he succeeded in gettiug away are nnknown, except that he got on board a vessel bound for Italy. The night was dark and etormy. The journals declare that the Government will act promptly and energetically in punishing all who connived at his flight.

NAVAL OFFICEAS TO COMMANN THE P. M. Co.'e STEAMEAS.—The P. M. Co. has made application to the Secretary of the Navy fot an aseignment of naval officers to command their ahips, believing that such offioers can best maintain discipline. The next eession of Congress will probably indorse the company'e application and recommend that euoh authority to make assignment be given him.

GONE TO LONDON.—Secretary Belknap has gone to London for a short visit.

THE ANTICIPATEN WINE PAONUOT.—There is a wide varisnce hetween the estimates formed of the wine that California will produce the present season. Some put the estimate ae high as 10,000,000 gallons, while others bring it down to 6,000,000. It is generslly oonceded that there are grspes enough now growing to make 15,000,000 gallons of wine; but the demand will not warrant the making of this amount. A large amount of the grape yield of the present eeason must, nnavoidably, go to waste, after the wine vats, the raisin boxes snd the fruit dishes of the country have heen supplied to their fullest capacity or demands. Those who are engaged in wine-msking are, like all California producers, striving for excellence. The native grape is being rapidly replaced by foreign varieties, both by planting and grafting; snd no efforts are heing epared to establish a world-wide reputation for California wine.

WAA IMMINENT BETWEEN RUSSIA ANN CHINA. News hae reached Berlin that China hss pushed forward 190,000 picked troops to the Kashgar frontier, and in addition, placed large garrisons in the towns of Barkerel, and Chinese troops have moreover been concentrated in the north in Tarbakati, Keldo, and Olyosutia, which csn be readily made available for war with Kaehgar. It is proposed to attack the latter country simultaneously from two sides. At St. Petersburg it is believed thst in that event Russia would at once come to the assietance of Kashgar, since China ie known to be arming also for a war with Russia.

ASPIRANTE FOA THE PRESIDENCY.—There is beginning to he active discussion among the political papers with reference to candidatee for the next Presidency. General Sherman is urged b the Democrats, and Chief Jnstice Waite and Secretary Bristow are named by the Republicans. The third-term project of Gen. Grant eeems to meet with very little favor.

INFERIOA MATERIAL IN POSTAL CARUS.—It is claimed that the contrsctors for furniahiug postal cards have never yet come np to the oontract requiremeut in the qnality of that artiole. To sllow the present oompany to go on furnishing inferior cards is regarded as an injustice to the other companies which bid for the contract.

FELL FAOM A BRINGE.—While two men were crossing a bridge at Maunch Chunk, Ps., on Sturday last, the horse took fright, backed the buggy off the eame, threw out both men, who fell a distance of 35 feet. One was killed, the other escaped without serioue injury, while the horse managed to hold to the bridge with the huggy.

INDIAN ATAOCITIES.—A gang of eight Indians attacked an emigrsnt train, near Medicine Bow, on the Laramie plains, week before laet, but were repulsed, with the lose of one redskin. The bodies of 12 victims of the recent Indian outrages on the Dry Cimarron, have been found and buried.

SAN FRANOISCO'S NEW ENGINEER.—Mr. T. R. Scowden, who has recently been elected eugineer for the city aud county of San Francieco, ie a new-comer here, but brings with him, not only a clean record, but a reputation for msrked ability in his profeesion. He will have ample opportunity to display hie ahilities here.

KILLED HIS WIFE FAOM JEALOUSY.—Joeeph Elwell, a carpenter of Green Point, near Brooklyn, L. I., on the 9th inst. stabbed his wife six times with a large claep knife, inflicting a probably fstal wound. Jealousy was the canse. Elwell bas been arrested.

SPAIN.—The internecine war in Spain is without much chsnge; both parties are confident, but the report that the great powere have decided to aoknowledge the Republic, seems to show that confidence abroad ie well settled in that direction.

COMMUNISTS AAAESTEU.—Eight hnndred and six persons, formerly connected with the Commune, have been arrested at Marseilles, among whom are M. Esquirss, ex-Prefect of the Department.

BETTEA MAIL SEAVIOE.—The Poet-office Department has ordered a third trip per week on the mail route from Nspa City to Knoxville, Cal., and a third trip per week on the route from San Luis Obispo to Cambria.

CHAALIE ROSS.—On the tenth inetant, a womsn was arrested at Bennington, Vt., having in chsrge a child answering to the description of Charlie Rose.

POLITICAL QUARAEL.—Some unknown person shot and fatslly wounded A. C. Burton, colored candidate for the Legislatnre in Memphia, Tenn.

THE "PAT ROGERS" DISASTEA.—Forty persone are known to have been lost by the burning of the eteamboat "Pat Rogere." Of these, thirty-five have been recovered.

VESSEL MISSING.—Some anxiety is felt at the non-arrival of a vessel which left Norway July 2d, with one hundred families from Iceland for Halifax.

WORK has been commenced on the Guadaloupe quicksilver mine, Monterey oounty. Parties have agreed to open and work the mine for a one-third interest.

THE English Co., which bought the old Brogan claim at Gold Run, have been engaged in sinking a shaft, finding abundant evidence of the richness of their claim.

NEW and important digginge have lately been discovered on the west bank of the Feather river, five miles from Dogtown, Butte county.

The great flume of the Butte Flume and Lumber Co. is drawing near completion. It is calculated that from 50,000 to 75,000 feet of lumber will be floated from the mills to Chico each day.

The new road from San Diego to the Julian mines, via Stonewall, is now open. The distance is shortened 15 miles, and a mail stage line has been put on.

An extensive vein of coal has been discovered upon the Avilla grant, San Luis Obispo county.

At the picnic of the Miners' Union to Washoe Valley on Saturday, 8th inst., there were 3,000 people.

Steel rails for the Central Pacific Railroad track over the Sierras are arriving daily from Chicago.

The gold mining fever is increasing at Los Angeles, and specimens are brought in daily from various quarters.

The hydraulic works at the Sierra Nevada mine are only running on half time, owing to the scant supply of water.

Promising gold and silver mines have been discovered within three miles of San Fernando, Los Angeles county.

The Carson *Tribune* wants a quartz mill erected in that town.

Coal was last week discovered in a branch of the San Lorenzo creek.

The Manzanita mine, Nevada county, cleaned up recently $20,000.

On last Saturday night 142 flasks of quicksilver were shipped from Napa.

Chinamen are leaving Oroville in numbers. They can't make the lava beds pay.

Mining is brisk in the vicinity of Klamath river.

About 40 men have summered at the Yakima mines.

The new incline machinery of the Crown Point uses up four cords of wood per day.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, DEWEY & CO., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Aug. 11th, 1874.

For Week Ending July 28th, 1874."

Movable Dam.—Barzillar Cottle, S. F., Cal.

Apparatus for Condensing Quicksilver.—Ferdinand Fiedler and Jas. B. Randol, New Almaden, Cal.

Stove-Lid Lifter and Stand.—Samuel Hill, S. F., Cal.

Clip for Whiffletrees.—Willard N. Santee, Dalles, Oregon.

Derrick.—Elias O. Long, Farmington, Cal.

Process of Manufacturing Hard Sugar.—Claus Sprockels, S. F., Cal.

——"The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

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DEWEY & CO.

Plainfield, July 4th, 1874.

Messrs. Dewey & Co.—*Dear Sirs:* I acknowledge receipt of yours of 2d inst., inclosing my Letters Patent. I thank you for the interest you have taken in obtaining the same. Yours truly, M. W. OOON.

METALS.

Wednesday M., August 12, 1874.

Quicksilver is very firm at $1.45 ₱ lb. An editorial in a daily contemporary commenting on the advance to $1.60 was therefore premature, the local price not having changed. It is possible that there may be still another rise, as certain dealers hold the avowed intention of driving it up to $1.50, but from the encouraging outlook for future supplies, there does not seem any ground for the fear that it will go beyond, if it touches that figure—at least for a long time. Trade is quiet in other Metals, and in Lead is dull.

American Pig Iron, ₱ ton	—	@	40 00
Scotch Pig Iron, ₱ ton	—	@	40 00
White Pig, ₱ ton	—	@	50 00
Refined Bar, bed assortment, ₱ lb	—	@	— 3½
Refined Bar, good assortment, ₱ lb	—	@	— 4
Boiler, No. 1 to 4	—	@	— 5½
Plate, No. 5 to 9	—	@	— 5½
Sheet, No. 10 to 13	—	@	— 5½
Sheet, No. 14 to 20	—	@	— 5¾
Sheet, No. 24 to 27	— 08	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	— 9¾	@	—
Norway iron	— 8	@	—
Rolled iron	— 6	@	—
Other irons for Blacksmiths, Miners, etc.	—	@	— 4½
COPPER.—			
Braziers'	— 31	@	— 32
Copper Tin'd	— 45	@	—
O. Nail's Pat	— 33	@	—
Sheathing, ₱ lb	—	@	— 24
Sheathing, Yellow	—	@	— 25
Sheathing, Old Yellow	—	@	— 12½
Composition Nails	— 24	@	—
Composition Bolts	— 24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	—	@	16 00
Plates, I O Charcoal	14 00	@	14 50
Roofing Plates	12 50	@	16 00
Banca Tin, Slabs, ₱ lb	— 33	@	— 37
STEEL.—English Cast, ₱ lb	— 20	@	— 25
Anderson & Woods' American Cast	— 10	@	— 17
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC.	—	@	— 11
Zinc, Sheet	—	@	— 11½
NAILS—Assorted sizes	— 5¾	@	— 8
LEAD.—			
Pig, ₱ lb	— 5¾	@	— 6
Bar	— 6½	@	— 7
Sheet	—	@	— 9
Pipe	—	@	— 8½
QUICKSILVER, per lb	—	@	1 45

LEATHER.

Wednesday M., August 12, 1874.

Leather is quiet. There is some inquiry for skirting kinds, but heavy domestics are dull.

City Tanned Leather, ₱ lb	25@29
Santa Cruz Leather, ₱ lb	25@29
Country Leather, ₱ lb	24@28
Stockton Leather, ₱ lb	25@29
Jodot, 8 Kil., per doz	$50 00@ 54 00
Jodot, 11 to 19 Kil., per doz	66 00@ 90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55 00@ 72 00
Cornellian, 12 to 16 Ko	57 00@ 67 00
Cornellian Females, 12 to 15	60 00@ 64 00
Cornellian Females, 14 to 16 Kil	66 00@ 74 00
Beaumerville, 15 Kil	60 00@ — —
Simon, 18 Kil., ₱ doz	61 00@ 63 00
Simon, 20 Kil. ₱ doz	65 00@ 67 00
Simon, 24 Kil. ₱ doz	72 00@ 74 00
Robert Calf, 7 and 9 Kil	35 00@ 40 00
French Kipe, ₱ lb	1 00@ 1 15
California Kip, ₱ doz	40 00@ 80 00
French Sheep, all colors, ₱ doz	9 00@ 15 00
Eastern Calf for Backs, ₱ lb	1 00@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 4 50
Best Jodot Calf Boot Legs, ₱ pair	5 00@ 5 25
Good French Calf Boot Legs, ₱ pair	4 00@ 4 75
French Calf Boot Legs, ₱ pair	4 00@ — —
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	17@ 19
Eastern Wax Leather	—@— —

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Anaheim, July 30, 1874.

Messrs. Dewey & Co.—*Gentlemen:* Owing to temporary absence I have been unable to acknowledge the receipt of Letters Patent for my "Traneplanter," up to this time. I take this opportunity to hear witness to the efficient manner in which everything connected with your Patent Agency is conducted, and also the uniform courtesy and kindness I experienced at your hands. I mean to advertise the "Transplanter" in the Pacific Rural Press. Yonre reepectfully,

Timothy Carroll.

HINTS FOR INVENTORS. We will send on receipt of stamp for postage, FREE, our 52-page Circulars containing 112 Illustrated Mechanical Movements; a digest of PATENT LAWS; information how to obtain patents, and about the rights and privileges of inventors and patentees; list of Government fees, practical hints, etc. Address DEWEY & CO., Publishers and Patent Agents, San Francisco.

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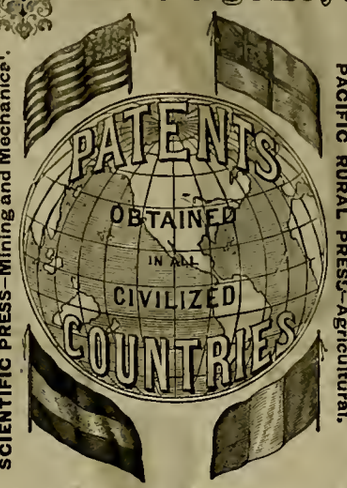

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To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Eagle Quicksilver Mining Company.—Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

Notice.—Is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of July, 1874, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 6, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessment shall remain unpaid on Monday, the 21st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Saturday, the 26th day of September, 1874, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 28th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Rooms 5 and 6, No. 302 Montgomery street, San Francisco. jy-25

El Dorado North Mining Company.—Location of principal place of business, 215 Sansome street, room No. 2, San Francisco, Cal. Location of works, Philadelphia District, Belmont, Nye County, Nevada.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 4th day of August, 1874, an assessment (No. 1) of fifty cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 215 Sansome street, room 2, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the 15th day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on sixth (6th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Directors. GEO. E. HOUGHTON, Secretary.

Office—No. 215 Sansome street, San Francisco, Cal. ag15

Electric Mining Company—Location of principal place of business, San Francisco, State of California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of June, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm R McCaw	18	2600	260 00
Wm R McDaw	65	300	30 00
Wm R McCaw	203	435	43 50
J B Houghton	15	1168	116 80
J B Houghton	201	272	27 20
Wm H Baker	7	500	50 00
Wm H Baker	8	2000	200 00
Wm H Baker	200	375	37 50
Wm H Sparks	64	500	50 00
Wm H Sparks	219	75	7 50
M Ellsworth	9	250	25 00
M Ellsworth	213	37	3 70
A O Knox	71	100	10 00
A O Knox	222	15	1 50
Maria Foley	136	50	5 00
Maria Foley	233	7	70
Maria Foley	234	½	05
Louisa Thompson	161	400	40 00
Louisa Thompson	239	60	6 00
Geo W Mullen, Trustee	126	1000	100 00

And in accordance with law, and an order of the Board of Directors, made on the 10th day of June, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 326 Pine street San Francisco, California, on the 5th day of August, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—No. 318 California street, room 13, San Francisco, Cal. jy18

POSTPONEMENT.—The above sale is hereby postponed until Tuesday, the twenty-fifth day of August, 1874, at the same hour and place. By order of the Board of Trustees. A. B. PAUL, Secretary.

Enterprise Gold and Silver Mining Company—Location of principal place of business, San Francisco, California. Location of works, Meadow Lake District, Nevada County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment No. 13, levied on the 22d day of June, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Battersby, Jas	173	3	30
Battersby, M A	361	7	70
Coil, Tracy	254	8	80
Coil, Tracy	278	40	4 00
Coil, Tracy	308	40	4 00
Coil, Mre P M	337	24	2 40
Campbell, David	263	20	2 00
Davis, E	204	40	4 00
Davis, E	252	4	40
Flynn, P R	319	100	10 00
Freeman, J E	380	40	4 00
Fenton, D W	150	150	15 00
Fenton, M P	181	50	5 00
Fenton, S H	233	20	2 00
Furrey, Wm O	381	4	40
Goddard, S	369	40	4 00
Goddard, S	370	20	2 00
Goddard, S	372	20	2 00
Goddard, S	374	10	1 00
Goddard, Fred	3	40	4 00
Heathfield, E	212	24	2 40
Hall, Thomas	331	4	40
Hall, Thomas	332	4	40
Hall, Thomas	333	4	40
Havene, Howard, Trustee	332	20	2 00
Jones, W	355	20	2 00
Locke, S M	110	40	4 00
Locke, S M	Not Issued	20	2 00
Leet, A	296	12	1 20
Mathews, M R	144	4	40
Mathewe, E G	27	40	4 00
Mathewe, E G	28	40	4 00
Mallory, A P	298	4	40
Nelson, A T	14	4	40
Phillipe, David	383	20	2 00
Pomeroy, H	149	20	2 00
Pope, J A	375	80	8 00
Pope, J A	376	10	1 00
Thompson, J P	240	4	40
Toudy, J O	383	5	50
Warren, Beasley	Not Issued	12	1 20
Woodward, E F	295	8	80

And in accordance with law, and an order of the Board of Directors, made on the 23d day of July, 1874, so many shares of each parcel of each stock as may be necessary will be sold at public auction at the company's office, 411½ California street, Room 3, San Francisco, on Saturday, the 15th day of August, 1874, at the hour of 2 o'clock P. M., of each day, to pay delinquent assessments thereon, together with costs of advertising and expenses of the sale.

E. E. RICE, Secretary.

Office—Room 3, 411½ California street, San Francisco, California.

Germania Mining Company—Location of principal place of business, San Francisco, State of California. Location of works, Tintic District, Juab County, Utah Territory.

Notice is hereby given that at a meeting of the Directors, held on the fifth (5th) day of August, 1874, an assessment (No. 2) of one dollar per share was levied upon the capital stock of the company, payable immediately, to the Secretary, at the office of the Company, 408 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the twelfth (12th) day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the second (2d) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. TRIPP, Secretary.

Office—No. 408 California street, room 16, San Francisco, Cal. ag15

Plumbago Gold Mining Company—Certificate of incorporation dated and filed in the office of the County Clerk of the City and County of San Francisco, California, June 24, 1864, No. 3340. Mine and works at Plumbago Ledge, Sierra County, Cal.

To all whom it may concern to know: The representatives of two-thirds (⅔) of the capital stock and stockholders of said corporation, having made and filed with the Board of Trustees, on the 4th day of August, 1874, their written assent that the place of business of said corporation should be changed from the City and County of San Francisco, to Minnesota, in Forest Township, Sierra County, Cal.

Notice is hereby given, that it is the intention of said corporation to remove its principal place of business from the City and County of San Francisco, to Minnesota, in Forest Township, in Sierra County, immediately after publication of this notice for the period of thirty days from its first insertion in the Mining and Scientific Press, a newspaper printed and published in the City and County of San Francisco, Cal. Done by order of the Board of Trustees. S. B. DAVIDSON,
Secretary Pro. Tem.
August 4, 1874. 6w29-1m

Providence Gold and Silver Mining Company—Location of principal place of business, San Francisco, State of California. Location of works, Hayden Hill, Lassen County.

Notice is hereby given, that at a meeting of the Directors, held on the 10th day of July, 1874, an assessment (No. 1) of Ten Cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 331 Montgomery street, room 18, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 17th day of August, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the seventh day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. H KNIGHT, Secretary.

Office—No. 331 Montgomery street, room 18, San Francisco, California. jy18

Virginia Consolidated Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Kearsarge Mining District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 31st day of July, 1874, an assessment of seven cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 7th day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 30th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office, No. 318 California street, San Francisco, Cal. Room No. 13. ag8

Machine Builders.

THE RISDON
Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

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Wm. Norris, Wm. H. Taylor, J. B. Haggin,
James D. Walker.

WM. H. TAYLOR.....President
JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
24v17-qy

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

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Rolling Mill Company,

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Established for the Manufactura of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

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☞ The highest price paid for Scrap Iron.

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MANUFACTURERS OF
STEAM ENGINES, BOILERS,
GROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
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IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the Hepburn Rolling Pan and Callahan Grate Bars, suitable for Burning Screenings.
NOTICE.—Particular attention paid to making Superior Shoes and Dies. 20v25.3m

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Meta Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch
☞ PRICES MODERATE. ☜
J. H. WEED. V. KINGWELL.

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MANUFACTURERS OF
MACHINERY OF EVERY DESCRIPTION.
SOLE MANUFACTURERS OF
MOORE'S PATENT STORE HOIST.
N. D. ARNOT, Manager,
15v28-3m 135 and 137 Fremont Street.

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EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured. 2v15or

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AGENTS FOR THE

Burleigh Rock Drill Company.

—MANUFACTURERS OF—

PNEUMATIC DRILLING MACHINES,

AIR COMPRESSORS AND OTHER MACHINERY.

Tha only Drilling Machinery that has ever done any successful Tunnel work in America, is being used upon the largest tunnels and mining operations on the Comstock lode; also in Placer, Mariposa and Nevada Counties, Cal.
Sample machinery can he seen and further information given, by applying to

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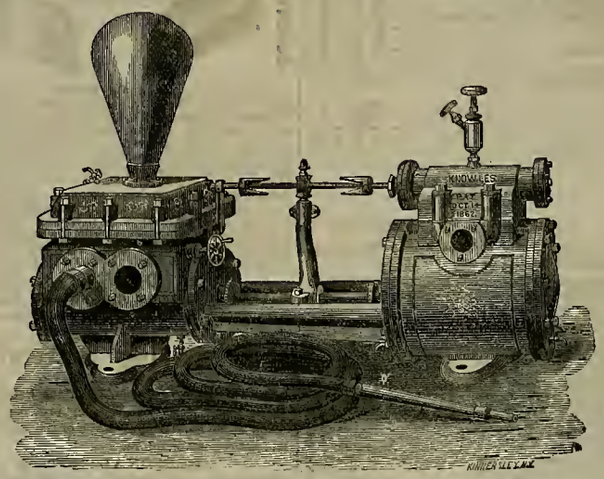
Sole Agents for States and Territories west of the Rocky Mountains, 103½ Leidesdorff steeet, Hayward's Building, San Francisco, Cal. 21v28-3m-hd14p

KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
SACRAMENTO, Cal., January 14, 1873.

A. L. FISH, Esq., Agent of the Knowlee Steam Pump—Dear Sir: In reply to your inquiry as to the merits of the Knowlee Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have now over 20 of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other. Yours, truly, A. J. STEVENS, General Master Mechanic.

A. L. FISH, Agent Knowles' Steam Pump—Dear Sir: In answer to your inquiries, we state that the highest award for Steam Pumps at the Eighth or last Mechanics' Fair in San Francisco, was a FIRST PREMIUM and Diploma, awarded to Knowles' Patent Steam Pump, as published in the Official List September 23d, 1871.
A. S. HALLIDIE, President Board of Managers.
W. H. WILLIAMS, Sec'y Board of Managers Eighth Industrial Exhibition, M. I.

WE BUILD AND HAVE CONSTANTLY ON HAND
The Largest Stock of Pumps in the World,
And for Every Conceivable Purpose.

SOLE AGENT ON THE PACIFIC COAST FOR THE
CLAPP & JONES SUPERIOR STEAM FIRE ENGINE,
Challenging the World!

THE CELEBRATED BOOMER PRESS,
For Wine, Cidsr, Lard, Paper, Wool, Hops, Hidss, Tobacco, Rags, etc.—the Most Powsrful in Uss.

A. L. Fish, Agent,
Nos. 9 and 11 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand. 4v29-1am-bp-3m

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SOLE PROPRIETORS AND MANUFACTURERS OF
WARING'S IMPROVED SELF-FEEDING

Rock Drill,

BY FAR THE MOST
Simple and Effective Machine
FOR ALL DESCRIPTIONS OF
MINING, RAILROAD AND QUARRY WORK

Office, 835 Broadway, Cor. 13th street
10v28-6m NEW YORK.

Miners' Foundry and Machine Works,

CO-OPERATIVE,
First Street, bet. Howard and Folsom, San Francisco
Machinery and Castings of all kinds.

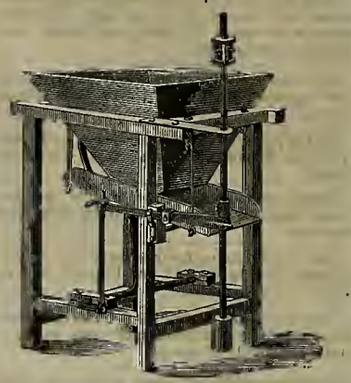
California Assay Office—J. A. Mars &

Wm. Irelan, Jr., Chemists and Assayers, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

PURCHASERS please say advertised in Scientific Press.

Machinery.

Tulloch's Automatic Ore Feeder.



At the request of Mr. Jas. Tulloch, we have carefully examined his patent Ore Feeder for Quartz Mills, now on exhibition in this city at the Pacific Foundry, and in view of its simplicity of construction, directness of action, durability and compactness, as well as its small weight and the low price at which they are held by the patentee, so as to place them within reach of all mill owners, are free to state our unqualified opinion that we regard it superior to any Ore Feeder of which we have any knowledge in actual work. We are confirmed in this opinion by the severe tests to which it has been put, doing its work thoroughly well on ores of all kinds. We find the delivery to the mortars of the ore-stuff, whether dry, damp or wet, to be entirely uniform and regular, and that even slimes and slush can be worked in them under perfect control.

F. REICHLING,
J. W. GASHWILER,
LOUIS BLANDING,
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J. B. HITCHCOCK,
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GEO. MUROKTON,
JAMES G. HUNTER,
FRANCIS H. HILL.

San Francisco, July 3, 1874. 2v29-1m

THE
AMERICAN TURBINE WATER WHEEL.

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ¾ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "Thsse are the best averags rssults sver givsn by any Turbins Whssl in my experisnce."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

TREADWELL & CO.,
SAN FRANCISCO, CAL.

Sole Agents for the Pacific States and Territories.
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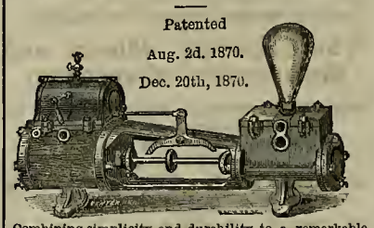
THE SELDEN
DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—
STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.
CARR PATENT STEAM RADIATOR.
Send for Price List and Circulars. Address,

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STEEL SHOES AND DIES

FOR QUARTZ MILLS.

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy.*

Die.

Shoe

Will wear three times longer than any Iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.
All orders promptly filled.

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68 Liberty street, N. Y.
Examination solicited. 9v28-1y

EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)

The Cheapest and Most effective Furnace now in use Parties desirous of building above furnace, or for any information on same, address,

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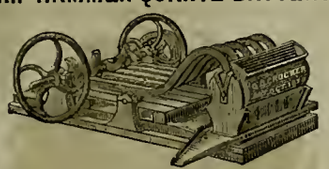
CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

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BOILER MAKERS

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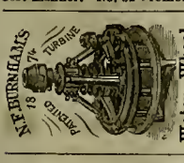
THEODORE KALLENBERG,

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.
Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m



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STEAM ENGINES AND BOILERS

Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by

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TRADE MARK

G. & H. BARNETT,

Manufacturers of Files of every Description,

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Sold by all the principal hardware stores on the Pacific Coast. 18v25,1y

CAST STEEL SHOE & DIE CO.,

Room 28, Hayward's Building.

No. 419 California street, - - SAN FRANCISCO.

Cast Steel Shoes & Dies for Quartz Mills.

[PATENTED MAY 26TH, 1874.]

An improvement greatly needed, being stronger, more durable and economical than iron.

We guarantee the STEEL SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent cheaper, Price, 20 cents per pound, shipped from San Francisco. It takes 40 days to fill orders from the manufactory East.

Address all orders, with dimensions, to

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Room 28, Hayward's Building, San Francisco.
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DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent, 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	5	6	6	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches	2	2½	3	3½	4	4½	5	6	7	9	10½	12
Stroke of Piston, in inches	6	6	6	7	10	10	12	12	12	15	16	18
Capacity per double Stroke, in gallons	1–6	1–6	1–3	½	½	1–1	1–1	2	3½	4¼	5–7	7–8
Capacity at ordinary Speed, per minute	10	15	23	35	45	60	80	110	140	270	325	400
Maximum Capacity	30	45	80	100	135	165	240	300	360	675	900	1200
Boiler in horse power they will supply	25	40	80	120	160	225	360	425	600	....	....	....
Size of Steam Pipe, in inches	¾	1	1¼	1½	1½	2	2½	3	3½	2	2½	3
Size of Exhaust Pipe, in inches	1	1¼	1½	1½	2	2½	3	3½	4	3	3	4
Size of Suction Pipe, in inches	1¼	1½	2	2½	3	3½	4	5	5	5	5	5
Size of Discharge Pipe, in inches	1	1	1½	1½	2	2	2½	3	3	4	5	6
Weight of Pump, in pounds	186	253	400	425	810	875	1280	1500	1520	2400	3375	4800
Length over all, in feet and inches	1–4	1–4	2–0	2–0	2–11	3–1	3–7	4–3	5–3	6–10	7–7	8–0
Height over all, in feet and inches	1–4	1–4	2–3	2–3	3–1	3–1	3–7	4–3	5–3	7–1	8–7	9–0
Width over all, in feet and inches	1–6	1–10	1–1	1–1	1–3	1–1	1–6	1–10	1–10	2–1	2–9	2–10
PRICE	$	$	$	$	$	$	$	$	$	$	$	$

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when fitted with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS, { No. 4, 24-in. Stroke, $; No. 5, 24-in. " $; No. 6, 30-in. Stroke, $; No. 7, 30-in. Stroke, $; No. 8, 36-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

Metallurgy and Ores.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merite.
They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operatss as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.
Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.
Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street,
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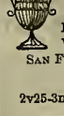
Important to Miners and Mill Men.

Silver-Platsd Copper Amalgamating Plates, for Saving Gold.



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Particular attention given to plating goods for Builders, Plumbers, etc. Hotel and Restaurant work replated.

SAN FRANCISCO GOLD AND SILVER PLATING WORKS,
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Chemical Apparatus and Chemicals,

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We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

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Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.
☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.
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We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

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Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes
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Platinum Scrap and Native Platinum purchased.

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Ores worked by any process.
Ores sampled.
Assaying in all its branches.
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On all kinds of Ores, and particular attention PAID TO

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MANUFACTURERS OF

HYDRAULIC PIPE

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Artesian Well Pipe.

Having the Latest Improved Machinery, we can make it an object to

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SHEET IRON PIPE.

ALL SIZES MADE AND ALL WORK GUARANTEED

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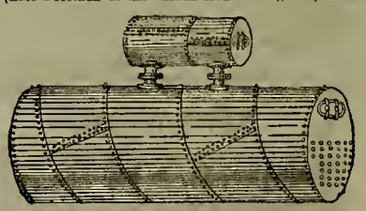
San Francisco Boiler Works,

123 and 125 Beale Street.....SAN FRANCISCO

F. I. CURRY,

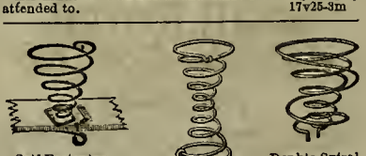
(Late Foreman of the Vulcan Iron Works,) Proprietor



High and Low Pressure Boilers of all Descriptions.

SOLE MANUFACTURERS OF THE CELEBRATED SPIRAL BOILER.

SHEET IRON WORK of every description done at the Shortest Notice.
All kinds of JOBBING and REPAIRING promptly attended to. 17v25-3m



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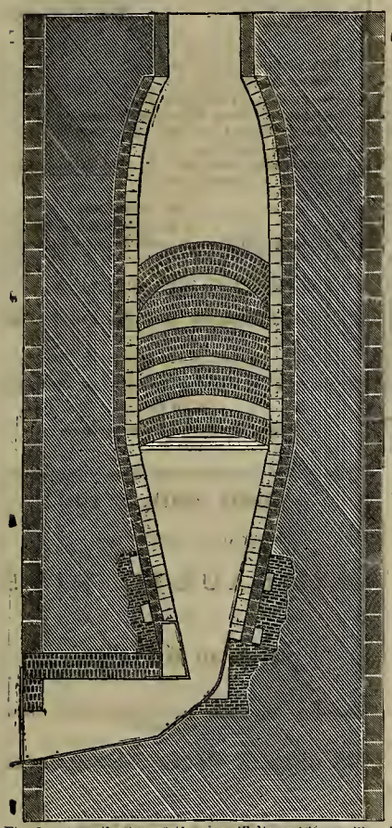

Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches.

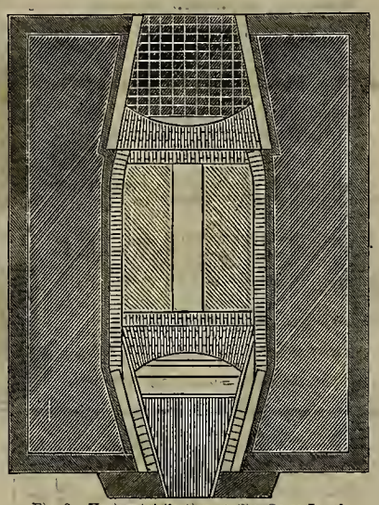

Fig. 3.—Horizontal Section at Fire Grate Level.

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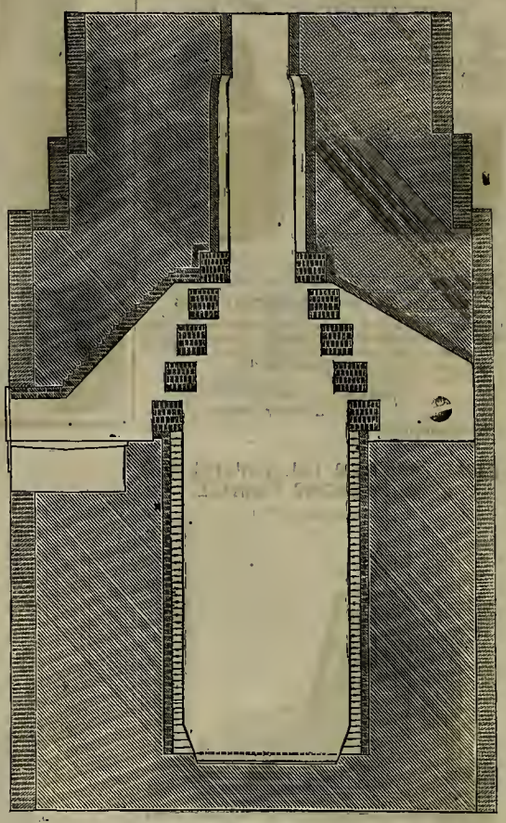

Fig. 2.—Out Transversely from Fig. 1.

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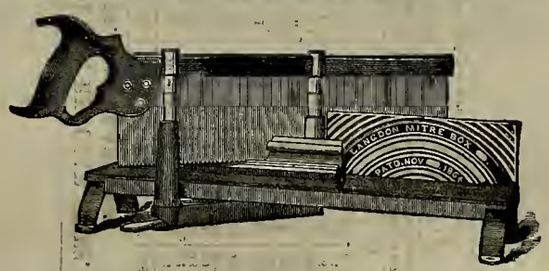

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SAN FRANCISCO, SATURDAY, AUGUST 22, 1874.

VOLUME XXIX Number 8.

Academy of Sciences.

The regular semi-monthly meeting of the California Academy of Sciencee was held on Monday evening last, President Davideon in the chair.

The following described objects were received for the Museum of the Academy:

A gigantic speciman of burrowing mollusca, of the genus *Zirfea*, probably *Zirfea crispata*, found in the northern Pacific waters, presented by Professor Herbst.

A small fish, position undetermined, from the north Pacific, contained in the same jar with the *Zirfea*.

An eel-shaped fish, known as *ophisurus Californiensis*, described and figured in the proceedings of the Academy in September, 1863, by Andrew Garrett. The specimen then noticed was said to have been captured at Margarita bay.

Specimens of a snake, not common, sometimes known as the double-headed snake, the tail being similar to the head in size only. It is perfectly harmless. Collected by Rev. S. V. Blakeslee, in the Sierras, and labeled *Winona plumbea*. There is some doubt as to the species, however, as the latter is described as lead color, while the specimen is red.

A small collection of plants from the Island of Strick, one of the Japanese group, collected by John O. Werner, and presented by W. G. Harford.

Piece of camphor-wood from the wreck of a Japanese junk on the island of Strick, received from same source

Specimen of kelp, a sea-weed used for food by the Japanese fishermen on the island of Strick. The plants of this order are usually of gigantic size. The nereocrystes of the northwest coast is said, when fully grown, to have a stem measuring 300 feet in length, which bears at its summit a huge air vessel six or seven feet long, shaped like a great cask, and ending in a tuft of upwards of fifty forked leaves, each of which is from forty to fifty feet in length.

A spherical mass of hard sandstone, found at Saucelito, by F. P. McLean. It was broken under the expectation that it might contain crystals. There was found in the center a hard, wedge shaped body, around which the concretion seemed to have been made.

A monstrous chicken, with four legs and four wings, presented by Mr. Meinecke.

Two specimens of *Estheria Californica*, a very curious entomostracous crustacean, from Alameda county, presented by James Behrens.

A day-flying moth, *Ctenucha multiforia*, presented by Dr. Blake.

Specimen of the *Torregia Californica*, belonging to the cone-bearing order *coniferæ*. This is popularly known as the California nutmeg; but, like the so-called coffee, has no affinity, either in its structure, scientific position or qualities. Presented by Mr. Yale.

Specimen of gigantic fern, *Woodwardia radicans*, presented by J. W. A. Wright.

Specimens of Chinese water-nut, from R. E. C. Stearns, with descriptive paper, suggesting the propriety of cultivating the species in this State. It is a favorite article of food with the Chinese and other Asiatic races.

A wild plant quite common in various parts of the State, having recently been brought to public attention, on the supposition that it was a species of the coffee plant, a specimen was submitted for the determination of the Academy. The herb was familiar to different members, all of whom denied its affinity, in any form, with the coffee family. It was described by Mr. Bloomer, Curator of the Museum, as the *Frangula Californica*, belonging to the order *Rhamnacea*, mostly trees and shrubs, with simple alternate leaves. The coffee plant, *Coffea Arabica*, belongs to the order *Cinchonacea*, having opposite leaves, and a well-marked and large family. It contains a very considerable number of important species. Many are among the most valuable of all remedial agents, acting as tonics, febrifuges, emetics or purgatives. Others, on the contrary, having their secretions in a state of great condensation, prove to be formidable poisons. A few only produce eatable fruit, and the *Coffea Arabica* is celebrated over all others for the agreeably stimulating properties of its berries.

Dr. Blake read a paper on "Sonorous Sand from the Island of Kausi;" referred to more at length in another column.

Professor Thomas Gnerin, an eminent hydraulic engineer, who has recently come to this Coast, read a paper "On the Construction of Canals depending upon tidal water for their supply.

Professor George Davidson, of the United States Coast Survey, read an elaborate paper "On the Transit of Venus," which was accompanied with numerous diagrams and mathematical demonstrations. The subject was treated very fully, and a complete description of the methods by which the transit would be observed, was given.

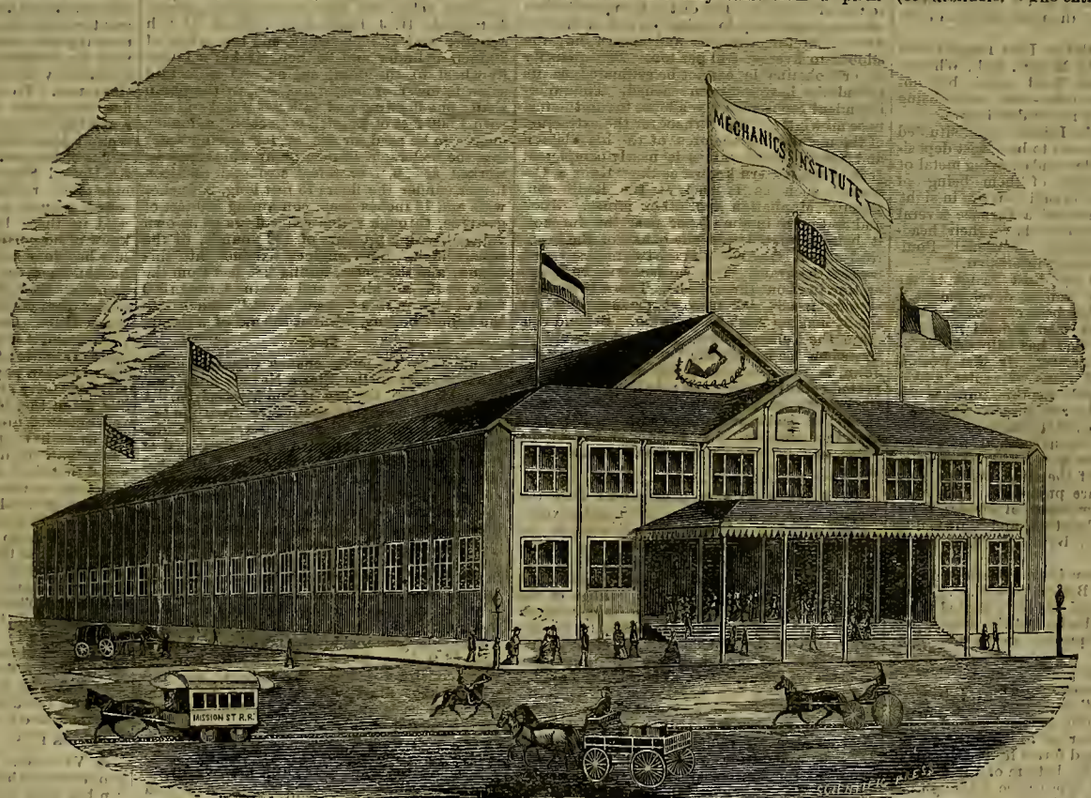
The Corresponding Secretary read communications from the Academy of Sciences of Belfast and London, requesting copies of the proceedings of the California Academy of Sciences.

Also a memorial announcing the death of Dr. Ferdinand Stoliczka, of Calcutta, an eminent palæontologist and naturalist. Also a communication from the proprietor of the property on which the shell mounds of Saucelito are situated, expressing his willingness to permit the mounds to be opened in the interest of science.

Water Nuts.

Many of our readers have probably seen the Chinese nuts, which resemble very much a pair of horns. They are very peculiar in appearance, but are not uncommon in this city, where we sometimes see a bushel in a single lot. They are the fruit or nut of an aquatic plant which grows in lakes and streams and the species *Trapa bicornis* is cultivated by the Chinese and has an extensive sale in their country, being highly esteemed. Several of these nuts were presented to the Academy of Sciences at its last meeting, and Mr. Stearns remarked that they came from a plant (of which there are several species) known to botanists as *Trapa*, belonging to the natural order *Onagraceae*.

The specimens shown were the fruit of the *Trapa bicornis* (or two-horned), the propriety of the name being manifest. The nut is sometimes called the water chestnut. The Chinese call them *Long* or *Links*. Another species, *trapa natans*, grows in middle and southern Europe, middle Asia, and northern and central Africa, and the fruit or nut has four spines. *Trapa Bispinosa* is found in Asia and parts of Africa, and it is said also to be cultivated in Japan. In some of these countries this latter species is an important staple in the way of food to the population. The nuts are held in high esteem by the Hindoos, and are sold in all the shops in India. Mr. Stearns thinks it is quite likely that some one of the species might thrive well in this country, and it would be well for some of our enterprising Californians to experiment with the Chinese species, which are easily obtainable in this city. The nut is well known among us from the peculiarity in shape. Some of the nut-growers in the southern part of the State might try the cultivation of these nuts at small expense, and see what can be made of them. There would be a good market for the nuts in this city and State among the Chinese population.



MECHANICS' FAIR PAVILION—1874.

The Industrial Fair Building.

The Ninth Industrial Fair of the Mechanics' Institute, of this city, was formally opened this week. The building in which the exhibition is held is a spacious one, as the accompanying engraving shows. The outside appearance, however, is not very elegant; but as the building is only a temporary structure, this was not to be expected. The Institute has a lease of the property for five years, with the privilege of retaining possession of it the sixth year, if desirable. The entrance for visitors is on Mission street, the building running from Mission to Market on Eighth street. A portion has been constructed from the front of the pavilion jutting out over the sidewalk, forming a covered way by which visitors can enter from cars or carriages, without exposure to the weather.

The contract for its construction was awarded on the 7th of May; and only about three months ago much of the lumber of which the Pavilion is constructed was growing in the forests of Oregon. Many of the timbers were cut to order, to suit the vast dimensions of the building. Some of these timbers measure 80 feet in length, 12x12 in., without a knot or flaw. The materials of which the structure is composed are as follows: 1,703,000 feet of lumber, exclusive of shingle, which were 1,398,000 in number; 190,000 bricks for foundation; 4,000 lbs. of iron bolts; 306 kegs of spikes and nails. The building contains 6,287,000 cubic feet, covering about 4½ acres of ground. The hight of the great exhibition building, from the floor to the arched ceiling, is about 90 feet. The first floor does not cover the whole area of the building, a wide space on the east side being appropriated to the display of horticulture.

The exhibition rooms of the upper floor or galleries extend the full length of the building; the west side being reserved for the art gallery. A promenade 16 feet wide extends around the front portion of the gallery, by which the entire circuit of the building can be made. This is kept exclusively for promenading, and offers the most favorable point for forming a general conception of the size of the building and of the grand display on the main floor below.

Visitors to the Pavilion for the first time are naturally amazed at its immense size. The building is 545 feet in length by 200 in width. To the average mind, the simple statement that when two people separate in the Pavilion they have as much chance of meeting again as if in the streets of a strange town, will convey a better conception than the figures. The arrangement is admirable. A regiment of troops could easily march and counter-march on the open area of either of the galleries.

Mr. J. A. Lytle writes from Cinnabar, Trinity county, that he is now extracting 100 pounds of quicksilver a day, by means of retorts, and has struck ore enough to run a 30-ton mill.

About 600 flasks of quicksilver have already been produced from the Cerro Benito mines at Panoche, San Benito county, notwithstanding the trouble had with the furnaces.

The miners' strike, at Nanaimo, British Columbia, has come to an end.

Quicksilver in Sonoma and Napa.

We condense the following description of the new quicksilver district from the Calistoga *Press:*

Approaching the Geyser and Healdsburg stage road from the west, the first mine is the Kentuck, now being worked under lease by the "Land and Contract Company," of San Francisco. There has been a large quantity of ore extracted, and several thousand dollars' worth retorted. The ore is taken from a great depth, and seems to be of a permanent character. Four long tunnels have been run, and reduction works on a large scale are soon to be erected, providing the tedious lawsuit which hangs over the title is settled.

Easterly from the Kentuck lie the Pocket Star and Wehfoot. These claims will not be worked to any extent until the aforementioned suit is settled.

Adjoining this easterly lies the Geyser mine, one of the oldest and best prospects in the district. It is owned by Edgar Mills and G. W. Gilbert, of Sacramento; Dr. Mott, of Marysville; Mr. Hossack, of Sonoma county; M. Friedburg, of San Francisco, and others.

Easterly and adjoining is the Lost Ledge, now being worked under lease, with the privilege of purchase, by the Oakland mining company, of San Francisco, Messrs. Reynolds, Roberts and Robertson being largely interested. The metal at this mine is the richest in the district, and is in place, and as the result of one week's extraction, with three very small retorts—holding but 200 pounds at a charge each—they have shipped this week a week's run of 25 flasks. This is a better result than has yet been obtained with reduction works of so limited a character. The lessees are erecting more retorts, and expect to more than double their present production. They have the ledge in their tunnel, and it carries cinnabar in richer quantities than any other mine in the county.

Almost parallel with the Lost Ledge is the Emma mine, owned by Messrs. Ball, Whitton and others. It shows good metal, but not much work has been done—the mine being involved in the lawsuit referred to before.

Southwesterly lies the Illinois mine, situated in the ravine, which seems to be a vast depository of very rich boulders and carrying metal of superior richness, some of them being of immense size. There is sufficient ore in sight to pay for the erection of a furnace several times over. This company have their headquarters at San Francisco. Verdeaal, Poulterer and others are largely interested.

To the eastward of the Lost Ledge is the Missouri mine, upon whose development a large sum of money has been expended. This mine is well supplied with reduction works, engine, crusher, etc., and has shipped a large amount of metal to market. It was worked during the snows and rains of winter, and to the developments made at this mine, is the reputation of the district largely indebted This mine has employed between 30 and 40 men, but the same tedious lawsuit affects its progress. The retorts at present are paying double the expenses of the mine, and the prospects for the future are promising. The mine is under the superintendency of Messrs. Comfort and Winters, of Calistoga, and is owned by Messrs. Stuart, Elder, Bowen, Kellogg, Litten and others.

Adjoining the Missouri is the Peerless, owned by Frank Adams, of Boston, and W. P. Litten, of Calistoga. A tunnel has been started to tap the ledge at a great depth, but the owners propose awaiting developments on its neighbor, the Missouri.

Following the trail passing the Peerless we come to the Rattlesnake. This is what is known as a "native" quicksilver mine. The metal is not in the form usually termed cinnabar, but is found adhering to the walls of the tunnels and shafts, and forms in little pools in the dirt or earth at the bottom of the tunnels. It presents the same appearance as though one had carried the metal into the tunnels and scattered it broadcast on the sides and roof. Mr. De Noon is superintendent. He has built more roads and made more improvements since last winter than all the other mines combined. He has the brick burned and is commencing the erection of a Luckhardt and Riotte furnace, which will have a capacity of 30 tons. This mine is in splendid condition. It has hundreds of tons of "sdohes" ready for the furnace, and is sure to prove remunerative to its owners, Parrott, Lightner, Burling and others, of San Francisco.

The Thompson mine, owned by Thompson Brothers, Pine Flat, is known to be rich, but little work has been done on it. The Sonoma is owned by General Dodge and others, of San Francisco, it having been purchased from Thompson Brothers some six months since for a good round sum. A large furnace has been erected and the shipments of quicksilver will average about 40 flasks a month at present. As soon as the ledge is tapped, if it is as rich as its surface covering would indicate, the result will be five times as great with the same works.

The next claim of importance is the Annie Belcher, superintended by Matt D. Carr. This claim is very promising, and shows very fine metals. Mr. Carr has displayed great energy in building roads to his mine, and in the general development of the district.

The Central is owned by Stuart, Pike & Litten, has a fine prospect, but not fully developed. Work is being pushed forward rapidly. A fine body of timber and plenty of water are included in the location.

Now the belt seems to divide, one portion running in an easterly direction, bringing to notice the American, owned by Wright and others, and the Great Western, the most promising mine on the coast, producing from $40,000 to $50,000 per month, which amount the superintendent soon expects to increase to $75,000. Shares of stock in this mine are held at $25 each, making the market value of the mine $1,250,000.

Taking the other direction, from Pine Flat southerly, we follow the other arm of the belt until we arrive at the Oak Grove, owned in part and worked by Nathaniel Morrison, lately from the East. They have cinnabar in the ledge.

The next claim attracting attention is the Yosemite, owned and worked by Everett E. Stacy, W. S. Burnham and others. The owners are sparing neither expense nor labor to follow the inducements which present themselves in their tunnels.

The Little Beauty, owned by James F. Stuart, of San Francisco, and the Norton claim, adjoining it, are both in good position, but not opened sufficiently to rank as mines.

Next we enter the lines of the Knight's Valley ranch, owned by San Francisco parties. This is a Spanish grant, patented, and the titles to the mines thereon are beyond any dispute. Just inside the borders of the grant we find the Ida Clayton, which is but four miles from the Great Western, the ledge running in that direction. Some twenty men are at work. Two hundred and fifty tons of ore are ready for the furnace. The ore is known as "black ore," and is very rich. The mine is fully established, and Mr. Cross, of long experience in the Redington mine, is the Superintendent.

The Yellow Jacket is owned by William A. Stuart and others, and has been prospected for a long while, and large quantities of very rich dirt await transportation to the furnace, now in course of erection. The dirt is being made into adobes preparatory to being burned in the furnace. Careful estimates and assays show the adobes to average $40 per ton. The quantity of ore obtainable cannot be estimated, as its boundaries have not been reached. The superintendent reports enough adobes to run the furnace all winter. The furnace for the extraction of the metal from the ores of the Ida Clayton and Yellow Jacket mines is nearly completed. It is of the pattern known as the "Knox & Osborn," such as is used at the Redington, Phenix, Manhattan and other mines. Wood and water are in abundance near the furnace, it being situated upon the banks of the beautiful stream lying between the two mines, which crosses the grant. The furnace will be in operation in about three weeks. These two mines employ nearly 100 men at present building roads, making brick and mining. Beyond this mine, the Yellow Jacket, no metal is found on the same lead, until the Vallejo mine, the St. John, is reached—a long distance of unprospected country. One can ride horseback along the belt we have described, commencing with the Yellow Jacket and ending with the Kentuck, and the peculiar color and formation of the ledge matter attracts attention the entire distance.

MINT ITEMS.—Under instructions from the Department at Washington, to bring the expenses for wages of workmen and adjusters at the United States Branch Mint in this city within the appropriation of Congress for that purpose, a number of employés were discharged on the 11th inst. By the old rulings of the department the employés of the mint were allowed extra pay for work performed after the expiration of the official day of eight hours. Work thus performed, during the imperative demand for trade-dollars, exhausted the appropriation for the late fiscal year in April, instead of June, and necessitated the passage by Congress of a deficiency bill for $60,000. The appropriation by Congress for the present fiscal year, amounting to $140,000, is $40,000 in excess of the appropriation for the year 1873-74, and will doubtless suffice to satisfy all demands for wages. The mint building, at the corner of Fifth and Mission streets, is steadily progressing toward completion, and will be ready for occupancy in a few months. It is a large and imposing structure, covering a superficial area of 225x160 feet, and contains a mass of superior machinery perfectly bewildering to the uninitiated spectator. The coining machinery commands the admiration of all mechanics who have been permitted to pay it a visit of inspection. The room it occupies is about 30 feet square, and located in the southeast corner of the building. The principal die weighs about 15 tons, and is the largest ever made in the United States, and the only one ever made of the pattern. It will be used for coining $20-pieces and the trade-dollar. The other two new dies will be used for touching up the $10 pieces, and for one-half and quarter dollars, while the two dies now in use at the mint will be brought over for the dimes and half-dimes.

A NEW Pioneers' society is being organized in Virginia city. All men who were residents of the Territory of Nevada prior to January 1st, 1863, are eligible to membership. The names of nearly 200 members have already been enrolled, and a meeting for permanent organization and election of officers will soon be held.

A RICH strike was last week made in the Exchequer mine, Alpine county. Some of the ore assayed as high as $1,000 per ton.

A COMPANY from El Dorado is fluming the North fork of the Yuba river, at New York Flat.

The Sierra Nevada Hoisting Works.

We had the pleasure, yesterday afternoon, says the *Independent*, of being present at the starting up of the new and powerful hoisting works at the Sierra Nevada mine. The new shaft is in three compartments—two hoisting shafts 5x4½ feet, and a pumping shaft, 6x5 feet in the clear; is 1,500 feet northeasterly from the old works, 1,000 feet east of a north and south line from the old works, and is further east than the shafts of any of the principal mines on the Comstock. John Lambert, the superintendent of the Sierra Nevada mine, conceived the idea of sinking this shaft, and suggested the architecture and construction of the new works. I. F. Thompson, the well-known architect, drew the plans, and W. I. Salkeld, who is both architect and practical builder, constructed the buildings, gallows frame, tanks, etc. William M. Candler, one of the most skillful machinists and engineers on the Comstock, or the coast, superintended the placing of the machinery. Charles M. Bonnemort, for some years foreman of the Savage mine, is foreman of the new mine, and struck the first pick in the new shaft. The shaft is now 425 feet deep, and contains 225 feet of water, which is being hoisted up to and run out through a drain tunnel, which intersects the shaft 155 feet below the surface.

The Main Building

Over the shaft and hoisting works is a most substantial structure, 105x40 feet; carpenter shop, 60x35 feet; boiler room, 52x40 feet, and blacksmith shop, 40x30 feet in size—all connected and bracing each other against the strong winds which sweep across the elevated plateau upon which they are situated, with terrible force.

The New Machinery

Consists of eight 50-inch boilers (in two independent sets); two slide-valve engines, manufactured by H. J. Booth & Co., one of 22-inch cylinder and 48-inch stroke, and the other of 20-inch cylinder and 36-inch stroke; a 14-ton fly-wheel to the pump engine, and a reel to same to lower or hoist pipe, etc., in the pump shaft; one hoisting reel with 2,000 feet and one with 1,500 feet of English wire cable; a donkey engine to be used for fire or for forcing water into the boilers; a 10-inch pump which may be worked at 5, 6, 7 or 8-feet stroke; a cast-iron heater (under the floor) 15 feet long, 26 inches wide and 16 inches deep, containing 500 feet of gas-pipe, through which water flows of its own volition, with a pressure of 132 pounds. to the square inch. Both engines exhaust into this heater, and the water, falling 285 feet from the tank on the hill above, and passing through 500 feet of pipe in this "steam chest," rushes into the boilers boiling, without the aid of a pump.

Fire

Would have no more chance to spread about the new shaft of the Sierra Nevada mine than it would upon the bed of the Mississippi. A 7-inch pipe conducts the water from the two large tanks 285 feet above, on the side of Cedar hill, and reaching the yard a few steps west of the hoisting works, the water is distributed about the premises by means of three 4-inch and several smaller pipes. The works stand in the center of a triangle of hydrants fed by these 4-inch pipes, and as a means of extinguishing fire either one of these hydrants is more than a match for all the steam fire engines in the city. In fact, when a full head is turned on, the hose will throw three or four of the heaviest men about as though they were feathers. Then there are four hydrants and a donkey engine inside the building. A water tank 18 ft. long, 10 ft. wide and 8 ft. deep has been constructed near the boilers, and this will be kept filled with water for use in the boilers in case anything should happen to cut off the regular supply.

Appurtenances.

The gallows frame over the shaft is one of the most substantial and ingeniously constructed ones on the lode, and was built by Mr. Salkeld.

Another very ingenious piece of work is a new kind of safety cage, constructed on the spot by Dan. Kelly, head blacksmith for the new works. The clamps (cast-iron wheels with sharp cogs) are thrown out by strong steel springs, constructed on the same principle of those in a gun-lock, instead of the old wire spring or wrapper.

Two dial plates, each six feet in diameter, are to be placed directly in front of the engineer and brakemen, and between them and the pulleys on the gallows frame, to indicate at all times the exact position of the cages in the shafts. These have not yet been put in place, but all the machinery for attaching them to the shafts of the reels is on hand.

The main building will be ceiled over the machinery, and is surmounted by an observatory or ventilator, consisting of a series of glass windows, so that the dust and snow can be kept out by closing the windward side, and at the same time the building can be ventilated by opening the windows on the opposite side.

All the machinery and the building itself is so arranged that two additional shafts may be sunk on the south side of the present one without interfering with the work now going on.

THE mill at Eagan will soon be started on ores from the mines of the San José Co., and other custom rock. General Rosecrans, the President of the company, has made many important improvements and changes in the whole machinery of the institution, and a sure guarantee is given of a successful run.

The Black Hills.

A *Tribune* correspondent with the Black Hills expedition writes from within two miles of the south fork of Cheyenne river, August 3d, giving the following summary of Custer's official report to date from July 16th:

Starting from Prospect valley, Dakota, the expedition moved in a southwesterly direction until it reached the valley of the Little Missouri, up which we moved 200 miles. The valley is almost destitute of grass. From the Little Missouri to the valley of Belle Fourche the country was generally barren and uninviting. Belle Fourche was reached on the 18th of July, and good grass, water and wood were abundant. From this point, just west of the line separating Dakota from Wyoming, was begun a skirmish through the outlying ranges of hills. The country is a very superior one, covered with excellent grass and having an abundance of timber, principally pine, oak and poplar. On the 22d we halted and encamped within forty miles of a prominent peak in Wyoming, called "Inejan Years," 6,600 feet high, which peak we ascended, lying over here one day. The expedition then turned due east, and attempted a passage of the Black Hills. After a short march we came into the most beautiful valley. "Its equal," said General Custer, "I have never seen." Such too, was the testimony of all those who beheld the panorama spread out before us. Every step of our march that day was amidst flowers of the most exquisite color and perfume, some belonging to new or unclassified species. The water in the stream stood at 44 degrees. This beautiful vale was christened "Floral valley." We followed this valley to the top of the western ridge of the Black Hills, winding our way through a little park of great natural beauty. On the 30th we camped within four miles of the western base of Harney's Peak, which the next day General Custer ascended with engineers and a small escort. The peak was the highest point in the Black Hills. This morning two companies under Colonel Hart were dispatched to extend our explorations in a southerly direction to the south Fork of the Cheyenne. To-morrow, General Custer, with five companies of cavalry, will endeavor to reach the same stream in a southwesterly direction from Harney's Peak.

The correspondent adds: In no portion of the United States, not excepting the famous blue-grass region of Kentucky, have I ever found grazing superior to that which grows wild in these hitherto unknown regions. I know of no portion of our country where nature has done so much to prepare homes for husbandmen, and left so little for them to do, as here. Everything indicates an abundance of moisture within the space occupied by the Black Hills. Gold has been found in several places, and it is the opinion of those who are giving attention to the subject, that it will be discovered in paying quantities. I have upon my table forty or fifty particles of pure gold, in size about that of a small pin-head. Most of it was obtained to-day from a single pan of earth; but as we have not remained longer at any camp than one day, it will be readily understood that there is no opportunity to make satisfactory examinations in regard to deposits or valuable minerals until further investigations are had. Regarding the richness of the deposits of gold, no opinion should be formed. Veins of what the geologists call gold-bearing quartz crop out on every hillside. All existing geological maps of this region have been found incorrect. The northward march begins in a few days, and General Custer expects to reach Fort Lincoln by the 31st of August. Small parties of Indians met by the expedition generally fled. "Sioux," one of their chiefs, was captured. He recently returned from a hostile camp on Powder river, and says the Indians lost ten killed in the fight with the Bozeman exploring party.

A VALUABLE COAL MINE.—George Emmet, proprietor of the Gold Hill Foundry, yesterday ran his large establishment with coal from the Black Diamond coal mine, situated eleven miles from this city, or seventeen miles distant by way of Dayton. The foundry will also be run to-day on coal from this mine. The coal makes steam more rapidly than Rooky Mountain coal or wood. Compared with the Scotch and New Zealand article the Nevada coal looks to be superior. The coal seam of the Black Diamond was only one inch in thickness at the surface, but at a depth of 150 feet, by incline, or, say 60 feet vertically, the vein has widened out to fully three feet. The walls of the vein are smooth, hard and strongly marked. At present four men are engaged in sinking on the incline, and steam hoisting works are to be put up immediately. There is an excellent natural wagon road from Dayton to the mine, and the Black Diamond coal mine bids fair to be of greater value than the Belcher or Crown Point silver mines.—*Virginia Independent.*

MINING AT SAN JUAN.—The hydraulic mining at San Juan is being continued without cessation. Water is to be had in abundance, so they are enabled to run full handed. At Montezuma hill the mine has ceased work for a short time. We were unable to learn the cause, but understand that operations will be resumed at an early day. The American mine, at Sebastopol, is running its tunnel with rapidity, averaging about 50 feet a month. Washing continues through the upper tunnel, so that while the lower one is being driven at an immense cost, the upper is producing the specie—a very happy combination. The other mines there are prosecuting operations as usual. —*Grass Valley Union.*

SCIENTIFIC PROGRESS.

Vivisection.

The question of the propriety of vivisection has ever and anon cropped up for the last two centuries, and learned and unlearned persons have not been found unwanting to condemn the practice. Amongst the latter the term vivisection has been taken to mean the dissecting of animals alive, with no other motive than curiosity or a malignant desire to be cruel to animals.

This arises from the utter and entire ignorance, on the part of the great mass of the republic, of the scope and nature of physiology or the laws of life. If the elements of this noble and useful science were taught in our schools as they should be, the unmeaning outcry against the practice of "dissecting live animals," as it is called, would not be heard. People would then know that the wonderful knowledge now possessed by man of the functions of his body has mainly been acquired by experiments on living animals, and that by the practice of vivisection is not meant the dissection of living animals, but the performance of experiments by which the nature of the functions of living beings may be ascertained.

The question still arises whether experiments that resulted in discoveries should be repeated for the instruction of a class, or be regarded as final? Many physiologists think that the renewal of the experiments in the form of a demonstration before a class is not necessary. This position, however, can not be maintained, if regard is had to the good of mankind. He would be a poor chemist who did not re-perform the experiments of those who had gone before him; and the natural philosopher could not make progress in his science if forbidden to repeat the observations of his predecessors. It is not only necessary to make good practitioners of medicine and surgery that these experiments should be repeated, but it is necessary for the advancement of the science of physiology.

Of course all these experiments should be performed with the greatest attention to diminishing pain to the utmost extent. Happily, by the use of anæsthetics, we can now do this so that an animal does not suffer more than it would in passing out of existence in any other way.—*Nature.*

During the change of water into steam, a remarkable phenomenon has been discovered, being nothing less than the apparent disappearance of large amounts of heat, which appear to be consumed in order to overcome the cohesion of the water particles, and change it into a repulsion, which is the cause of the expansive elasticity of the steam, and results in the useful application of its pressure. The heat which thus disappears is called the latent heat of steam, and it reappears again as soon as the gaseous steam returns to the condition of liquid water. The amount of this heat is about 1,000 units; that means, in order to convert 1 pound of water of 212° into steam of the same temperature, 1,000 units of heat will disappear, or as much heat as would suffice to heat 1,000 pounds of water 1°, 100 pounds 10°, or 10 pounds 100°; consequently as 1 pound of anthracite coal gives 14,220 units of heat, it will convert 14.2 pounds of water, and bituminous coal 13.5 pounds of water into steam. The amount of expansion which the water undergoes during this change is an increase in bulk of about 1,700 times; and as 1 cubic foot contains 1,728 cubic inches, the usual statement that every cubic inch of water becomes a cubic foot of steam is nearly correct for practical purposes.—*Manufacturer and Builder.*

Heat-Conducting Power of Rocks.—Prof. Herschel and Mr. Lebour have been experimenting on this subject. Twenty-eight specimens of rocks were reduced to uniform circles of five inches diameter and one-half inch thickness, carefully gauged. Out of six specimens that had been tried, slate plates, cut parallel to the plane of cleavage, transmitted the heat faster than any of the others. Where the flow of heat had become uniform, the water was raised 1° Fah. in 32 seconds. With marble, sandstone, granite and serpentine, about 39 seconds were required to raise it by the same amount. The greatest resistance to the passage of heat was offered by two specimens of shale, gray and black, from the coal measures in the neighborhood of Newcastle, which occupied 48 or 50 seconds in raising the water 1°, or half as long again as the time taken by the plate of slate.

The Chronograph.—This is a clock which carries a large cylinder upon which is wound a band of paper. A pen is arranged so that it traces a continuous line upon this paper, in the form of the thread of a screw; but every second this pen is pulled a little to one side by an electro-magnet, connected with the observatory clock, and thus keeps a perfect record of the time. But this electro-magnet is also connected with a key near the observer, by depressing which he can also draw the pen to one side. At the instant he sees a star cross the spider-line in his telescope, he presses the key, the pen is drawn aside, and thus the observation is recorded. He has only to note the time within a minute, and then on examining the paper the exact second is found, and from this determinations of longitude or of time can be made.

By the aid of reservoirs containing mixtures of oxygen and nitrogen, in which the former gas was in the proportions of 40 and 70 per cent. of the whole, MM. Croce-Spinelli and Sivel succeeded in reaching by means of a balloon an altitude of nearly five miles without inconvenience. The inhalation of the strongly oxygenated mixture immediately relieved all symptoms indicating that the aeronauts had passed into an atmosphere too attenuated for comfortable respiration. M. Lissajous has just communicated to one of the French societies a short account of the observations made by MM. Croce-Spinelli and Sivel in their aerial voyage. The temperature decreased regularly, except during their passage through the clouds. Above the clouds the thermometer marked 9.6 deg. Fah. At an elevation of 4,500 metres (nearly three miles) crystals were seen sparkling in the sun below the car of the balloon. At the upper limit of the ascent the rays of the spectrum indicating aqueous vapor disappeared, showing that this vapor does not belong to the surface of the sun. M. Croce-Spinelli found that the dark color of the sky observed at great elevations is due to an illusion produced by fatigue, as the blue color of the sky reappeared immediately after he inhaled the oxygenated mixture.

The Aerophore.—Some interesting experiments were lately made at one of the large English collieries with an apparatus called the aerophore. This invention, it is claimed, will enable a miner to penetrate at once, and to a great distance, into a pit filled with choke-damp, to remain there several hours, to carry his lamp with him without danger, and without depriving him of the free use of his arms. The principle of this invention is to support combustion within the lamp, not by means of the surrounding air, but through the agency of pure air passing through a regulator carried by the miner on his back. A small hut was filled with noxious gases, with a mixture perhaps best described as one of sulphurous and carbonic acid. A cat was placed in the hut, and a man, armed with his apparatus, entered and began the construction of a box. In 22 minutes he returned with his box completed, and certainly none the worse for his venture, and with a respectably constructed box, which he said had been marred by the fact that the excessive amount of sulphur had spoilt his hammer. The cat was brought out immediately afterward. It was then living, but death quickly followed. Other experiments were made, all of which were pronounced entirely satisfactory.

At a meeting of the British Academy, Dr. Gladstone called attention to some photographs of fluorescent substances. Fluorescent substances, such as bisulphate of quinine or uranium glass, have the power of altering the refrangibility of the violet or chemical rays of light; hence, although paper painted over with bisulphate of quinine will look nearly white, it will appear in a photograph as if it were nearly black. Dr. Gladstone exhibited some photographs of ornamental design traced on white paper with bisulphate of quinine; although the designs were nearly invisible to the eye, in the photographs they were boldly visible. A colorless solution of bisulphate of quinine was placed in one glass, and some ink in another glass; when both glasses were photographed, they came out equally black. Dr. Gladstone said that once, at the seaside, he painted a pattern with bisulphate of quinine upon paper, and took the paper to a photographer to be photographed; he objected, because there was nothing on the paper, but on trying the experiment he found out his error. It was stated that some kinds of varnish possess a similar power of affecting the refrangibility of light.

When a ray of sunlight crosses a shaded room, an immense number of fine particles will be noted, apparently in suspension therein. M. Tissandier has recently made some investigations into the quantity of this dust contained in 35.3 cubic feet of air, by causing that quantity of air to pass through a tube packed with gun cotton, which filtered out the particles. He afterwards dissolved the gun cotton in ether, and thus was enabled to obtain the particles in a separated condition. After a heavy rain, M. Tissandier has collected .09 grains of dust in the above mentioned quantity of air, but during dry weather this proportion rose to .3 of a grain. With regard to the nature of the material, he found that about one-third was organic, another silicious, and the rest composed of various substances and sulphate and oxide of iron.

Recovery of Silver from Cyanide Baths.—Dr. Grieger states that there are many methods of accomplishing this object, but none have been so easily carried out or have obtained enough of the silver as to be satisfactory. The process recently described by Ney, in which the silver was precipitated as a chloride by the addition of muriatic acid, had both these faults. The silver was not all precipitated, the subsequent treatment of the precipitate was not a simple one; and beside, the operation was attended with a strong evolution of prussic acid, which is extremely unpleasant to many persons, not to say dangerous to life. Dr. Grieger reduces the cyanide by green vitrol, and then precipitates the silver by grape sugar.

Safranin.—If mixed with strong sulphuric acid, this dye-stuff develops a fine blue tint, becoming emerald green by addition of a little water. By suitable additions of water and acid, nearly all the prismatic colors can be produced. —*Scientific Amer.*

MECHANICAL PROGRESS.

Coining.

The operations conducted at the private mint at Birmingham, Eng., as we learn from an interesting report in *Iron*, are as follows: The raw material consists of immense quantities of copper in ingots for bronze coinage, and "cakes" of the same metal for copper coinage. The metal used for the bronze coins is composed of 95 parts of copper, four parts of tin, and one part of spelter or zinc. The metal is first taken to the casting shop, and there melted and run into molds of the required length. The processes of casting being almost the same for all purposes, there is no need of giving a minute or detailed description of the operation.

The strips of metal when cast are taken to the rolling mills. The slabs of metal are first passed through the heavy revolving cylinders, and the pressure is so great to which they are subjected, that they are rolled into much longer, and, of course, thinner strips. They are next submitted to the ordeal of fire, and annealed. They are submitted to this process of rolling until the requisite thickness, or rather thinness, is obtained. A slab, which is at first only some 15 inches long, is rolled out to six feet in length. It is then placed once more in the annealing oven, "pickled" by being passed through acid, then cleaned and scoured. Each slip has to be gauged with the utmost nicety after it has undergone these processes, to ascertain whether it is of equal thickness throughout.

After being approved, the strips are taken to the cutting-out room, where they are passed under a press, and bits of circular metal of the size required are cut out and drop into receptacles beneath. These bits of plain metal are appropriately called "blanks," and are cut with almost incredible rapidity. One press produces 750 a minute, and in the mint the number of presses employed are capable of producing over 3,000,000 of blanks a day. After being cut, the blanks are tested by being passed through a machine, which is so nicely adjusted that any irregularity or imperfection is detected, and the tares are separated from the wheat. The blanks which pass successfully through the trial have also to be annealed. For this purpose they are "put into small iron pots, the lids of which are carefully adjusted, and the junctions stopped with clay, and placed in the oven, where they remain generally about three-quarters of an hour. They are then allowed to cool gradually, passed through a solution of acid, and in their wet condition are placed in a revolving wooden drum, together with quantity of rough saw-dust. The motion of the drum causes the saw-dust to escape through small apertures provided for the purpose, and by the time the blanks are dry—usually in 20 minutes—all discolorations have been removed, and a uniform bright color attained. They are then ready to receive the finishing stroke—the impression which shall cause them to be universally recognized as tokens of value." After the blanks have been cut out of the strips of metal the "scrap" is recast, and the material re-used.

Two dies are required for each coin; the one for the obverse, the other for the reverse. These are engraved on the best steel, but the original dies are not used in making the impressions on the coins. For this purpose a punch is made, and from this punch the moulds by which the coins are made are taken by pressure. The pressure required for this purpose is at least 40 tons. The moulds are made on the surface of pieces of steel, the diameter of which is a little larger than the coin to be made. So great is the pressure of the striking hammer, that the slightest flaw in the steel used is fatal to the working die, for it comes from under the machine exhibiting a large rent wherever the flaw may be. The importance of this power of multiplying dies will at once be manifest. Sometimes they are destroyed in a few minutes, lasting, we learned, on an average not more than two days; but the original die, which represents a fortnight's skilled work, remains perfect, for the production of other punches to be used in making working dies.

The coining is a very simple process, and is now rendered almost noiseless by improved machinery. In each press is a movable steel slide, in the center of which is a circular hole the size of the die, called a collar. The blanks to be impressed are placed in a long brass tube, called a feeder or hopper. From this feeder one blank drops into the collar with each movement of the slide. It is between the top and bottom, and as the blow is struck, both sides are impressed at once.

Lubricating Packing.—In manufacturing this improved packing the inventor employs a mandril of any required diameter. Upon this mandril he winds a cord of twisted cotton, which has previously been saturated or covered with a solution of a compound of india-rubber. After the cord has thus been coiled upon the mandril, he coils or winds over the same cotton, yarn, or other suitable twisted or untwisted fiber, which is also saturated or covered with the aforesaid india-rubber solution; the packing thus made may be cut into portions or sections of any required length.

Iron fortifications are being erected at large expense in Germany and Great Britain.

The Invention of Screw Propulsion.

Much discussion has recently been agitated as to the conflicting claims of various inventors and nations to the honor of having first introduced the screw propeller. The English claim that Sir Francis Pettit Smith was the real inventor, while in this country it has been held that Ericsson was first to put the idea in successful practice. The two were independently at work, and to each belongs the credit. It may even, says Bourne, be probable that the exertions of either would have sufficed to introduce the screw into practical operation, but their simultaneous prosecution of the same object was not nevertheless a waste of power. The progress of each, therefore, was stimulated by that of the other, and their united force acted more powerfully upon the public, and procured for the screw a readier and wider introduction than could otherwise have been expected. Neither invented the screw, but both revived it.

The *Scientific American* says: It is certain that for many years previous to the date of either Smith's or Ericsson's patents (1836), experiments had been made proving that vessels could be propelled through the water by means of a screw. But the inventors were either deficient in persistency of effort, or they found that, as is very often the case, the times were not ripe for the introduction of so radical an innovation. It is, therefore, a fact that, when Smith and Ericsson took up the subject, no vessel of the kind was in actual employment; and so far as past experiments extended, the simple fact of their abandonment, or rather non-continuation, held out a prospect for future inventors far from encouraging.

Ericsson's patent was obtained about a month and a half subsequently to that of Smith, but while the first trial of Smith's boat was made in May, 1836, immediately on the granting of protection, Ericsson's experiment did not take place until April 30th, 1837. The Ogden, built by Ericsson in the latter year, was undoubtedly successful, but Smith's first vessel was equally so, for she made a voyage of 400 miles, and averaged a speed of 8 knots per hour. Hence, while both ships proved the value of the invention, Smith's was undoubtedly first in so doing, in point of time.

English Railway Signals.—The plan of Messrs. Smaillie and Vance consists of a combination of self-acting interlocking signals. Spring-catch levers are fixed on the inner side of and flush with the rails at given points of the line; these levers are connected with self-acting interlocking arm signals in the case of ordinary distance signal stations, or with an electric gong at junctions of shunting sidings. When a train passes one of these levers, the flange of the wheels of the engine and carriages presses the lever down, setting the signal immediately behind the train at danger. The protection thus afforded the train in motion is continued till the next signal station is reached, when an ingenious arrangement of levers and cranks simultaneously sets the new signal at danger and the last one free. The train being thus protected from the rear the telegraph comes into play to obviate danger from the front. At a distance, say, of two miles from a junction, a catch spring-lever, also laid with the rails, is connected with a powerful galvanic battery from which a wire is laid to the junction, and there attached to a gong. On a train passing over the catch lever the electric current is completed and the gong is rung, thus warning the officials at the junction that a train is approaching. The gong continues to ring until the train has passed the junction, where another lever is fixed to the rails, and only on acting upon this lever is the electric circuit broken, when the gong ceases to ring. It would seem from this that a device which has long been in use on Eastern roads is just coming into notice abroad.

Simple Leveling Instrument.—M. Goulier proposes for the above a pendulum hung by a double point, which carries, rigidly attached, a collimator formed of a small tube hermetically closed at one extremity by a piece of ground glass. At the other end is a converging lens. At the principal focus is a diaphragm pierced with a hole 0.05 inch in diameter, across which is a thread of black cotton. By suitable construction, the pendulum being at rest, the plane passing through the thread and the optical center of the lens is horizontal. On looking through the lens, the observer sees the thread as a horizontal line, which marks on the field the intersection of horizontal plane through the instrument. By placing the eye in proper position, the thread and exterior objects may be seen at the same time, and the mark on a leveling rod may be adjusted to coincide with the thread, so obtaining a level.

Instead of using hinged doors as heretofore, English inventors propose to apply to strong rooms or safes sliding doors of great strength, and to move these doors by means of hydraulic pressure, which pressure may be maintained until access is required by an accredited person to the interior of the same. The doors they propose to make of such size and thickness that the mechanical appliances to which burglars resort will be powerless to move such masses.

Great saving of time and labor in casting metals is effected by using an endless chain of moulds, which are filled, chilled and emptied as they revolve in an endless chain, and then by the same means brought back again under the flow, the operation being continued without interruption.

Weekly Variations in Stocks.

(Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.)

For 6 days ending Wednesday, Aug. 19, 1874.

NAME OF COMPANY.	IN MINE.	IN FEET	IN SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.							
Alamo	300	6000		13¾M	11¾TH	1½	
Alpha Con	3600						
Alta				7¾T	7¾T		½
American Flat		30000		1¾M	1F		¼
Bacon M. & M	65	24000		4½M	3¾TH	1	
Baltimore Con		54000		1¾M	1F		¼
Belcher	1040	104000		87w	6¾TH	1	
Best & Belcher	224	22400		26M	24T		
Bowers	20	5000					
Buckeye		16000		11¾T	10T		
Bullion	2800	25000		8w	7¾M		¼
Caledonia	9000	20000		20s	15¼TH	4½	
California				39M	37¾F		
Chollar-Potosi	2800	28000		55w	52¼TH	1	
Confidence	130	24960		14M	11TH	2	
Consolidated Hill Quartz	345	20000					
Con. Virginia	1160	108000		82¼M	18¼TH	3½	
Cook & Geyer	1600	24000					
Crown Point	1000	30000		75¾w	71¾T	2½	
Dana	2000	24000					
Dardanelles	1200	24000		12¾M	11TH	1	
Dayton				5⅝w	5T		
Eclipse	70	25000		7s	6¾F		½
Empire M. & M	150	50000		8⅝s	7¼TH	1	
Exchequer	400	8000		85F	65F		
Fairmount							
Flowery	3000	12000					
Franklin				1¾TH	1⅝TH		⅛
Globe		20000		1⅝s	1⅜TH		
Gould & Curry	1200	48000		19w	18¼w		
Hale & Norcross	400	16000		45M	41¾TH	1	
Imperial	184	100000		8¾M	7¼TH		½
Indus							
Insurance	2000	30000					
Jacob Little							
Julia	2000	30000		2⅛s	2M		
Justice	3000	21000		8¾T	TH	1	
Kentuck	95	20000		16¾M	14½TH	2½	
Knickerbocker	1200	24000		4¾T	4¾TH		⅛
Kossuth				1M	7⅝M		
Lady Bryan							
McMeans	3600	36000					
Mint	1600	50000					
Nevada	3000	40000					
New York Con	3600	36000		2¾w	2⅝s		
Occidental	800	10000		3⅝M	3T		
Ophir	1400	16800		23¾TH	18¼T	1½	
Overman	1200	37400		36s	33TH	2½	
Phil. Sheridan	1200	24000					
Pictou	2000	30000					
Rock Island		24000					⅛
Savage	800	24000		66¼TH	56T		9¾
Seg. Belcher	160	6400		90M	78TH	12	
Seg. Caledonia		10000					
Seg. Rock Island				7⅛w	7w		
Senator		24000		3¾TH	3⅝TH		⅛
Sierra Nevada		24000		4w	3¾T		⅛
Silver Hill		54000		7¼M	6½w		¼
South Comstock							
South Gwerman		24000		66w	61¾T		
Succor M. & M	7600	22800		13T	12⅝s		⅛
Sutro		24000					
Trench	20	5000					
Tyler	2200	33000		10cw	60cs	75c	
Union Con	803	30000		15¾T	13T		¼
Utah		30000		3⅝s	3¼TH		
Woodville	1400	28000		5⅝w	2¾TH	2⅜	
Yellow Jacket	1200	24000		80M	69¼TH	5½	
NEVADA.							
Adams Hill		30000					
Alps	300	30000					
Amador Tunnel							
American Flag M. & M		30000		2¼F	2w		¼
Arkansas	300	30000					
Belmont				8M	4⅞TH	3½	
Bowery		30000					
Chapman M. & M		30000					
Charter Oak	1000	30000					
Chief of the Hill		30000					
Chief East Extension		36000					
Columbus M. & M	10000	50000					½
Condor		25000					
El Dorado South				3¼T	1¾TH		⅛
Eureka Con		50000		13¾M	11¼w	1½	
Excelsior		12000					
Harper		30000					
Hayes							
Hermes	1000	30000					
Home Ticket							
Huhn & Hunt	3600	30000					
Ingomar	1000	40000		20cw	20cw		5c
Ivanhoe		30000					
Jackson		50000					
Josephine							
Juniata Con	5000	50000					
K. K. Con				2½w	2⅛w		½
Kentucky	4000	30000					
Kinston	1000	30000					
Lehigh	1000	30000					
Lillian Hall	1000	15000					
Louise	2400	30000					
McMahon	1000	30000					
Marion		30000					
Meadow Valley	24023	60000		7¼TH	5w		
Mocking-Bird	1200	30000					
Monitor-Belmont				3M	2TH	1½	
Murphy	2000	50000					
Newark	800	32000		1⅝F	¾w		⅛
Pacific Tunnel							
Page & Panaca	2400	40000		¼w	¼w		¼
Peavine	1000	30000					
Phœnix		50000					
Pioche	1000	20000		5w	4¾F		
Pioche West Ex		35000					
Pioche-Phœnix		40000					
Portland							
Raymond & Ely	5000	30000		14F	10w		1
Rye Patch				1⅝T	⅞M		⅛
Silver Peak		30000					
Silver West Con							
Standard M. & M							
Star Con	18000	50000					
Starlight	6900	25000					
Sterling		30000					
Spring Mount		35000					
Spring Mt. Tunnel		20000					
Ward Beecher							
Wasington & Oreole	200	30000		3¼TH	⅝w		
Watson							
Yellowstone							
CALIFORNIA.							
Alpine	1200	12000					
Bellevue	8000	20000		⅞s	⅝w		¼
Calaveras	3200	20000					
Cederberg		24000					
Chariot Mill				10T	8¼TH		½
Con. Amador	600	20000					
Cottonwood Creek							
Dunderberg M. & M		20000					
El Dorado							
Eureka							
Gillis	1650	20000		5¾M	5¼M		
Independent		24000					
Keystone	1800	25000		⅞s	⅝M		
Mt. Jefferson		10000					
Oakville	1500	25000					
St. Lawrence M. & M							
St. Patrick							
Tecumseh	1800	20000		¾TH	⅝F		
Yule Gravel	600	10000					
IDAHO.							
Empire							
Golden Chariot		25000		2M	1¾T		⅛
Ida Elmore	750	30000		8¼w	6¾TH		¾
Managua	1300	10000		1M	⅞M		
Red Jacket	720	10000		6¾w	3TH		¾
South Chariot							
War Eagle	600	20000		10¼M	9¼TH		
WHITE PINE.	1000	10000		2⅝TH	2w		⅛
General Lee							
Mammoth	1000	20000					
Noonday	1800	36000					
Orig. Hidden Treas	1000	20000					
Silver Wave	2800	21333					
Ward Beecher							
UTAH.		24000					
Deseret Con	2400	30000					
Wellington		50000					
OREGON.							
Virtue		20000					

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Deling'nt.	Sale.	Secretary.	Place of Business
Adams Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Alpine Gold M & M Co	Amador Co Cal	7	1 00	Aug 10	Sept 14	Oct 5	J F Lubenau	438 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	E Landers	507 Montgomery st
Bellevue M Co	Placer Co Cal		50	Aug 18	Sept 21	Oct 15	D F Verdenal	409 California st
Belmont M Co	Nye Co Nevada	3	1 00	July 17	Aug 22	Sept 12	G H Bogart	402 Montgomery st
Best & Belcher M Co	Washoe	9	50	July 13	Aug 17	Sept 12	W Willis	419 California st
Bunkeye G & S M Co	Washoe	11	50	July 21	Aug 28	Sept 16	C A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	8	3 00	July 15	Aug 22	Sept 11	R Wegener	414 California st
Caroline M Co	Ely District	5	25	June 30	Aug 8	Aug 31	R H Brown	402 Montgomery st
Chief East Extension M Co	Ely District	3	10	July 7	Aug 12	Sept 9	R Wegener	414 California st
Chief of the Hill M Co	Ely District	5	25	Aug 11	Sept 11	Oct 1	O S Neal	419 California st
Chief of the Hill M Co	Piocho	5	25	Aug 11	Sept 11	Oct 1	O S Neal	419 California st
Condor S M Co	Ely District	3	25	July 17	Aug 25	Sept 15	Geo T Grimes	240 Montgomery st
Daney G & S M Co	Washoe	10	75	Aug 6	Sept 3	Sept 30	G R Spinney	320 California st
El Dorado North M Co	Belmont Nevada	1	50	Aug 4	Sept 15	Oct 6	G E Houghton	218 Sansome st
El Dorado South Cons M Co	Nevada	4	1 00	Aug 7	Sept 14	Oct 1	W Willis	419 California st
Empire Mill & M Co	Washoe	15	50	Aug 13	Sept 17	Oct 8	G R Spinney	320 California st
Europa M Co	Washoe	2	25	July 14	Aug 18	Sept 10	F G J Margetson	418 California st
Exchequer M & Smelting Co.	Eureka Nev	4	50	July 31	Aug 18	Sept 7	T P Beach	424 Montgomery st
Golden Chariot M Co	Idaho	10	3 00	July 3	Aug 7	Aug 27	L Kaplan	Merchants' Ex
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 19	W Willis	419 California st
Indus G & S M Co	Washoe		10	July 30	Aug 31	Sept 17	D Wilder	Merchants' Ex
Josephine Cons S M Co	Nye Co Nevada	1	15	July 20	Aug 22	Sept 12	O H Bogart	402 Montgomery st
Julia G & S Co	Nevada	19	1 50	Aug 1	Sept 7	Sept 26	A Noel	419 California st
Julia G & S M Co	Washoe	19	1 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Lady Washington M Co	Washoe	1	50	July 1	Aug 3	Aug 31	H C Kibbe	419 California st
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	O B Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	July 13	Aug 17	Sept 15	D A Jennings	401 California st
Mint M Co	Washoe		10	June 30	Aug 7	Aug 27	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	July 7	Aug 13	Sept 7	W W Hopkins	411½ California st
Newark S M Co	Ely District	8	1 00	Aug 18	Sept 23	Oct 15	J W Clark	418 California st
North Bloomfield Gravel M Co	Cal	33	1 00	Aug 11	Sept 15	Oct 5	Thos Derby	320 Sansome st
Page & Panaca S M Co	Ely District	7	50	Aug 4	Sept 8	Sept 28	H P Bush	Merchants' Ex
Piuche S M Co	Ely District	7	1 00	July 29	Sept 7	Oct 2	C E Elliot	419 California st
Raymond & Ely M Co	Ely District	1	3 00	Aug 17	Sept 23	Oct 16	T W Colburn	418 California st
Rock Island M Co	Washoe	4	1 00	July 17	Aug 21	Sept 9	J W Clark	418 California st
Rye Patch Cons M & M Co	Nevada	3	25	July 21	Aug 24	Sept 19	D F Verdenal	409 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	Aug 27	Aug 27	A G Ryce	308 California st
Sierra Nevada S M Co	Washoe	39	1 00	Aug 5	Sept 8	Sept 29	R Wegener	414 California st
Silver Cord M Co	Idaho	4	50	July 3	Aug 6	Aug 31	F Swift	419 California st
South Comstock M Co	Washoe	1	50	Aug 18	Sept 22	Oct 12	J M Buffington	Merchants' Ex
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Succor M & M Co	Washoe	9	1 00	Aug 18	Sept 22	Oct 14	W H Watson	302 Montgomery st
Tyler M Co	Washoe	6	25	Aug 15	Sept 18	Oct 8	C D Squire	539 California st
Union Cons S M Co	Washoe	8	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
Washington & Creole M Co	Ely District	12		July 21	Aug 24	Sept 16	F D Oleary	Merchants' Ex
Yellow Jacket S M Co	Washoe	13	5 00	Aug 11	Sept 15	Oct 16	G W Hopkins	Gold Hill Nev

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Atlantic and Pacific Cons	Cal	9	3	June 18	July 23	Aug 22	A Noel	419 California st
Cupel & Tiger S M Co	Arizona	2	50	Aug 12	Sept 14	Oct 3	O Eaton	Express Bldg
Enterprise G & S M Co	Nevada		10	June 22	July 22	Aug 25	E E Rice	411½ California st
Edith Quicksilver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart	113 Leidesdorff st
Germania M Co	Utah	2	1 00	Aug 5	Sept 12	Oct 2	J W Tripp	408 California st
Gold Run M Co	Nevada Co Cal	7	25	Aug 7	Sept 15	Oct 7	O C Palmer	Cor Market & Spear sts
Freeborn G M Co	Cal	4	70	Aug 10	Sept 15	Oct 5	F Lichtner	438 Montgomery st
Hartford M Co	Washoe	2	20	July 13	Aug 13	Sept 1	E F Stone	419 California st
Heckerdorn G & S M Co	Cal	13	25	July 7	Aug 10	Aug 29	P J Roberts	620 Washington st
James Point Gravel M Co	Cal	2	10	Aug 12	Sept 15	Oct 3	D C Ferris	223 Montgomery st
Mosquito Hydraulic Quartz M Co	Cal	5	15	Aug 12	Sept 15	Oct 5	O S Healy	Merchants' Ex
North Bloomfield Con M Co	Plumas Co Cal	4	1 50	July 24	Aug 24	Sept 15	A Martin	520 Washington st
Oneida M Co	Amador Co Cal	8	75	July 28	Aug 31	Sept 19	L Kanlan	Merchants' Ex
Pioneer Cons M Co	Eureka Nevada	2	10	July 1	Aug 6	Aug 27	G S Neal	419 California st
Sanderson G M Co	Cal	12	30	Aug 12	Sept 8	Sept 26	W Stuart	113 Leidesdorff st
Starr King S M Co	Nevada	7	25	Aug 4	Sept 10	Sept 30	L Kaplan	Merchants' Ex
Stanislaus River M Co	Cal	3	15	July 20	Aug 19	Sept 5	W Stuart	113 Leidesdorff st
Tecumseh G S & O Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Unpire Tunnel & M Co	Utah	3	5	June 29	Sept 2	Sept 21	P A Eakins	230 Kearny st
Wonder G M Co	Cal	2	10	Aug 18	Sept 18	Sept 7	David Buck	331 Montgomery st
Wyoming G M Co	Nevada	3	25	July 28	Aug 31	Sept 18	W J Gunn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Baker Hill M Co		Frank Swift	419 California st	Annual	Aug 26
Beach & Paxton M Co		E Landers	507 Montgomery st	Annual	Sept 5
Crown Point Ravine M Co	Washoe	J M Buffington	Merchants' Ex	Annual	Sept 7
Exchequer M Co	Washoe	Called by Trustees	Merchants' Ex	Special	Aug 29
Independence Con M Co	Cal	F J Hermann	419 Kearny st	Annual	Sept 4
Meadow Valley M C	Ely District	T W Colburn	418 California st	Annual	Aug 27
Mosquito Hydraulic & Quartz M Co	Cal	C S Healy	Merchants' Ex	Special	Aug 21
Seg Caledonia	Washoe	A O Ryce	308 California st	Annual	Aug 27
Segregated Caledonia M Co	Washoe	A O Ryce	308 California st	Annual	Aug 27
Senator S M Co	Washoe	Henry Boyle	Stevenson's Bldg	Annual	Aug 26

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver.	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe.	419 California st.	3 00	Aug 10
Oesterberg G. M. Co.	California.	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Aug 10
Con. Amador M. Co.	Cal.	F. B. Latham.	402 Montgomery st	50	April 3
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 00	July 11
Crown Point M Co	Washoe	O E Elliott	414 California st	3 00	July 11
Diana M. Co.		N. C. Fassett.	220 Clay st.	1 00	Jun. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener.	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	S. B. Minor.		50	Dec. 5
Phœnix G M Co		Charles E Elliott	411½ California st.	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	419 California st	50	June 30
			Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

The mining share market is e little better this week tbsn last, and there have been a few spasmodic attempts at a rise. Stocks look a little more buoyaut, however, and if a good strike occnrs on any of the Comstocks, it will probably raise np the whole lot. The *Enterprise* of Saturday, in its weekly review of the mines on the Comstock lode, contains the annexed: The indications and developments along the Comstock are of a very favorable and cheering character. The lower levels of our leading ore-producing mines are allowed to be all right, and less doubt is expressed in regard to the value and permanence. The mines that have been so long water-logged, as the Sierra Nevada, Dayton, Utah, and some others, are now fast being drained, and in some of them we may expect to hear of good developments being made at no distant day. Those that have been so long engaged in drifting along the walls of the vein in their mines cannot continue thus to drift forever. There must one of these days come a time for cross-cutting and a general showing up. When this shall be done it is shrewdly suspected that we shall hear of much good ore being brought to light in not a few mines of which little is now heard, except that drifts are now being pushed in this or that direction in their various levels. That our people are expecting something to happen before long is shown in their general alertness when the slightest rise occurs, and in the activity with which they search for, and the avidity with which they seize upon any information which is in any way obtainable in regard to mines of which they have a favorable opinion. From the Utah on the north to the farthest chain within the Comstock range on the south, each claim is scrutinized, and its condition and prospects commented upon. In the work of prospecting there is no relaxation, and on claims along the line, both great and small, astonishing activity prevails.

The mining dividends for the month of August were four in number, and aggregated $657,000. The assessments delinquent were 29 in number, and aggregated $497,400. These were as follows: Andes, 50 cts. per share, $25,000; Adams Hill, 15 cts., $7,500; Belmont, $1, $50,000; Best & Belcher, 50 cts., $11,200; Buckeye, 50 cts., $8,000; Chief East Exten., 10 cts., $3,600; Caledonia, $3, $60,000; Condor, 25 cts., $6,250; Emma Hill Cons., 10 cts., $5,000; Europa, 25 cts., $5,000; Eureka M. and Smelting, 25 cts., $7,500; Golden Chariot, $3, $90,000; Hartford, 20 cts., $6,000; Heckendorn, 25 cts., $7,500; Ida Ellmore, $1, $30,000; Indus Gold, 10 cts., $3,000; Lady Washington, 50 cts., $18,000; Mabogany, $2., $50,000; Mammoth, 10 cts., $3,600; Mint, 10 cts., $5,000; Oneida, 75 cts, $7,500; Pioneer Cons., 10 cts., $5,000; Rye Patch Cons., 25 cts., $7,500; Rock Island, $1, $24,000; Stanislaus River, 15 cts., $4,500; St. Patrick, 50 cts., $10,000; Wash. and Creole, $1, $30,000; Wonder, 10 cts., $3,000; Wyoming, 25 cts., $3,750.

The dividends and assessments for the first eight months of the year were as follows:

	—Assessments.— No.	Amount.	—Dividends.— No.	Amount.
January	23	$748,000	3	$327,500
February	11	266,700	4	832,500
March	25	748,250.	4	844,000
April	22	459,016	4	944,000
May	15	356,300	5	1,279,000
June	16	321,400	5	1,203,000
July	27	632,600	6	1,223,000
August	29	497,400	4	657,000
Totals	168	$4,029,666	35	$7,810,000
Same time in 1873	206	4,677,810	48	10,087,000

The assessment of the Raymond & Ely mine mentioned in our "Shareholders' Directory" is the first one levied in that well-known mine. The mine has paid 23 dividends of 13,075,000, equal to $102.50 per share. The first dividend was paid in March, 1871, at the rate of $1 per share. During the year 1872, there were eight consecutive monthly dividends of $7 per share. The last dividend of $3 per share was paid in September, 1873.

The Ophir case has been decided and the *Enterprise* furnishes the following summary: The Board of Trustees of the company consists of seven members. One of them resigned. The six remaining trustees voted to fill the vacancy. The vote resulted in a tie, whereupon the President of the Board, who was one of the trustees, claimed and exercised the right, under the by-laws of the company, to a casting vote. This gave him two votes, and a trustee was elected. The trustees then proceeded to elect a new Superintendent. Against this three of the trustees protested, on the ground that they did not consider the election valid. The decision of the court is that the President, no matter what may be inferred from the by-laws of the company, had no right to two votes, as such a privilege is not authorized by law. Hence, as the new trustee was not legally elected by the casting vote of the President, the election of a Superintendent, secured through the vote of the new trustee, was also illegal. The decision holds that the new trustee was not even a trustee *de facto*, inasmuch as he was not recognized as such by a majority of the Board.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

CALIFORNIA COCOANUT PULVERIZING CO.—August 10. Object: To carry on the business of pulverizing cocoanut and manufacturing the same for commercial and domestic purposes; also to extract the oil for toilet and other purposes. Directors: A. P. Ashbourne, Jesse Slaughter, Thomas L. Williams, C. H. Harris and Robt. Fletcher, of Sacramento; James Phillips and Wm. M. Smith, of San Francisco.

MARTIN WHITE M. Co.—Aug. 16. Location: Ward Mining District, Nye county, Nevada. Directors: Martin White, E. D. Sawyer, R. P. Clement, George F. Baker and Lyttleton Price. Capital stock, $10,000,000.

SUNRISE SILVER MINING CO.—Aug. 18. Trustees: J. S. Nieswander, H. C. Rollins, N. A. Bechdel, William M. Donnell and T. B. Wingard. Capital stock, $5,000,000.

ANNIE BELCHER QUICKSILVER M. Co.—Aug. 19. Location: Sonoma county. Directors: William Faulkner, Charles P. Faulkner, Matthew D. Carr, James Howarth and John Goldthrop. Capital stock, $3,000,000.

The following companies have filed certificates of incorporation in the office of the Secretary of State, at Sacramento:

ST. HELENA WATER CO.—Principal place of business, Napa City. Capital stock, $20,000, in shares of $40 each.

OCEANIC QUICKSILVER MINING CO.—Capital stock, $6,000,000, in shares of $100 each.

BLUE JACKET MINING CO.—Capital stock, $4,500,000, in shares of $100 each.

MINING SUMMARY.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

Alpine *Chronicle*, August 8: Very rich ore was this week struck in the upper tunnel of the Exchequer mine. It is thought to be worth $1,000 to the ton. The mine gives promise of being the richest mine on this coast.

ALL READY.—The amalgamators and feeders for the Exchequer mill arrived on last night's stage, and everything being ready, active operations will commence on next Monday morning.

CALAVERAS COUNTY.

DEVELOPMENT OF THE IRON INTEREST.—Calaveras *Chronicle*, August 15: Wednesday last we visited the scene of operations of the Hepburn Iron Mining Company, near Doak's ranch, in this county. The work done so far is preliminary, more for the purpose of determining the size and exact location of the ledge than with a view to permanent development. The ore appears to be of a fair quality, and the showing is fully as good as could be expected from the labor performed. We understand it to be the intention of the company to push forward work as rapidly as possible, until the extent, permanency and richness of the deposit are definitely settled. A successful issue of the enterprise is most earnestly to be hoped for. The establishment of iron works would give employment to a large number of hands, necessitate the outlay of capital, and stimulate further development of the latent resources of the county.

GRAVEL MINES.—There is "no let up" to the gravel mines in this vicinity. The utmost activity prevails from one end of Tunnel ridge to the other, a distance of about six miles. There is still an abundance of water, and no indications of a failure of supply. We hope to be able to visit the different mines shortly, and give our readers a detailed account of operations.

EXTENDING FLUME.—Emerson, the Happy valley hydraulicist, is extending his flume, for the purpose of getting more "dump." And he will get it. By laying down a few more boxes he can "tail" into Buckeye gulch, leading to the Mokelumne, that will give him "dump" enough to hold half of the Sierras.

COLUSA COUNTY.

QUICKSILVER.—Colusa *Sun*, Aug. 15: The "Varuna," on Thursday, brought up the last of the castings for a furnace at the Abbott mine. Work will be commenced on the furnace next

Monday, and it will be completed in three weeks thereafter. The "Varuna" also brought up the fire-brick for the Buckeye furnace, and we suppose the castings will follow up immediately. Both these mines have ont a large lot of rich ore. The latter is, however, retorting and shipping about 1,300 pounds per week.

EL DORADO COUNTY.

SALE.—*Republican*, Aug. 15: J. H. Bradley, of this city, has finally disposed of a large interest in his mining property near Brownsville, and has the coin to finish opening and working it. The claim consists of 140 acres of gravel, with plenty of free water, and it is generally believed that an expenditure of $6,000 will put it in a good paying condition. Mr. Bradley considers the claim worth $100,000.

INYO COUNTY.

THE LIDA MILLING PROPERTY.—*Independent*, August 8: This property was this week formally, as it was previously in fact, sold to Gen. Page, the price paid being $10,000. A new boiler is being put in, which will require but a few days, when the mill will start up and things move again at Lida.

LAKE COUNTY.

AMERICAN QUICKSILVER MINE.—*Bee*, August 15: The American quicksilver mine is on Pine Mountain, 7 miles from Middleton, and 3 from Pine Flat. The company have started their new works, and have four bonches of retorts. They are crushing the work with a 10-stamp mill, grinding it as fine as powder, in accordance with a new process. The prospects are good. George Wright is Superintendent, and has 75 men employed.

GREAT WESTERN MINE.—The Gt. Western quicksilver mine has 125 men employed. This mine is extensive, and has an established reputation for richness. A new furnace of 40 tons capacity is about to be started.

LOS ANGELES COUNTY.

MINING EXCITEMENT.—*Express*, August 13: A quiet mining excitement is now going on here in relation to a very valuable ledge which has been opened here in the San Gabriel cañon by Dr. Winston and others. The ore is a soft, rotten quartz, and the ledge is monstrously large in some places. Capable parties in this city are taking a lively interest in this mine, and crushing machinery will probably soon be put up.

NAPA COUNTY.

FLAGSTAFF MINE.—Napa *Register*, Aug. 15: This mine, situated on the Geyser road, is rapidly developing into one of the most wonderfully rich mines in that region. Last week globules of quicksilver were found scattered so thickly in the loose dirt as to attract the immediate attention of the miners at work in the tunnel. A blast was put in immediately after this discovery, and when the smoke had cleared away, quicksilver was found pouring out of the rock in a stream as large as a straw. A dipper was held under the stream until half filled with the precious liquid. On further examination a pocket was also found near by, which contained something like a teacupful of quicksilver.

THE mines are looking well, and work is being pushed in every direction. The Kentuck is taking out splendid ore. The Lost Ledge is being rapidly developed. They have just completed the erection of a bench of three new retorts, and will have them in operation in a few days. Thirty-five men are employed at this mine, which is being worked by the Oakland Quicksilver Mining Co. They are taking out on an average three flasks a day.

AT the Missouri mine everything is running smoothly. They are turning out their usual six to eight flasks per week with their two small retorts. Hopkins, the original discoverer of the Missouri, is now engaged there prospecting, and within the past few days has struck a very rich chimney of ore about 500 feet east of where the mine is being worked.

AT the Rattlesnake they are putting up a Riotte & Luckhardt 20-ton furnace. The 150,000 adobes already made, and are still making them at the rate of 8,000 per day.

THE Sonoma is running on adobes. The last clean-up is 23 flasks in 16 days' run.

AT the Central the main tunnel is in 200 ft., with a good showing of ore for a distance of 30 ft.

CALISTOGA SILVER MINE.—*Bulletin*, Aug. 16: Another rich strike was made in the Calistoga silver mine on Saturday, and of a remarkable nature. Workmen engaged in stripping the out-croppings of the ledge exposed a wall of projecting quartz 6 ft. thick by 300 ft. long, that assays well. The mill, having been enlarged, will not be in running order for 10 or 15 days.

NEVADA COUNTY.

NEW YORK HILL MINE.—*Union*, Aug. 15: We saw at Delano's yesterday a nice dab of gold that had been cleaned up after a crushing of rock from the New York Hill mine. The gold was valued at $2,100 and came out of 38 loads of rock. The rock crushed was taken out of the tunnel and none of it was stoped out.

OMAHA MINE.—A new wheel is being put up so that the hoisting and pumping will be done separately. Water power is used. The rock in the present level is rich, being in the red ocher quartz, which always pays. A crushing is ready and awaits its turn at the mill.

MAGENTA.—Pay ore is coming out from different levels and accumulating on both sides of the works, and teams are hauling from one of these piles to mill. The fourth level of this promising mine is soon to be opened.

GOLD RUN MINE.—*Transcript*, Aug. 14: This mine is located on Gold Flat, about one mile from town. The ledge was formerly worked, and was very rich. It was then called the Mohawk. Last spring a party from San Francisco purchased the mine and erected hoisting works upon it. Since the erection of the works the company have been engaged in sinking a shaft and are still going down. The ledge is from six to 14 inches thick, and looks well. The prospects are flattering for the ledge to develop into a good paying mine.

BLUE TENT CONSOLIDATED GOLD MINING COMPANY.—The company above mentioned are engaged in building a ditch from a point on the South Yuba river, a little below where the South Yuba Canal Co.'s ditch commences, for the purpose of running water to their mine, situated at Blue Tent. They have 75 men employed on the works. They have completed about three miles of flume, which is of the most substantial character. The ditch will have a capacity of running about 700 inches of water. It is expected the work will be completed as far as Diamond creek this fall.

PLACER COUNTY.

IOWA HILL.—Placer *Argus*, Aug. 15: The Snicker Flat company has run a bed-rock tunnel into the main divide 500 ft., and have raised up, and are at present pushing for gravel. Nearly every square foot of mining ground is taken up within 10 miles of town. Speculators still continue to buy, feeling confident that they are making profitable investments.

GOLD RUN.—The Old Cedar and Sherman claims were sold to an English company, in Feb., 1872, and are now known as the Gold Run Hydraulic Mining company (limited) of London, England. After changing hands, the ground was worked one season, and netted the company a handsome profit. In May, 1872, they commenced sinking the shaft, and discontinued work on the 2d July for the want of water to run their "hurdy-gurdy" wheel, with 10 inches of water being used to do the hoisting. In April, 1874, work was resumed, and after many difficulties bed rock was reached at a depth of 181 feet. As nearly 200 feet has already been washed from this claim, the bottom of the shaft is not far from 400 feet below the original surface. There is yet 165 ft. of splendid hydraulic gravel, and then 16 ft. of blue cement, for milling. Two dollars and a half to the pan, from dirt not selected, was the prospect got; and though well satisfied before that the ground was rich, it has a tendency to stiffen up the whole mining community, as it proves this gravel deposit to be one of the richest and most extensive in the world. The stock of this company is principally held in London.

SAN LUIS OBISPO COUNTY.

OCEANIC.—*Tribune*, Aug. 15: A 60-foot drift has been run in the Oceanic quicksilver mine, showing from 5 to 28 per cent. ore throughout its length.

SAN MATEO COUNTY.

A COAL MINE DISCOVERED.—*Times*, Aug. 15: Quite an excitement has taken place in the vicinity of San Mateo and Half Moon bay owing to the discovery of a coal vein on Michael Cassey's farm, which adjoins Byrnes' on the road to Half Moon bay. A specimen of the croppings has been shown us and so far as we can judge San Mateo county is the possessor of a veritable coal mine. A large sample of it was taken to town yesterday, and we have been informed that experts pronounced it to be a fine specimen of coal.

SANTA CLARA COUNTY.

VENTURE.—*Signal*, Aug: Parties are leaving Los Angelos for the gold mines at the head of the Santa Clara river. The existence of gold in that locality has long been known, and the present excitement is caused by the digging of a ditch from Elizabeth lake, which will bring water on the plains.

SONOMA COUNTY.

QUICKSILVER ITEMS.—Russian River *Flag*, August 14: The owners of the quicksilver mine southwest of Healdsburg, heretofore known as the "Great Western," have changed its name to "Mount Jackson," to avoid the confounding of this with the "Great Western" of Lake Co. Williams and others, claimants to the Grant Eastern mine under alleged locations of ancient date, went to work on the mine this week. On Tuesday, W. S. Canan, W. B. Reynolds, R. E. Lewis, C. E. Jones and R. Powell, representing the late locators, went down to the mines in the panoply of war to dispossess the alleged trespassers, but no force became necessary, as the Williams army retired in good order, and left the Healdsburg forces in possession of the field. Bud Smith brought down 25 flasks from the Oakland mine during the week ending last Saturday.

MIDDLETOWN ITEMS.—*Democrat*, August 15: The American mine has struck 80 per cent. ore. The Young America has struck cinnabar in abundance at 15 ft. The Kearsarge company are building three more retorts on their mine. The Big Indian prospects equal to any of them.

SUTTER COUNTY.

FOREST CITY.—*Banner*, August 15: From Messrs. Kimball and Smith, who have lately returned from Forest city, Sierra county, we learn the following in regard to the mines in that locality: The Bald Mountain claim, which is operated by the Bald Mountain Mining Company, is turning out big pay. The company commenced running a tunnel four years ago, and worked for two years with good prospects, when they finally struck pay, and from their first washing in 1872 they got enough to pay all expenses, and their money has paid largely, and since January 1st they have divided $100,000 among the stockholders, and the prospects of the claim are as good if not better than heretofore. The main tunnel is 3,000 ft., and there are 292,200 superficial ft. worked in the mine. The company has spared no expense in develop this claim, which is evident from their extensive and costly outfit. There is 1¼ mile of flume for washing purposes, and 2¼ miles of creek below the flume owned by the company. Recently a 60-oz. nugget was found near the lower end of the flume. Total amount of gold taken out in two years, $333,640. This is the only claim that is paying at present, although two others are being extensively prospected.

SIERRA COUNTY.

GOOD PAY.—*Mountain Messenger*, Aug. 15: Kruse & Co. are taking out fine rock at their mine on the east fork two miles above town. They have a large amount of ore in the dump and will probably erect a mill this summer.

DITCH.—A ditch will be constructed this summer, for the purpose of bringing water from Rock creek to the Green Mountain gravel claim, owned by Wm. Manson and others of this place. The ground is known to be rich.

THE Yellow Jacket gravel diggings, Forest City, formerly known as Webb's old claims, one mile below town, north side of Oregon creek, now owned by Phillips, Raymond & Co., has a tunnel about fifty feet in new ground, and breasts are now being opened out. The gravel prospected thus far is as rich as Bald mountain. Last fall a ditch was brought in from Lucky Dog creek, which furnishes an abundance of water. This is an entirely new lead, and the gold is coarse.

A COMPANY from El Dorado is fluming the north fork of the Yuba river, at New York Flat.

WORK will be commenced in Cornish's claim, below Forest City, in a few days.

CHANNEL.—The channel has been tapped by the tunnel run in the claim of Gunzberger & Co., at St. Charles hill. This is a promising claim.

TUOLUMNE COUNTY.

PLUMBAGO LODE.—*Independent*, August 15: The lode of plumbago discovered by Mr. Geo. Morgan, about two years ago, promises to become the most valuable in the State. It is situated about two and a-half miles from Columbia, and is being rapidly developed by the proprietor. In the 90-ft. incline Mr. Morgan finds the main lode (for there are several) 2 feet 8 inches thick, almost pure carbon, having but little iron, and apparently no foreign matter mixed with the mineral. There are several plumbago mines in the county; but, from present appearances, the one noticed above gives the best promise of immediate profit to the owner.

MINING AT COLUMBIA.—The mines at Columbia are paying well, and the yield, for the number of miners now at work, is even better than former years. Last week, Mr. Sevening, the express agent there, purchased and sent below $12,000 in dust, which was above the average. In July, Mr. S. purchased $25,000. The Haynes claim is one of the most extensive worked at the present time.

Nevada.

WASHOE DISTRICT.

SIERRA NEVADA.—Gold Hill *News*, Aug. 13: The new hoisting works were started into full operation day before yesterday, everything working with the utmost precision and perfection, not even the slightest vibration or jar of the bed-plates of the machinery being perceptible. As soon as everything was in working order the water tanks were put at work, to drain the water from the shaft, and this morning the water had been lowered a distance of 89 feet, showing conclusively that the flow was not so strong but that se eon the pump could be got at work the trouble on that account would be over. The shaft is 425 feet deep and at the commencement contained 225 feet of water. The first pump will be put in at the 400 ft. station, and will have a lift of 250 feet to reach the drain tunnel. The hydraulic works are progressing steadily, doing good execution. The mill is kept steadily running on ore from the mine.

CONSOLIDATED VIRGINIA.—Daily yield 300 tons of ore from the 1,200, 1,300 and 1,400 ft. levels. The ore breasts on all of which levels are looking well and yielding splendidly. It will take about 15 days yet to secure the necessary ventilation on the 1,500-ft. level. Two months ago ground was broken for commencing grading for the company's new mill, and by the 1st of November it is expected to be in operation. The engine is one of the largest on the coast, and is a combination of high and low pressure. One of the cylinders is 48 inches in diameter and the other 24 inches. The foundation for the engine will be 33 feet long, 23 feet wide and 16 feet high, built of heavy granite laid in cement. From present indications, the mill, when completed, will be one of the largest and most substantial in this State.

SUTRO.—The main west tunnel is making excellent progress, the rock on the face blocking out splendidly; in fact, better than at any time since the tunnel was started.

OPHIR.—No work is yet being done on the 1,700-ft. level, as it is desirable that the blowers shall be put in operation before the crosscutting of the ledge on that level is commenced. The breasts from which the ore is being extracted on the 1,465-ft. level are showing a decided improvement in the quality of the ore extracted. The ore breaste on the 1,300-ft. level also show an improvement. The ore taken to the mill is yielding better than heretofore.

BELCHER.—Daily yield, 450 tons of ore. The mine is looking splendidly throughout, showing little or no change from the descriptions given in our former reports. The mills are all kept steadily running, crushing ore from the mine, and the prospects are good for the payment of the regular $5 dividend next month. Ore worked for July, 12,289 tons; bullion, $694,000; average per ton, $56.48; expenses, $316,000.

OVERMAN.—Sinking the main shaft is making slow headway, the rock in the bottom working hard. The belt of rock through which the shaft is now being sunk, is one of the hardest on the line of the Comstock, and although the progress in sinking is necessarily slow, it will make a splendid working shaft when it is done, and one that is not at all likely to soon need much repairs.

GOULD & CURRY.—Sinking the double incline winze below the 1,800-ft. level is being steadily prosecuted. The cross-cuts at the fourth station, or 650-ft. level, have developed a large and continuous body of barren quartz, but no ore that will pay for extraction.

UTAH.—The water in the shaft shows undoubted signs of abatement, as the hoisting tanks and pumps are able not only to hold the water in check, but, when under a full head of steam, to steadily, though slowly, reduce the head.

CROWN POINT.—Daily yield of ore, 500 tons, which is being extracted from the 1,000, 1,200, 1,400 and 1,500-ft. levels. The ore-breaste are looking well and yielding finely. A winze has been started in the body of ore known as the east development of the 1,500-ft. level, which is now down 20 ft., and still in very rich ore. This winze is 140 ft. north of the Belcher line.

HALE & NORCROSS.—The main incline is down 80 ft. below the 2,000-ft. level, the bottom still in hard blasting rock. Daily yield, 40 tons of ore, from the old upper workings.

GLOBE CONSOLIDATED.—The face of the main west drift on the 400-ft. level is in a solid body of clay, which is believed to be the west wall of the ledge. The winze, 95 ft. from the head of the incline, has been sunk 75 ft. below where the west drift was started. At this point another drift has been run along the ledge until it connected with the up-raise, showing the ledge to be fully as good as it was on the level above.

CHOLLAR-POTOSI.—The Belvidere air shaft is completed, giving a much better circulation of air in that portion of the mine. Daily yield, 75 tons of ore, the assay value of which is $39 per ton.

MINT.—The hoisting machinery is all in excellent order, and the work is being pushed with all the vigor possible.

LEO.—The hard rock in the face of the main tunnel is slowly but steadily giving out as further progress ahead is made, and the ledge matter improves in character as it grows softer. The seams of quartz are enlarging and give better assays.

DANEY.—The main west drift on the 400-ft. level is still driven vigorously ahead, and face in a clay quartz and porphyry.

JULIA.—Enlarging the shaft is making rapid progress, three shifts of men being employed at three different points in the shaft. The work on the foundation for the new machinery is also making good headway.

DAYTON.—The water is reduced and held below the second station level, and preparations are being made to resume work on that level. The putting in of the new pumps is making rapid headway.

OCCIDENTAL.—Cross-cutting the ledge below the tunnel level is still vigorously prosecuted, showing a large body of low grade ore, and some that will pay well for milling.

DARDANELLES.—New shaft down 84 ft. today. It is being substantially timbered throughout, and the work is being pushed ahead with energy and in a workman-like manner.

PICTOU.—Main tunnel still actively progressing toward the ledge, it being now in nearly 500 ft. The rock being softer, better progress is being made.

NEVADA.—Still driving the new tunnel into the hill to open the new level. Face of tunnel in ledge matter, with occasional streaks of ore.

CROWN POINT RAVINE.—Driving the south drift on the 300-ft. level is making good progress, the ore in the face being spotted, but of good quality.

CALIFORNIA.—Both the north drifts on the 1,400 and 1,500-ft. levels are making excellent progress. Nothing new.

GENESSEE, No. 2.—Sinking is actively resumed at the bottom of the new shaft, and good progress is being made.

KOSSUTH.—The new machinery is all in place, everything working with the utmost perfection.

WOODVILLE.—The mine is looking well throughout. The mill is kept steadily running.

YELLOW JACKET.—Driving the main east drift on the 1,740-ft. level is making steady progress, the rock in the face still blasting quite hard.

JUSTICE.—Sinking the main incline is making good progress, the bottom in a mixture of clay, quartz and porphyry. Sinking the Waller shaft is also making good headway, the bottom being in solid quartz and low grade ore.

KNICKERBOCKER.—Sinking the main shaft is making good headway. It is now down 40 ft. below the 600-ft. level.

SUCCOR.—The Grant shaft is cleaned out and repaired to a depth of 250 ft. from the surface, and the work is making good progress. Three hundred and twenty tons of ore were crushed last month, which yielded $6,700.

TYLER.—Everything is now in good working

[Continued on Page 124.]

Reclamation of Tule Land.

EDITORS PRESS:—In relation to the report of General Sherman Day and myself, on the investigation and survey in view of the reclamation of swamp land, District No. 107, and the improved method recommeoded by us to reclaim the same, permit me to submit the following:

The investigations we were directed to make, were commenced at a dam thrown ocross the mouth of Rooky slough, near the shore of Old river, and extended along the bank of the river to Indian slough, thence along Indian slough to the uplond. We instituted a series of boriogs, at intervals, along the whole route, some taken iuland, but mostly at the bank of the river.

As the borings progressed, soundings with a lead were taken at distances of 20 to 50 feet from the shore, to determine the depth of the river and ascertain the character and quantity of material that could be obtained from that source for levee pnrposes.

The details of these examinations, illustroted with diagrams ond cross sections, together with explanatory field notes, accompany our report, but are omitted here.

The brown, peaty and spongy surface, peculiar to low tnle londs, was found to average along the bank of the river about seven feet in thickness, forming a teoaceone, elastic crust, composed of tough tnle roots and interloced fibrous matter, with o slight sdmixtnre of sediment and vegetsble mould, grodually softening downward nutil it becomes almost semi-fluid at the bottom. Where the peaty crust ends, an under stratum of the consistency of an ordinary mud bor begins. This formation, extending from the river bed inland, gradually hardens downword until tough blne cloy, restiog on hard pan (so-called) is reached, tbe depth vorying from 15 to 24 feet from the surface of tbe land. The compositioo of this formotion is priucipally clay and very fine sand, with a slight admixture of mica and sulphuret of iron, the proportions slightly varying at eacb boring. This material hos not the solid consistency necessary to make a levee of, but combined with the tough, peaty surface, is considered admirably adopted to the purpose.

The examinations made by inspection and boring satisfied us that the general character of tnle lands bordering on the San Joaqnin river and its branches, as here described, were identical. Tbie peculiar formation, marvelously fertile, commencing at nothing at the upland, was fonnd to attain the greatest depth, some 30 feet to hard pan, along the banks of the main river.

We did not chain the distance from point to point where the borings were made, but we selected those placse which indicated soft formation and treacherous foundations for building a levee upon, and which had caused the greatest trouble and expense from breoke and keeping the levee in repair, and there made the tests with the greatest care.

This we did to eatisfy ourselves with regard to the practicability of building a substantial and permanent levee upou tbe worst places, and at a reasonable cost, with the material at hand. Of this, there is in our minds no question, st a cost not to exceed $3,500 per mile (there being 26¼ miles extent of levee), nor more than $10 per acre (there being about 17,126 aores) assessment on the land witbin the district, to cover cost of canol from Point of Timber to Dutch elough, as well as catcb-water to collect and carry off the rain fall from the uplands, flood gates, repairs, ditches, draio and all.

The sedimentary deposit or mud bars, which will be used in part as material to build tbe levee of the plan proposed and heretofore explained, will be found along the shore.

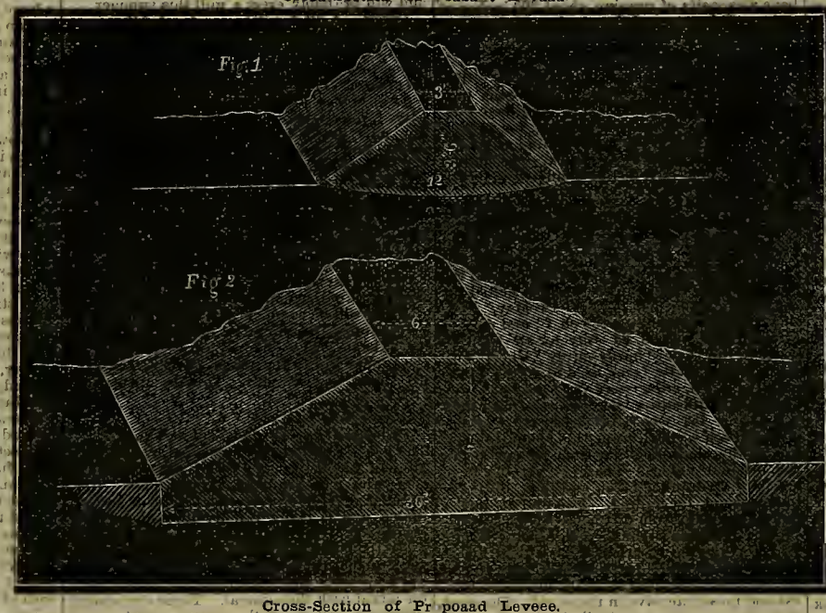
The brown, spongy, light and peaty materiel, of which the present line is built, is found unsuitable to the purposo. It shrinks to that degree, when dry, as to leave fissures or cracks in the top of the levee from two to two and a half inches wide per lineal yard, which not only pass wster, during high tide, from the river to the land, but destroy cohesion and lateral stability of the structure, as well as its power of resistance to hydrostatio pressure, and permanence.

To thie oause all the breaks, inundations of the land, destruotion of crops, and pecuniary loss to owners, so lately experienced aud severely felt, are attributable.

From these investigatious, oarefully made by the surveying party, consisting of General Sherman Day, the undersigned, Captain J. A. Welch, J. C. Stump and others, it was apperent to all, that the present levee is not only badly built, but is improperly located some 90 feet from the river shore, on soft and yielding ground. It was found by the borings that tbe peaty formation, overlying the clayey material end hard pan (so called), was greater inland than neor the river hank, the only place where a levee, on tule land, oan he safely located. As to the method of building a levee properly located and constructed, which we believe can be done, we would recommend this. In all cases the work shsll be preoeded by ooreful horing, to ascertain the depth of the peaty formiotion, ond whether any snbterraneous possages which do sometimes occur, underlie the surface, forming a crust of varying thickness, called float land, of snfficient streogth to support cattle, and even the levees. In front of Csptain Lockhart's ranch, the sounding rod, while boring, dropped five feet from the bottom of the float land to tbe top of the soft earth stratum beneath.

The next step ehould be to stake off the base lines of the levee 30 feet aport, and 25 feet from the outside line to the brow of the river bank. Tracing out these base lines, an incisio'n with a sharp tule knife some four feet long, through the tough surface, down to the less tenacions and soft material below, ought to be made, to completely detsch this continuous belt from the adjacent surfece of land, as a foundation upon which the levee will be built. The work of buildiog this levee will be commenced by coatiog the surface of this belt with plastic material, token from the river bed witb a dredge, and deposited in place, tbus forming a ed, as it were, of mortar. Upon this bed of

Cross-Section of Prasa t L vaaa.



Cross-Section of Pr poaad Leveee.

ortor a course of peaty material, taken from the odjoining drain and the present levee (by utilizing which a great obstacle and an ugly feature will be removed from the land), will be laid and well grouted with tbe semi-fluid substsnce, dredged from the river so that every crock or interstice shall be filled. The mauuer of doing the work, will be similar to the construction of a wall of rubble masonry, built up iu courses with full beds of mortar, grouted in every course. As the levee or wall, composed of impervious earth and peaty materiel, is carried up, ou this continuous detached belt, described above, tbe levee from the superiucumbent weight or load, will slide downward in the groove, made in the land by the siuking of the detached belt, lubricated by water, until the whole moes settles and rests permanently on the sub-stratum below. The flexibility of the levee, from its composition of peaty substance and plastio material, will adapt itself to tbe undulations of the earthy substratum, and thus form, when io place, a perfectly impervious barrier to tbe iogress of water, from tbe river and tides, whether obove, or below the surface of the land. And we hold that the woter wall stondiug alone, iudepeudeut and detachod as it will be, will stop land-cracks, that often occur, to the full depth of the peaty formation, varying from seven to 25 feet, as for iostance in Twitchell Island, where a crack opeued a wide channel to tbe river, letting in the water, and flooding the land.

The foundation of this levee will differ from the one built in the usual way, inasmuch as the base of tbe latter rests on the surface of the ground, on which, when tbe tide is high, the hydrostatic pressure is great; by virtue of the force exerted against it, and the seepage and currenté of wáter under it, which first lifts and lubricates, then slides, and breaks the levee and floods the land. Whereas the former (the levee proposed) will have its base two feet below the surface of the land, and is thus supported by a shoulder or prop of earth behind it, which prevents sliding, aod gives the levee statical rosistence that will render it solid and immovable.

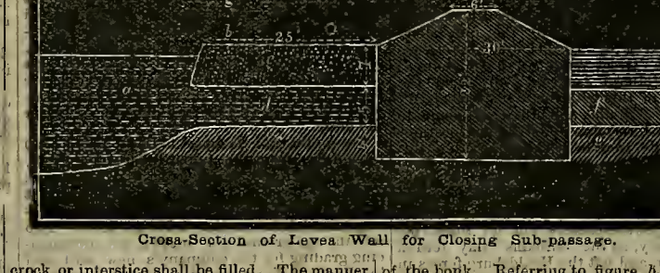
It will be necessary during the progress of the work, ond from time to time after the levee completed, to keep the top at a true level.

Fig. 3 in the accompanying diagram shows a plan of the foundation belt, wbich is cut, as described in the accompanying "Report," 25 feet from the river shore.

Fig. 4 shows a cross-section of levee for closing sub-passage, in coonectiou with a section

Plan of Foundation Belt.

Fig 4.



Cross-Section of Levee Wall for Closing Sub-passage.

of the bank. Referriug to figure, *b* represents the bank of the river, *c* the peaty material, *d* the sub-stratum, *e* the sedimentary matter, *f* tbe sub-passage closed against the iogress of water.

The dimensions of the finished levee at the base will be the full width of the peaty 30-foot belt, six feet wide at the top and six feet high from the ground surface, with slopes two horizontal to one perpeodicular. It is assumed from what is known of other levees, as for instance that of Sherman Island, the best example on peaty land, Graud Island beiog the best found on sedimentory land, that the levee under consideration will settle on an average two feet, the point ot which the levee slopee will begin; this will give 12 squore yards area of cross section above the surface, and 6.66 square yards below the surface, or 32,841 cubic yards per mile. What number of cubic yards will settle below the surface, in very soft ground, or at subterraneons places, which bear a small proportion to the whole, can only be determined by practical experience. The same may be said of the dredging from the river, and depositing the plastic or gronting material on the levee. Enough, however, is ascertained from estimates made by reliable parties, willing to contract for the doing and completing the work in accordance with the plan described, to judge with s great degree of certainty, that the cost of labor and dredging will not exceed 10 cents per cubic yard.

The pertinent query will naturally arise in the minds of many, why the material from the river alone, raised by the dredge and deposited on the foundation belt, without the admixtore of peaty substance, would not answer as well or better than the method proposed? The answer is:

First—That the peaty material in a levee will not be cut by the passage of water over it, while clayey material cuts rapidly. The two combined however, we think, will answer a better purpose than either aloue.

Second—That the material found in the bed of Old river, which will be used for levee building, is, for many feet io depth—in fact, to the thin stratum of bluo clay overlying the so called hard pan—of such a pasty and semi-fluid consistency tbat, when dropped by the dredge into place, would flow or run like mortar. If time could be taken, which would be considerable, and doubtful as to the extent, to dry the material, with the daily action of the tides upon it, the thiog might with great difficulty and at heavy expense be done; but when done, it would probobly be little if any better than o levee made by the plan here recommended. Besides, it will hardly be claimed that the portion of the clayey levee which settles under the tide-level and land-surface, while beiug built,—to say nothing of its situation in soft, low, wet ground, or in subterraneous passages, where the work would be subject to constont saturation aod hydrostatic pressore—would dry or solidify sufficiently to resist that pressure, or exclude the water from the land for any definito period, if at all.

T. R. SCOWDEN, C. E.

Oranges, Lemons and Limes near at Home.

Have these fruits had a fair chanco at growing in the vicinity of San Francisco? It will hardly do to leave the question of our ability to grow oranges and other semi-tropical fruits to be decided by the popular impression, for that is over-exacting os to the degree of heat supposed to be required. There is a mistakeu notion generally prevailing on this point. People evidently suppose that an almost perpetual warmth and evenness of temperature is essential to orange culture; hnt oranges, lemons and limes will bear more cold than people generally suppose. In Italy the orange trees are sometimes covered with snow, but tbeir frnit is koown as tbe best in the market; and in Los Angeles there are sometimes frosts, witb thick ice in wiuter, and it is well known that the orange troe will grow and beer fruit in San José, San Lorenzo and many other places. The temperature of San Francisco and its vicioity is not too low at any season to admit of the growth of tbese splendid semi-tropicals; but whether the climatic variableness would be a hindrance ie o question which yet remains to be decided. Until this question is thoroughly settled, we should not desist from the cattempt. Those at least who wish to surround their homes with beautiful trees, bearing gorgeous and frsgrant blossoms, moy safely rely on accomplishing this porpose by planting a few orange trees. Sbould the frnit mature, they will have the additionel luxury of this glorioos frnit thoroughly ripeued on their own trees; and then froit grown on one's own trees does taste a little better than that of the same quality procured in any other way. Even though the oraoge may not be able to withstand the ups aod downs of our somewhat fickle climate, tbe lemon ond lime msy succeed, for they are hardier thon the orange.

The limite of orange culture are far less restricted than are the popolar impressions on this snbject. The tree has grown thriftily and matured its fruit even at Coloma. It is not much inferior to the peach in hardiness. Its cultivation in California has apparently been satisfactory in every respect to those engaged in the business; and those who have had most experience in orange growing are the most liberal in extending the latitude in whioh the growth of it may be safely undertaken.

FROM Tyho we learn thot quite an excitement pervades that community over the favorable reports concerning the recently discovered mines in Jefferson district, situsted thirty miles northwest of tbat place. All the men not engaged at steady work have left, or are preparing to leave for the new discoveries. The mines are situated in Jefferson cañon, and thus far the prospects are most encouragiug. Two mills are in course of erection, one of which is nearly completed; and soon the obeerful music of the stamps will resound throughout the cañon. The arrivals to the new camp are numerous, and embrace all the well known characters that are always seen flocking to a new excitement, and who are always confident that a fortune is awaiting them.—*Eureka Sentinel.*

KRUSE & Co. will soon erect a 10-stomp mill upon their claim near Downieville, Sierra county.

Useful Information.

Artificial Stone.

There are two ways of making artificial stone. The first and oldest is simply to burn clay; the result is called brick; and is obtained in different degrees of hardness, according to the degree of heat employed in the burning. The softest are those burnt at a low degree, and called after their color, salmon brick, while the hardest, burnt at a high degree, very near the fire, dark, sometimes glazed on one side where an incipient infusion took place, and occasionally almost black, are best adapted for paving stones. Again, when the clay has been made more compact by previous pressure, a heavier, smoother, and less porous brick is the result, called pressed brick. The quality depends, of course, also, on the quality of the clay used. Very fine qualities make different kinds of pottery or stone-ware, and the purest of all, porcelain; but all depend on one principle, the baking together of the constituents by heat; in fact, an incipient fusion.

It appears that the oldest material for cementing bricks and stones together was asphaltum. The most ancient monuments found appear to demonstrate this. For instance, in a certain very old ruin, found in Asia, and said to be the remnant of the celebrated tower of Babel, the bricks are all cemented with asphaltum; and it is remarkable that after so many thousand years the more extensive use of this material is again revived. Soon, however, the knowledge of burning lime was obtained, and its property of hardening when slacked and mixed with sand, was discovered. Such a mixture of burnt lime and sand, which is mortar, forms, when dry, also an artificial stone; and, in fact, a good mortar placed between the bricks, and submitted to proper pressure during the hardening process, forms a single stone to all intents and purposes. Some stones, like granite, basalt, etc., do not unite well with mortar, while more porous ones, like brick, sandstone, and the like, form a very strong union.

With these preliminary explanations, the reader will easily understand how artificial stones may be made without the use of fire. It is simply by mixing substances similar to those forming mortars; and if a dense stone is required, submitting it to pressure. The value of the product depends thus on two things, the proper materials to commence with, and the treatment to which they are subjected—very fine previous grinding, and sufficient pounding or pressure, being the chief requisites of the latter.

As it is less expensive to mold different shaped small objects from a plastic substance than to cut them out of the solid natural rocks, the natural cut stone finds a strong competitor in this artificial stone, which, moreover, during the drying and hardening process is not subject to any shrinkage, such as is produced by fire in the baking process. It is impossible to bake large flat surfaces, required for slabs and tiles, except when a very coarse grain is given them with a great excess of sand, and just enough clay or plastic material to keep the sand together. In fact, this is the way in which are manufactured the celebrated Dutch tiles, imported by our forefathers into this country, occasionally found in some old houses in the earliest settled portions of the land, and to the present day most extensively used in the Levant, for the trade of which Holland still sustains extensive tile-bakeries in Delft and some other cities. The artificial stone tiles now produced in the country promises to maintain a strong competition with these, when their value commences to be understood. But the manufacturers will not confine themselves to tiles only. We have seen a number of capitals, balusters, lintels, crosses and monuments for graveyards, of beautiful design and finish, and, in a variety of colors imitating natural stone. For these purposes, the artificial stone is not only cheaper (it costs one-half as much for tiles, and for more elaborate objects still below that), but also stronger and harder than any natural stone. To understand this, we have only to bear in mind that the compounds in question are silicates, while the natural marbles are only carbonates. The first are not attacked by acids nor the weather; the latter are to a greater or less degree.

Another peculiar virtue of this artificial stone is, that it improves by age. While our brown sandstone deteriorates, and, in many instances, slowly crumbles away on the surface, this artificial stone becomes harder and harder by age; in fact, it sets slowly to an extraordinary degree of hardness.—*American Homestead.*

What Coal Loses by being Made into Coke. From an exchange we learn that Connelsville coal, which may be taken as the standard of coking coals, weighs 80 pounds to the bushel. When properly coked, 100 bushels of coal yield 125 bushels of coke, weighing 40 pounds to the bushel; that is, 8,000 pounds of coal produce 5,000 pound of coke, or, in other words, the coal gains 25 per cent. in bulk and loses 37½ per cent. in weight.

Rendering Fabrics Water-Proof.—Dissolve one part by weight, of caoutchouc, and one of paraffine or stearin, in two of benzine; dilute as much as necessary, and either saturate the fabric with it, or lay it on with a brush.

One hundred barrels of crude petroleum will make about 75 barrels of refined oil on an average.

Generation of Ozone.

Dr. Brigham, in the *Herald of Health*, says: Thunderstorms are generators of ozone, so it is supposed, though Rolshuber thinks that the amount of ozone which is left after a tempest depends more upon the quantity of rain which has has fallen than upon the abundance of the lightning. It is agreed that there is more of it in the air in the winter months than in the summer months, in the wet season than in the dry season, in cold weather than in hot weather, at morning and evening, and even in the night, than at noon. In this respect it goes with electricity, for it is a common mistake to suppose that electricity is more abundant in summer, because thunderstorms come in summer. As a rule, the air is far more electrical on a tingling, frosty day than upon a sultry, debilitating day. According to observations made in Germany, the average of ozone is nearly double on snowy days, and is considerably greater on rainy days than it is on clear days. Fog is unfavorable to its production, but a driving snowstorm greatly promotes it. This may, nevertheless, be the effect of wind in clearing the air. The authorities differ widely in their conclusions about the winds which are ozone producers, some assigning more to winds from the east, others rating more highly winds from the west. Cold winds bring more than hot winds; and those whose houses are exposed to cold winds have this compensation, that if they burn more coal, they probably get a better quality of air.

The following extract from the report of Mr. F. M. Allen, Chief Engineer to the Hartford Steam Boiler and Inspection Company, deserves perusal: In some parts of the country crude petroleum has been found to keep boilers free from scale without injury to the iron, while in the same districts, and in the immediate vicinity, boilers not using purgers would have a scale from one-half inch to three-fourths inches in thickness. We have a specimen of scale in this office nearly one and a-half inches thick that was removed from a boiler in the West by crude petroleum, or what is known as unrefined black earth oil. I am aware that there is a great prejudice against using anything of the kind in steam boilers, but earth oils are very different from animal oils. They are very volatile, and in an experience of several years, where hundreds of boilers have been treated with them, we have found no injury to plates or tubes, and the boilers have been kept free from scale. Petroleum works better where sulphate of lime predominates, than in waters impregnated with carbonate of lime. We would not advise it in connection with the latter. I desire to impress upon all persons the importance of careful attention to their boilers when solvents of scale or purgers are used. It often happens that scale is thrown off and allowed to accumulate on the bottom of the boiler, and from want of attention, not being removed, the boiler becomes nearly or quite ruined. If a purger is used the boiler should be often opened, and as often thoroughly cleaned.

About Nails.—Every farmer who has occasion to drive a nail into seasoned oak posts knows its liability to bend and break. If the point be moistened in the mouth, it will usually drive more kindly. Oil is better, but then it is inconvenient to dip each nail separately into it. Another point is, that boards become loose eventually from the rusting of nails, which, communicating to the wood, causes not only an enlargement of the nail-hole, but the wearing away of the nail itself, rendering the fence or building shaky or insecure. This may be prevented by heating any rough grease until it smokes, and then pouring it over the nails to be used. The grease will penetrate the pores of the iron, and cause the nails to last without rusting for an indefinite period. Besides this, no difficulty will then be experienced in driving them into the hardest wood. The reason is, that the coating of grease prevents contact by air, and consequently oxidation. Oxygen is the great destroyer of iron, and moisture is the inducing cause. Anything which is kept from air is preserved indefinitely, and if it is kept dry the effect is measurably the same. Paint upon buildings prevents the contact of air and moisture. If the whole fence can not be painted, the heads, at least, of the nails therein should be touched.—*Newark Builder.*

To Harden and Bleach Tallow for Candles.—Take of tallow, five pounds; alum, one pound; water, sufficient. Dissolve the alum in water, add the tallow, bring the mixture to nearly the boiling-point, and stir well together. Then allow it to rest a short time, draw the water liquid out, and cast the tallow into the proper moulds. It is said that candles made in this way are as hard and white as wax.—*Druggists' Circular.*

Transparent Gum.—A little glycerine added to gum or glue is a great improvement, as it prevents the gum or glue becoming brittle. It also prevents gummed labels from having a tendency to curl up when being written on.—*Gaslight Journal.*

The solvent power of petroleum adapts it for use in the cleansing of steel articles. It does not become rancid or gummy, as is the case with other oils.

The parts of plants seldom leave, when burned, more than five pounds of ash from every 100 pounds of the dried plant.

Good Health.

An Antidote for Mercury and Lead Wanted.

Many of our Western and Southern doctors pour in the calomel and blue pill for almost everything, as freely as the profession used to do in former times. Since this is so, and since the other medical schools have not yet furnished a practical substitute for mercury, the great want in medicine is a counteractor for a remedy often as bad if not worse than the disease. Chemistry and experiment must help the doctors, and still more the sufferers from mercurialization, if it be possible. Chemists and physiologists long ago found two, and only two, efficient agents, capable of rendering mercury in the system harmless; and these two substances, namely, iodine and sulphur, happened also to be the best naturalizers of another common cumulative poison, lead. But the difficulty was and is to cause the assimilation of iodine and sulphur, or either. Sulphur is nearly insoluble in any menstruum capable of being taken into the stomach. Iodine is very soluble in alcohol, oil, etc., and even in water to some extent, but largely soluble as iodide of potassium, a drug now used to excess. Unfortunately this iodide, also the tincture, are but slightly assimilated, passing off by the bladder. The small amount of iodine contained in that well known organic substance, cod liver oil, would be likely to prove more effective as an antidote to lead and mercury than a large quantity of iodide of potassium, because the organic oil enters into the blood and tissues. We put forth the suggestion that some vegetable may be found which is rich in iodine, also other plants, and harmless ones, may contain sulphur in an assimilable shape, for sulphur is an exceedingly common element of organisms in general. If we could have strong extracts of such plants, the object spoken of would be accomplished. In that case, our calomel givers could salivate their patients to their heart's content, and have them live through a dozen courses of mercury, a matter of profit and pleasure to every regular doctor.

Thousands of cases of chronic rheumatism, as well as consumption and other fatal diseases, have been traced to the use of mercury. Lead poisoning has become alarmingly prevalent of late years, producing colic, constipation, hardened liver, neuralgia, nervous dyspepsia and paralysis, which sometimes attack people in the prime of life. We will not discuss the question of lead in water pipes farther than to observe that every decent chemist knows that pure water acts on lead with astonishing quickness. To have water pipes, as used at present, coated internally with a sulphide or sulphate seems to be the only good practical preventive of lead poisoning. But in the case of lead pipes kept for weeks in hogsheads and barrels of ale and cider, there the solubility is certain and its effects destructive or pernicious to no small degree. Such dangerous nuisances should be abated by law. Again, soda fountains where the water, highly charged with carbonic acid, acts on lead, and sometimes on copper in old fountains, are things deserving of legal attention. Many of the hair dyes in market, and some of the cosmetics, are well proven poisons.—*Scientific American.*

Digestive Powers of a Sailor's Stomach. An American sailor, named John Cummings, died in 1808, in Guy's Hospital, London, under the care of Dr. Currie. The post mortem examination verified his statements, which the doctors could before scarcely believe, that his disease was due to his repeated exploits of swallowing knives, from the effects of which he had been sick for three years. The first time he swallowed 14 knives, became sick, but recovered, and commenced again, hotting from time to time on his bravado exploits. While a prisoner on an English ship, in 1805, he swallowed 17 knives in two successive days; but this appears to have been too much, and after long suffering he died. Fourteen of the knives were found in his stomach, but strange to say, partly digested, the iron parts as well as the horn handles; the silver mounting, however, was scarcely touched. The stomach itself was not at all injured; he had a good appetite to the last, and his sickness and death were alone caused by the haft of a large knife becoming fixed across the intestines. This shows that the gastric and other juices of a healthy stomach have the power to dissolve finally not only horn and bone, but even iron and steel, but not silver.

Doctors.—We do not agree in the view that the physician will ever become a useless member of society, for the simple reason that, instead of decreasing the share of his duties, the culture of preventive medicine—of the knowledge of how to prevent diseases as well as to cure them after they are engendered—must tend to amplify and enlarge the same. His will be the task, not merely to recognize the forms of ills and endeavor to combat their effects, but to look into the future and, through the aid of all circumstances of the present, predict possible evils and point out means of defense. Add to this the constantly increasing knowledge of drugs and their properties, of the wonderful relations of mind and body, of the nature and habits of disease, which science is rapidly developing, and the physician of the future has before him not a narrower but a far wider field for the exercise of his skill.—*Sci. Am.*

Sun-Baths.

These cost nothing and are the most refreshing, life-giving baths one can take, whether sick or well. Every housekeeper knows the necessity of giving her woolens the benefit of the sun, from time to time, and especially after a long absence from the sun. Many will think of the injury their clothes are liable to from dampness, who will never reflect that an occasional exposure of their own bodies to the sunlight is equally necessary to their own health. The sun-baths cost nothing, and that is a misfortune, for the people are still deluded with the idea that those things only can be good or useful which cost money, and they will cheerfully pay away their dollars, for Turkish and Russian baths, when they could get any number of sun-baths, which would be far more beneficial to them, for nothing.

Let it not be forgotten that three of God's most beautiful gifts to man—three things most necessary to good health—sunlight, fresh air, and water—are free to all; you can have them in abundance, without money and without price, if you will. If you would enjoy good health, then see to it that you are supplied with pure air to breathe all the time; that you bathe for an hour or so in the sunlight; that you quench your thirst with no other fluid than water.

In regard to sun-baths, let any invalid who reads this, and who has been housed for some time, take an occasional walk in the sun, if it should be only on the piazza, and observe the effect. In our opinion he will find it the most healthful bath he has ever taken. Sleeping rooms should be selected in such parts of the house as have the most benefit from the rays of the sun. The bed and bedcloths should be aired and kept in the sun as long as possible every day. Many of the sleeping-rooms in the hotels are so situated as never to feel the sun's rays, and those who occupy such rooms for any length of time are simply committing suicide.—*Household.*

Short-sightedness is a malformation of a somewhat serious nature, as short-sighted eyes are diseased eyes, and they require special treatment. Never allow a child or friend thus afflicted to fall into the hands of "traveling quacks," or those who make loud claims to optical volatile. In all large cities there are reputable medical gentlemen who make a specialty of the treatment of eye affections, and they are the proper persons to consult. It cannot be too universally known that short sight tends to increase; and that if it increase at all rapidly, it tends also to destructive changes, and therefore it is an affection which requires prompt attention. Perfection of sight is essential to our welfare and happiness, and any one who neglects those precautions upon the observance of which its preservation depends, will find cause for deep repentance in later life. Young men and young women who suffer themselves to fall into the habit of reading by fire-light, or at a window by the waning light of evening, or at a considerable distance from lamps and gas-burners, are guilty of acts for which they must suffer. Parents should promptly interfere to prevent the formation of such dangerous habits.—*Boston Journal of Chemistry.*

Hydrate of Chloral in Hooping Cough. Dr. Bordley commends chloral hydrate in hooping cough. The dose, of course, must be regulated by the age of the patient and the severity of the attack, care always taken to observe the peculiar susceptibility in each individual case; as some children are much more susceptible to its action than others, as much so as is the case with opium and its preparations. He commences with a half grain for a child one year old, and increases half a grain for each additional year, and repeats every three or four hours. After noting the effect of that dose, he increases it from a half to one grain each day, according to the severity of the attack and the peculiar tolerance of the medicine. The "compound syrup of sarsaparilla" is a good vehicle for its administration, as it masks the taste and destroys the pungency of the chloral effectually.

Good Living.—Privation of food, not of quality, to some men who gain their living by literary pursuits, is most trying. Mental labor after a certain period of life, even to those not fastidious, requires a certain kind of pabulum. The steam will not rise, the brain mechanism will not work, without the proper fuel. Some men's capacity could be gauged by what they eat. Suppose Thackeray put for a year or two on a regime of corned beef, Dickens on a diet of bacon, or Bret Harte on a fare of scrapple, and it is questionable whether "Henry Esmond," or a "Tale of Two Cities," or the "Outcasts of Poker Flat," could have been written.—*N. Y. Times.*

Paris Green.—As an antidote for poison, the free use of milk as a beverage is recommended, but hydrated peroxide of iron is better. Sores caused by the green should be well covered with this, as with an ordinary salve, and a teaspoonful in a wine-glass of water should be taken twice a day, internally, while working with the green. This remedy can be obtained from any druggist or chemist.—*Journal of Chemistry.*

Cooling Drinks.—Infusions of flaxseed and bran and sage seed are recommended as forming very agreeable and useful drinks in fever, and their diaphoretic powers may be increased by the addition of the sweet spirits of niter or antimonial wine.

MINING AND SCIENTIFIC PRESS.

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UPON a ranch in Nevada, on the Carson river, there is a herd of twenty-six camels, all but two of which were bred and raised in Nevada. Some years ago nine or ten were imported into that State, but of these only two lived to become acclimated, and from this pair have been raised the twenty-four. They are used in packing salt to the mills on the river, from the marshes lying in the desert, some sixty miles eastward.

MUCH prospecting is being done in Silver Lake district, and it is thought that several good mines of argentiferous ore will be opened in that region at no distant day. The Silver Lake mining company, the chief company in the district, are making regular daily shipments of ore to the new smelting furnace at Sacramento.

HORACE ADAMS, of Sacramento, has commenced the construction of a Corliss engine of 150 horse power, together with the necessary boilers, shafting, etc., and a 20-stamp mill for the Park silver mining company, Uintah district, Utah. It will require about three months to complete the works.

P. VAN METRE has this season taken 150 ounces of gold from his claim at Dutch gulch, Trinity county. He says that of this amount not more than half an ounce could be classified as dust; the remainder was in pieces weighing from one dollar upwards.

THE present average daily yield of ore from the Crown Point mine is 500 tons, from the Belcher, 450 tons, and from the Consolidated Virginia 300 tons, making a total of 1,250 tons from three of the leading Comstock mines.

ANOTHER cinnabar mine has been discovered about 30 miles from Monterey, by a prospecting party from San Francisco. Lead and silver are thought also to exist in the same lead.

THE average daily shipment of ore by rail, from the Comstock mines, amounts now to 1,725,000 lbs.

A FOUNDRY is proposed at Dilley station, on the west side road, in Washington county, Oregon.

OVER 14,000 persons have arrived in the State by rail since the 1st of April.

A SURVEY is now being made for the projected ditch on Scott river, Shasta county.

Quicksilver Crazy.

The quicksilver excitement in this State runs as high at present as any of the numerous gold mining "excitements" of days gone by. In fact it is impossible to estimate the number of people who are "quicksilver crazy." This excitement differs from those which have occurred formerly, in several particulars. In the first place it is confined to no particular locality but is wide spread over the State. It is not in some almost inaccessible place where the miners look for their treasure, like Frazer river or Stickeen, but throughout the Coast range, where the climate is good and traveling is comparatively easy. It is not only *miners* who are looking for quicksilver, but people of all classes have turned prospectors for the time being, and travel over the hills in search of cinnabar.

The high price of quicksilver, the accessibility of the localities where it is found, the broad area of country where it is likely to be met with, and the value of a good mine, are all incentives which combine to keep up the excitement. Like all other excitements, however, people are apt to be carried away by enthusiasm and do foolish things. Red rock or dirt will excite a miner now-a-days as much as a red rag will a bull. A piece of red rock of any kind found in any part of the Coast range will set some one digging on the spot to find a quicksilver mine. It does not make much difference about the kind of rock or dirt as long as it looks red; that is the most important point. People without the least pretensions to mineralogical knowledge will decide on the subject of cinnabar with the gravity of an expert. They will discourse learnedly about vermilion, serpentine, ledge, etc., and by a judicious admixture of mining terms endeavor to lead people to think they know what they are talking about.

Unfortunately this class of people is somewhat too numerous for the good of the country. We want more mines and more quicksilver, and we need capital to develop the mines and get out the quicksilver. Misrepresentations may, in a few instances, be beneficial to individuals; but in the long run it must necessarily be disadvantageous to a prominent industry of the State. It is very difficult now to induce capitalists to invest in quicksilver mining; and if more difficulties are thrown in the way, few of the claims discovered will ever be developed sufficiently to prove their value. Some of these prospectors, new to the business, undoubtedly deceive themselves, and oftentimes do work on claims of no value. We heard of one instance the other day of a man who was prospecting for cinnabar, and doing it on a salary for parties in this city, who was working away in a reddish clay, firmly convinced that he would soon strike cinnabar ore. This was almost inexcusable, since with a simple blow-pipe and a gold coin he could have told whether he had cinnabar or not.

As an instance of how far people will be carried away just now by anything red, we may cite the following: A well-to-do miner from Idaho, while in this city a short time since, was shown a piece of rock from one of our northern coast counties. Through this piece of rock was a broad streak of reddish hue, which was called cinnabar. There was plenty more of the same sort of rock, and the result was that he thought if he was possessor of that mine he would soon be a millionaire. He actually paid for it $30,000 in cash, and shortly after found that he had plenty of red jasper in his "mine," but no cinnabar. He did not say much about the matter, but has gone back to Idaho a wiser man. Whether he will prospect for cinnabar up there or not, remains to be seen, but we do not think he will buy any more mines.

CHERRY CREEK MINING DISTRICT now presents a lively appearance, and bids fair to be a prosperous mining center. Of the mines being worked, the Teacup and Chance, both lying on the same belt, are most prominent, and are shipping large quantities of high-grade ore. Superintendent J. B. Stanford, of the former mine, who is now in this city, brought down with him $6,000 worth of bullion, the result of 20 tons of ore worked in the Chance mill. The ore is of an exceedingly rich character, and is easily milled, working up to within 70 per cent. of assay value. The Exchequer mine, which is located on the Genova belt, is the property of the Cherry Creek Mill and Mining Co. It has a fine body of ore, and keeps their 5-stamp mill busy. The Flagstaff, Little Maud and Starr mines look well, and are now shipping ore.

NEW discoveries of cinnabar have recently been made in Santa Clara county, in the vicinity of Red Mountain. Prospectors are now in the field and report that they have made a good find, but refuse to give the precise location of their mine.

HOISTING works are being put up on a mine situated above Nevada City, formerly known as the Allison mine, by a company of practical miners principally from Grass Valley. These parties have recently purchased the mine and are meeting with encouraging prospects.

THE Virginia and Truckee Railroad company have made arrangements with the Central Pacific Railroad company for a sleeping car between Carson and San Francisco, leaving Carson Mondays and Thursdays, and San Francisco Sundays and Wednesdays.

Sonorous Sand.

A short time since Mr. W. R. Frink sent from the Island of Kauai, of the Hawaiian group, to the California Academy of Sciences, a bottle of sand which possessed some peculiar qualities. A sand drift exists there some 60 feet high, and by taking two handfuls of this sand and slapping it together a sound is produced like the low hooting of an owl—more or less sharp as the motion is quick or slow. At the time of the receipt of this sand we gave a description of its peculiarities as detailed in a letter accompanying the gift. Mr. Frink said:

Sit down upon the sand and give one hand a quick circular motion, and the sound is like the heavy bass of a melodeon. Kneel upon the steep incline, extend the two hands and clasp as much sand as possible, slide rapidly down, carrying all the sand you can, and the sound accumulates as you descend until it is like distant thunder. In this experiment the sound was sufficient to frighten our horses fastened a short distance from the base of the drift. But the greatest sound we produced was by having one native lie upon his belly and another taking him by the feet and dragging him rapidly down the incline, carrying as much sand as possible with them. With this experiment the sound was terrific, and could have been heard many hundred yards distant. With all the experiments that were made, it seemed the sound was in proportion to the amount of sand put in motion with a proportionate velocity.

In order to ascertain if possible the cause of the sound produced by this sand, Dr. James Blake has investigated its structure under the microscope, and at the last meeting of the Academy of Sciences he stated that the facts he has ascertained fully explain the manner in which the sound is emitted. As the grains of sand, though small, are quite opaque, it was necessary to prepare them so that they should be sufficiently transparent to render their structure visible. This was done by fastening them to a glass slide and grinding them down until one flat surface was obtained. This surface was then attached to another slide and the original slide being removed the sand was again ground down until sufficiently transparent. The grains were found to be chiefly composed of small portions of coral, and apparently calcareous sponges, and presented under the microscope a most interesting object. They were all more or less perforated with small holes, in some instances forming tubes, but mostly terminating in blind cavities which were frequently enlarged in the interior of the grains, communicating with the surface by a small opening. Several specimens of what appeared to be minute bivalve shells were also met with. Besides the elements derived evidently from living beings, these sands contained small black particles which the microscope showed to be formed principally of crystals of augite, nepheline and magnetic oxide of iron, imbedded in a glossy matrix. These were undoubtedly volcanic sand.

It would be impossible to give more than a general idea of the appearance of this sand under the microscope, except with elaborate drawings. The structure of the grains, Dr. Blake thinks, fully explains the reason why sounds are emitted when they are set in motion. The friction against each other causes vibrations in their substance, and consequently in the sides of the cavities they contain, and these vibrations being communicated to the air in the cavities, under the most favorable conditions for producing sound, the result is the loud noise which is caused when any large mass of sand is set in motion. There are, in fact, millions upon millions of resonant cavities, each giving out a sound which may well swell up to resemble a peal of thunder, with which it has been compared, and the comparison, Dr. Blake knows from those who have heard it, is not exaggerated. The effect of rain or dampness in preventing this sound is owing to the cavities in the sand becoming filled with water and thus rendered incapable of originating vibrations. The chemical composition of the sand, with the exception of the volcanic grains, is calcareous, being completely dissolved by chlorohydric acid, although it is probable that some of the *speculae* in the sponges are siliceous.

THE Blue Ditch mining company are now engaged in building a ditch from a point on the South Yuba river, a little below where the South Yuba Canal company's ditch commences, for the purpose of running water to their mine, situated at Blue Tent. They have 75 men employed on the works. They have completed about three miles of flume, which is of the most substantial character. The ditch will have a capacity of running about 700 inches of water.

SIR WILLIAM FAIRBURN, the eminent engineer, is dead. He was one of the founders and first members of the British Association for the advancement of science. He was also the author of many standard books upon iron, among which are "Iron, Its History and Manufacture;" "Application of Iron to Building Purposes," and "Iron Shipbuilding."

THE American quicksilver mine is situated on Pine mountain, seven miles from Middletown, and three from Pine Flat. The company have started their new works, and have four benches of retorts. They are crushing the rock with a 10-stamp mill, grinding it as fine as powder, in accordance with a new process.

The Blue Jacket Mine.

An incorporation was formed in this city this week under the name of the Blue Jacket Gold and Silver Mining Company. The mine is located in the Bull Run district, Elko county, Nevada. A ten-stamp mill has been ordered for this mine, with pans, settlers, etc., all complete. The contract price for the mill is $30,000, and Mr. Hitchcock, the well-known millwright, will put it up. He will build a lumber mill near the mine to facilitate his work.

The proprietors of this mine intend working it in good earnest; and no stock will be put in the market. Mr. T. H. Blythe, a resident of this city, puts up the mill, etc., for a half interest in the mine; and although the arrangements were only consummated last week, every preparation is being made to go to work on the property in a genuine manner. A fine engine goes with the mill, which is arranged to run either by steam or water power. A water privilege is connected with the mine; so, if desirable, they will use water power instead of steam. A wire tramway has been ordered from A. S. Hallidie, of this city, by means of which the ore can be brought from the mine to the mill at a nominal cost. This tramway is about half a mile long, and has a descending grade of about fifteen degrees from the mine to the mill.

This mine was examined and reported on by Mr. J. S. Phillips, M.E., of this city, author of the "Explorers', Miners' and Metallurgists' Companion," a standard work on mining. The mill will be put up by Mr. Blythe for half the mine, on Mr. Phillips' recommendation. It speaks well for the mine that Mr. Phillips has reported on it favorably, for he has condemned many other mines in which as well as other sections of the country. In fact many people suppose that this gentleman is rather too fastidious in his choice of mining property, since through his agency several promising sales have fallen through. Mr. Phillips (who is a pre-eminently practical man) has been appointed general executive manager of the property and is now superintending the construction of the machinery. This will, however, require only one-third of his time, and his general business will be conducted at San Francisco, as heretofore.

There is a tunnel some 300 feet long in the mine and two winzes have been sunk in it for prospecting purposes. The ledge is from four to 18 feet in width. It is splendid looking quartz in a very healthy formation. There are now over 400 tons of ore in the dump, which will mill about $60 per ton in gold and silver. Mr. Phillips was the first one to speak favorably of the Great Western quicksilver mine of all those who examined it, and it is now turning out in a manner to justify his opinion. This one is the first instance, however, that we know of, that he has approved of a mine in Nevada, although he has examined quite a number, and it speaks well for the mine that his report is so favorable.

Take the Boys Around.

Parents should not neglect the opportunity which a Fair like the present affords of pleasantly interesting children in mechanical contrivances. A multitude of machines are here shown in operation, with the advantage of being removed from all dust, in their usual working, makes them disagreeable to visit. The grime of the factory is left behind, while the machine puts its best foot foremost, and has the virtue of working quite as faithfully on its holiday as at any other time.

It is very easy to get boys into an inquiring frame of mind, by sauntering with them among the objects on exhibition, and exhibitors are, of course, only too glad to answer questions. The deplorable ignorance of the simplest mechanical laws by the disclosed queries of otherwise well educated men, shows how grossly this important branch of knowledge is generally neglected. California is destined to be among the manufacturing States, and the value that a knowledge of machinery will be to an ambitious young man, cannot be easily exaggerated. We hope, therefore, that fathers, even at the loss of leisure and inclination, will devote an occasional hour or two, showing the youngsters around among the machines. It may awaken an interest that will add much to the pleasure and profit of the lives of their sons.

COLUMBIA HILL, a mining town in Nevada county, located on the "ridge," between North San Juan and North Bloomfield, has a gravel bed for its foundation. The miners have sluiced up to the back yards of houses on both sides of the main street, taking out large amounts of gold, and are anxious to wash the town entirely away; but to this property holders object. The time, however, will probably come when not a vestige will remain of the slope now built over with houses.

PHILIP ARNOLD, of "Arizona diamond" fame, has been arrested in Kentucky on a requisition from the Governor of this State, and is now on his way to this city, where he will be tried for conspiracy to cheat.

THE miners at Fairplay, Colorado, threaten to commence hanging if there is any more stealing of ore in that neighborhood.

Address of the President of the Mechanics' Institute.

The following interesting remarks were made by Mr. A. S. Halliday, President of the Mechanics' Institute, at the opening of the Ninth Industrial Exhibition, on Tuesday last:

To-day we are assembled to inaugurate the ninth industrial exhibition held under the auspices of the Mechanics' Institute—an exhibition which will tell its tale of progress and demonstrate the condition of art, industry and science on this western outpost of our common country. We must feel grateful for what we find good, rejoice in what we see is better, and resolve, in the future, to push onward in the cause of progress in civilization and humanity among men; raise the moral worth of our people, and set to other communities an example of industry and sobriety.

This vast structure to be dedicated to the cause of Industry, Art and Science by the gifted speaker who will address you this morning, is tangible evidence of the direction of public sentiment, and of the forces that emanate from that sentiment.

It was the general wish that an Industrial Fair should be held in this city during the present year. The thinking part of the community said these exhibitions are good for the public weal; they are public benefactions; they possess no downward tendencies; they better mankind by disseminating the facts of results produced, and suggesting fresher and newer ideas that press onward towards perfection, expressing the thoughts of genius through the mechanical contrivances of man, and enabling neighbors and commercial friends to catch from the inspiration of the surroundings an appreciation of our efforts, ultimately developing intolerations of amity and commerce.

MINING WITH A ROCKER.

And, from the social standpoint, these exhibitions are equally a necessity. Elsewhere, in more favored summer climates, the parks, the public walks out of doors offer opportunities for public gatherings; here in San Francisco the driving wind and damp fogs from the ocean prohibit out-door amusements. Even before fireworks were driven from the Fourth of July order of exercises, the proscriptive point of pyrotechnic enjoyment was to calculate the exact moment of disappearance in the fog of the ascending sky-rocket, and to get out of the way of the descending stick. Under this canopy of serpentry, this structure dedicated to the mechanic arts, the people of this city can gather, protected from exposure to our sea fogs and summer winds, and enjoy the music from a well-trained orchestra of excellent musicians, wander through avenues flanked by specimens of industry and art, or stroll in the quiet of the art galleries among efforts in the department of the higher arts.

Seventeen years ago San Francisco held its first Industrial Fair. A plain, simple pavilion, whose total dimensions were less than to-day is set apart for, and occupied by, the fine art department of this exhibition. James Lick generously gave the use of the land it then occupied, now covered by the Lick House. Then the whole interest of this State was centered in its mines. A few specimens of wheat were exhibited by some visionary exhibitors, who thought that certain portions of California might, with proper care and irrigation, raise grain. The immense valleys of the Sacramento and the San Joaquin, and all the lesser valleys, were known then as now, but the imagination of the wildest of these visionary exhibitors could not have pictured a yield in 1874 of 31 million bushels of wheat, or a surplus for exportation of 700,000 tons, giving employment to two ships of 1,000 tons each per day, the year round, to carry off the surplus crop.

But doubtless you will find in this exhibition other exhibitors equally as visionary, who seventeen years hence will find their visions of to-day as a star in the firmament of realization.

Who would have prophesied seventeen years ago that a structure like this would have been erected in this spot? Or still less could he have foretold the contributions to the solid wealth and prosperity of this State that are now gathered together under this roof.

Every branch of industry has been steadily growing, while new ones are being developed. These Fairs mark the line of the advance, and the report of the Managers sticks in the pin that notes the line of high tide.

Not only have the Mechanic Arts advanced in their industrial aspect, but they have received a substantial impetus in the scientific aspect, from the aid extended by institutions of learning in this State, and in a general way by the sympathy and financial help of many of those who are able to give.

The origination of the evening drawing classes in the public schools; the munificent donations of Mr. Lick to found a Mechanical School; the steady growth and prosperity and usefulness of the Mechanics' Institute Library; Mr. Lick's gift to the same; the special efforts of the Regents of the University in organizing the department of the Mechanic Arts, which although slow is sure, and the general tone of public sentiment, all demonstrate the recognition of the value of the Mechanic Arts.

Almost every branch of industry is now carried on in this city, and adjoining countries are looking to California for their supplies of manufactures and of commerce. A community to be great must be independent, and to be independent must have resources within itself; thus, we must produce and manufacture. To do this needs industry and knowledge; drones and idlers are drags on the wheels of progress and should not be tolerated, and every man is bound to earn at least what he eats and wears.

It seems strange, indeed, this cry of deep depravity that comes up from the lips of so many of the youths of San Francisco when we consider the forty or fifty millions of dollars in the savings banks of this city; the 53,000 persons who attend the 65 churches each Sunday; the $150,000 annually paid ministers; the $3,200,000 it costs to run the city government. There is no consolation in those figures, but there is consolation to anyone who has taken the trouble to inquire, in the fact that the boys of San Francisco are better than their reputation. I, for one, will stand by the boys. I was a boy here myself twenty-two years ago, and now, as a man, deprecate this unreasonable, wholesale denunciation of the boys of San Francisco, who, when we pass away, will act their part in the drama of life. In the meantime I trust they will come here, they will find much to study, and encouragement in what they see around them, and let those who have chosen a trade feel a pride in the products of the artisan and try and emulate the best thoughts he sees produced in mechanical results, remembering that the possessor of that trade is a reserve capital that can never be exhausted; and although he may not be called upon to practice that trade, it is a good thing to have; it will serve *him* a good turn as it has me, if he has occasion to use it; with *that*, a fair amount of intelligence, perseverance and industry, you are no man's slave, but an independent, free man.

The one hundredth anniversary of the birth of this nation will recognize the dignity of industrial pursuit in the broadest sense. In what way could such a nation as this better celebrate its centennial? A military power might call out its soldiery, in martial splendor, and show to the world by the pomp, magnificence and numerical strength of its display, the stability of its government by the power of its army. But in the United States, when the nation or its honor has to be defended; every citizen is a loyal soldier, and the calling of such an army together would be as impossible as the nation's good sense would deem the act unworthy; but, rather we prefer to show the world what we have done in the arts of peace, what the country is capable of producing, and to what industry, art and education have brought to the people of the land.

You are making the manufacturers and producers of the Old World tremble; your skilled mechanics have attacked them in their strongholds and taken their forts by surprise. No longer is an American mechanic treated with contempt; he is sure of respect; and I am a poor prophet indeed if I cannot foretell for your centennial in Philadelphia a glorious achievement by a bloodless victory that will bring all Europe and Asia to your manufacturers' and mechanics' feet.

Surely the petty jealousies and bickerings about the Centennial Exposition are unworthy a great people. An impartial jury determined that Philadelphia was the proper place to hold it; and where could it more appropriately be located than in the city where the Declaration of Independence was first proclaimed?—the venerable old Independence Hall still remaining to attest the part it took in the struggle for manhood. Historically, there is no reason why it should not be there. Logically, there is every reason why it should. Boston, New York, Washington, and I may add even San Francisco, agree that next to itself Philadelphia is the best place.

California has not much occasion to feel proud of the position she has taken; her quota of subscription all told was but $145,000. She has subscribed the pittance of $2,000. Her last legislature refused to aid the celebration and to-day, California, the freshest, brightest, richest, most generous State in the Union, stands in stolid indifference; while Oregon, up north, has subscribed the whole of her quota and proposes to do still more when the proper time comes. Mechanics of California step forward and show to the people of this Union that you appreciate the centennial by your acts, your sympathy and pecuniary aid; and when, in 1876, the grand gathering of the industries of the country occur to celebrate the achievements of our mechanics, and to the $60,000 loaned to the managers by the open-hearted men of San Francisco.

For the design of this building we are indebted to Mr. David Farquharson. It speaks for itself, and has louder lips of praise than I can command.

We owe the construction of the building to Mr. Jonas Drury, who did his work faithfully, as an honest mechanic, and expeditiously as a man who values his work and time.

The managers have departed this year from the usual custom of awarding premiums, and this has been done at the request of some of the principal exhibitors. It is believed that the exhibitors will reap all the benefits of the Fair, and avoid the dissatisfaction and the disappointment the majority must experience, by failing to obtain premiums.

The only exceptions to the above rule has been in the case of the pupils of the public drawing schools, and apprentices, to whom the trustees of the Mechanics' Institute propose to award premiums, if they compete.

The San Francisco Art Association has taken charge of the department of fine arts, and whatever there may be of more than ordinary excellence in material and arrangement, is due to that society, and the same may be said in respect to the horticultural department, which is managed by the Bay District Horticultural Society.

The managers do not expect the exhibition will be as perfect in its detail as those which will follow. The work of raising financial means, of obtaining a suitable site for a building, and of constructing the building, have taken much of the time and attention of the managers.

The exhibition will probably continue for five or six weeks, and each week will add to its interest and perfection. The managers have never failed to keep faith with the public as to the day and hour of opening. Exhibitors are not so punctual, as the many bare spots can verify; but every available foot of exhibiting space has been engaged for some time, and a few days will radically change the appearance of the hall. There will be much to delight and instruct; and, while the Mechanics' Institute most heartily bids you welcome, it trusts that the exhibition may end as pleasantly as it has begun, and enable the managers to stick another pin at the high water line of industrial progress.

As the last strains of the "Hallelujah Chorus" died away in the distant echoes of the colossal structure, the audience, on the point of moving toward the doors, were startled by a tremendous clangor of bells, which in their boisterous language told that the Ninth Industrial Fair was inaugurated.

Mining with a Rocker.

Our illustration represents a mining scene in "early days." One Chinaman is in the diggings, two are packing dirt, and another is running the rocker, while the white man—boss of the crowd—is cleaning up. In rich diggings in the early days of California mining, fortunes were often made with a simple rocker, and the miner's stock in trade was small and comparatively cheap. Gravel diggings are now always worked on a larger scale, and it takes some money to fit out a claim to work it properly. Rockers are very little used in our mining regions at present, except by Chinamen, or by white men in diggings where the dirt is rich and water scarce. It does not take much skill, or knowledge of mining matters to "superintend" a rocker, and many a farmer or mechanic undertook the job in early days at a minute's notice; in fact with as little hesitation as a lawyer, doctor or storekeeper takes charge of a quartz mill now-a-days for an incorporated company. Under these circumstances, however, almost any one rocker has turned out to be a more profitable investment than all the quartz mills put together.

About 70 men are employed in the Guadaloupe quicksilver mines of Santa Clara county. The new shaft is now 230 feet deep, but no new vein has been discovered.

A correspondent says there is a great stir at Mauchester, Mendocino county, over the discovery of a ledge there which has assayed $10 gold and $3 silver to the ton.

James Crawford, of Lyon county, Nevada, has been appointed superintendent of the Carson Mint, vice Hetrich resigned.

A "Growing" Evil.

The natural history of the hoodlum is receiving at the present time a large share of the attention of the press. Outside of newspaperdom, however, there are points and phases of the subject discussed which may never find their way into print.

It is declared in these retired gronps that nnfairness has been manifested in the nttempt to depict hoodlnmism as it exists; and also in the endeavor to localize it too exclnsively in San Francisco. Some declare that "the boy of the period" is no worse a character than was the father in his youthful days—or, possibly, worse than the father is at the present day; and we think candor will prompt the man who has left his own boyhood 40 years behind on the road of life, to confess that the hoodlum of to-day is no worse a character than the "bad boy" of his day, or the "rowdy" of 15 years ago. The prevalent habit of contrasting the youth of *our* period with those of "*the* period," over-painting the merits of the former and the vices of the latter, is nnjast; and no good can come of it.

It is equally nnfair to "shonlder" hoodlumism exclnsively npon San Francisco. We do not dispnte the claims of this city to having originated the name by which this class is known; bnt the condition of hoodlnmism has been recognized in the cities of the East as far back as the history of boys can be traced. If the press of San Francisco wonld hurl back a few of the stones that have been thrown at ns from other cities, we should find that many of our neighbors are living in glass houses. Hoodlumism is also rampsnt in our mining camps and in our agricnltural villages and settlements, idling away the day and making the night hideons with their caronsals.

But we are not at present disposed to visit our neighbors for the pnrpose of writing "sloven" npon their dnst-covered fnrniture. It is apparent that we have qnite enongh tn do to put our own honse in order. It mnst be confessed that there are some pecnliarities of San Francisco life that are particnlarly favorable to the growth of hoodlnmism. We will only point ont one here; and this is more of a necessity than a fault. It is the habit that keeps the men so mnch of their time from their homes. We hear a good deal abont woman being "the angel in the honse;" bnt man's presence is qnite as essential to the pnrity of home as is that of woman. When he takes his lunch away from home, departing in the morning and retnrning at night, he becomes, in a degree, alienated from home; and the woman and children of the household have an excess of spare time and too mnch liberty. If the mother were in the habit of spending her spare time at patch-work, knitting, or any fancy work, as in former years, there wonld be less danger of mis apending some of the many hours between morning and evening; bnt as it is she has only to send her children forth into the atreet—the school of hoodlnmism—and she is nnencnmbered with labor, care and responsibility, and has time to fit herself for her position as the maternal gnide of the growing hoodlnm.

There is no panacea by which this social ailing can be cured. It is, at the heat, chronic; possibly organic. Probably a thorongh diagnosis of the case wonld jnstify ns in declaring that hoodlumism is in reality only a symptom of the disease of the social body. This is not a pleasant pictnre to contemplate. But is it not correct? And will it do any good to burn these evils in effigy?

Watea Locomotive.—This ia a startling and apparently absnrd idea, hnt a French civil engineer, M. A Hnet, advocates its possibility most strennonsly, and, what is more, backs up his theory with most recondite and laborious mathematical demonstration. One may however, prove almost anything by figures, so that any amonnt of theoretical demonstration does not advance it materially to practical accomplishment. The idea is, briefly, that it is a mistake for ahipa to have to force their bulk *through* the water, meeting thereby the large opposing surface of water and a sliding friction over the whole of their immersed snrface. This, M. Huet holds, is as great a mistake as if we were to diamonnt our railway carriagea from their wheels and drag them, like sledges, along the rails. He boldly puts forth the theory that vessels should be' mounted on rolling drnms, th it these drums shonld give principally the power of floatation, and that they should be driven rannd aa paddles to move the ehip forward. We shonld in this way have a floating locomotive mounted on its supporting wheels or rollers. The vessel wonld offer no resistance hnt a rolling one, to motion, and the whole of the snpported weight of the ship wonld he nsed as useful pressnre to give adhesive frictional effect to the rollers. In this way M. Hnet affirms that a velocity eqnal to our trains might he attained at sea. Thie is certainly a prodigions leap in advance. We have hy no means reached our limit of invention yet, at any rate.

Many patents have been issned for variona devices intended to provide a cigar-box wbich ahall serve to exhibit the cigars without breaking the revenne-stamp, and to provide a faatening device which, applied to the nuder section of the cover, and having posted over it the revenue-stamp, prevents the opening of the hox sufficiently to remove the cigars without destroying the stamp.

A Perilous Position.

Yesterday afternoon, abont 11 o'clock, Sam Jones, brother of Senator J. P. Jonea and superintendent of the Crown Point mine, in company with George Williams, station tender and Mr. Chase, nnderground foreman, had a narrow escape from death while ascending the main shaft of the Savage mine The three men got on the cage at the 1,300-ft. level, which ia the bottom of the perpendicular shaft. They had with them some specimens of rock, which they laid npon the cage, and lanterna which they carried in their hands. They placed themselves in the cage, and taking hold of the bell-rope, struck three bells, which being interpreted means—"Hoist, with men." Obedient to the signal struck on his bell above, the engineer began hoisting the cage. All went well until the cage had ascended sbont 400 feet, when it snddenly jnmped ont of the guidea and was loose in tbe shaft. It was dashed from side to side with such violence that the lanterna were knocked ont of the hands of the men, their specimens were thrown from the cage, and they mnst all have been shaken off but for the peculiar construction of the cage, which has cross-bars at each end which may be grasped. Up they went, hanging from side to side, Mr. Chase trying all the time to seize the hell-rope and strike the signal for stopping the cage. This rope is in a corner of the shaft, but when Mr. Chase did occasionally get hold of it, he was unable to make the signal, owing to the rapid and irregular manner in which thoy were ascending.

Thns they were dragged np the ahaft for a distance of over 300 feet, expecting every moment that the cage wonld catch on some projection in the shaft, the cable be broken, and the cage and themselves precipitated to the bottom of the shaft, which wonld have been instant death. Finding they could not signal the surface by means of the bell-rope, they began yelling "Stop the cage! Stop the cage!" in the vain hope that they might be heard above. Sam says he "yelled like a horse-thief." All their yelling was of no avail, however, as not a whisper was heard on the surface. The banging about of the csge cansed the heavy iron cable to be swayed violently, and this was at last observed by the carman nt the surface, who called the attention of the engineer to it, and had him stop hoisting, it being apparent that something was wrong. By means of the ladders a man from the surface then climbed down the shaft, and ascertaioing the sitnstion of the men on the cago, returned and had a cage sent down another compsrtment to their relief. The three men were kept snspended on the cage for over an honr before they finally got ont of their perilons position. Even after the cage had stopped they were not safe. They feared every moment that some of the men at the bottom of the shaft wonld ring the bell and start them either np or down the shaft. To prevent this, one of the men got hold of the bell-rope, and winding it two or three times ronnd his hand, thns held it till the relief cage reached tbem. When they finally reached the anrface it is said that all three of the men looked like the laat rnn of shad. They were drenched with water and covered with mnd. Chase had a cat in hia head, and Sam Jones had his left ahonlder badly hrniaed from his being jammed against the croas-bar of the cage. Sam saya a single, nnexpected jar in a cage snfficiently frightens almoat any man, hut to be dragged and hanged to and fro for a distance of 300 feet is simply terrific.—*Enterprise.*

Our Great Hotel.—The contracts for furnishing material for the bnilding of the Palace Hotel keep sixteen brickyards in active operation, and furnish large orders for three granite qnarries, four boiler manufactoriea, three fonndries, the rolling milla in this city and a gas and watar pipe manufactory in Philadelphia. They also fnrniah large orders for plaster from the New York plaster works; for cement from kilns in New York and in England; for marble and alate tile from the qnarriee of Vermont—16,500 eqnare feet of marble and 12,500 square feet of slah; for 685,000 sheets of plate glass from England, and 8,700 donble-thickness aheeta of glass from France, and for 340 bath-tnbs from a mannfactory in New York. Among the other orders to be filled is one for 350,000 feet of yellow-pine from Georgia, another for teak and camphor wood for closeta and floora from India; for white mahogany from Mexico, for floors and wood finish; Tomano wood for finish, and yellow fir, oak and aah from Oregon.

New Boiler.—Mr. N. D. Harvey, of New Orleans, has bronght out a novel steam-hoiler in which the sides of the firefloe, the back of the bridge wall, or the back ends of the boilers, are jacketed, and the mnd drum connected therewith. In this arrangement the feed water is pnmped into the jacket, and not directly into the hoiler. Before the feed-water enters the boiler it is heated to the boiling temperatnre, and the sediment is deposited in the jacket, and readily finds its way to the mnd drum, to be blown off. Conseqnently the water in the hoiler is kept comparatively pnre.

A rich qnartz ledge has been fonnd on the farm of Lyman Woodrnff, two milea from Ellensburg, month of Rogoe river, Oregon. In many placea inside of his inclosure croppings of gold have been found. It is in cement. Mr. Woodruff took ten ponnds of the rock or cement and pounded it np, and from it got $13.50

Newly Discovered Mines in Nevada.

The Elko *Independent*, of August 8th pnblishes the following concerning the newly discovered placer mines seventy-five miles north of that place: A party of citizens, consisting of H. W. Brown, W. T. Smith, R. Crozier, G. S. Holbrook, Mr. Ritchie and others, left this place for the mines some two weeks ago on Wednesday last, accompanied by J. R. Norton, one of the pioneers of the new camp, and report the diggings eqnal to the best that have been struck on the coast since California's palmy days. From Mr. Brown, who has had large experience in placer mining in California and elsewhere on the coast, and is, moreover, a thoroughly reliable gentleman, we obtain the following in relation to the mines and the route leading to them. The mines are situated seventy-five miles north from this place, in an immense basin in the mountains near the old Bronco mining camp, with a good wagon road the entire distance. The stage road to Cope is followed to the crossing of the Owyhee, at which point the road diverges to the right, reaching the mines in eight miles. Mr. Brown informs us that he prospected down Hope Gulch—which is thns far the principal one—Penrod creek, and the Owyhee, a distance of ten miles, and found gold in greater or less quantities at every point along the route. Subsequently he negotiated with Hazeman and Southwic, and succeeded in purchasing a half interest in their claim in Hope Gnlch, from five pans of the earth, of which he took 75 cents in dust. He also showed us some rich nuggets that he had panned out dnring his stay. Prior to the purchase by Brown, Hazemnn & Southwic had taken from an opening twenty feet sqnare in their claim $127. Norton & Kidd took from their claim in two days with their own hands, two and one-half onnces of dust. Mr. Norton also states that there are in the gulch ten claims that pay as high as one ounce per day to the man by sluicing, and that, too, with a very limited snpply of water. All the gold bronght to this place is very pnre, running from $19 to $19.25 per onnce. We learn that parties on the other side of the monntain, immediately opposite Hope Gnlch, are also working ground snccessfnlly. The Owyhee company made a run of ten days with two hands, and cleaned up $400; bnt, owing to the scarcity of water, work on the gulch has been temporarily suspended, and the Minnesota company—to whom the Owyhee sold out—is now snrveying for a ditch to bring from a distance of ten miles the watera of a stream that will afford an abundance to work the whole gnlch. Just below Norton'a claim John French has run a tunnel into the hill about 40 feet, and fonnd good prospects all the way from the snrface, the dirt yielding from one cent. to one dollar to the pan. The general impression seems to be that the diggings are extensive, and that diligent prospecting will make still more wonderful discoveries in that section. The opinion has been expressed by several experienced placer miners who have visited the new strike that with plenty of water an average of an onnce per day to the man can be realized, as prospects throngh Hope Gnlch rnn from 15 to 75 cents per pan. The distance is so trifling, and the startling reports come so well anthenticated, that nn intense excitement has been prodnced here, and parties are ontfitting and striking ont for the new El Dorado in hot haste. We have every reason to believe the diggings fully as rich as reported, and, should they prove as extensive as they are rich, "the days of old, the days nf gold, the days of '49," will be revived in Nevada.

Black Diamond Coal Mine.

This mine, which is attracting considerable attention in this neighborhood, is situated in the Palmyra district and abont 17 miles from Dayton hy wagon road. The owners are Messrs. Emmett, Edwards and Day, of Lower Gold Hill. At the snrface the seam, on the side hill, was only abont one inch or less, and the owners decided to tnnnel an incline below it, which they did with the most satisfactory results. Upon intersecting the vein, it was fonnd to he nearly three feet in width, and to yield a qnality of coal similar in appearance to Scotch and New Zealand cannel coal, specimens of which, together with a sample of the Black Diamond, can be fonnd at the office of the Gold Hill foundry by those desirons of comparing them. The engines at the fonndry were rnn a portion of yesterday and this afternoon by steam generated by the nse of the coal, and it was found to be equal to Rocky Mountain coal, which the proprietors have been in the habit of nsing. From the close resemblance that the Black Diamond bears to the New Zealaod coal, it is expected that for making gas, it will answer the pnrpose mnch better than other coal now in nse in this State. On account of meeting with considerable water in the incline, no work is being done at present, hut the owners will shortly devise means to rid themselves of this element and coutinue the work of sinking on the seam. Although the mine is sitnated 17 miles from Dayton, as soon as the claim is a little more developed, a road will most likely be built that will shorten the distance to shipping points considerably. There is no stock for sale (it not being an incorporated company), and the owners desire that no exaggerated reports be pnblished concerning the mine. They intend to take things easy, create no excitement whatever, bnt to await developmenta.—*Gold Hill News.*

The Maxwell Ditch and Mining Company.

We paid a visit on Wednesday last to the extensive works of the Maxwell Ditch and Mining Company, on Spanish creek, six miles from this place, and found the company "hard at it," and in high spirits. Work was commenced on this enterprise in September, 1872. The water is taken from the creek, at what is known as "The Falls," npwards of a mile above the Spanish creek bridge. The hulkhead is composed of massive timbers, bedded into the solid rock, and weighted down with hnndreds of tons of honlders, and so constrncted as to stand an enormous strain in flood seasons. The flume, five feet wide and about the same depth, is 900 feet in length from the head to where the water enters the ditch, and was an expensive piece of work, as in many places large points of rock had to be blasted ont of the way to make room for the foundation, and in others it is npheld by framed timbers, 30 or 40 feet in hight. Lumber and timbers for the flume were "shot" down the almost perpendicular face of the mountain, over a quarter of a mile. After overcoming these difficulties, the ditching was comparatively easy, although some hard bed-rock was enconntered, and occasionally a sectioo of flume had to be constructed aronnd a cliff of rocks.

The ditch is three feet wide on the bottom, three feet deep in solid ground, and carries 2,000 inches of water. At the crossing of Blackhawk creek the water is led into a section of 27-inch iron pipe, 420 feet long, and having a depression and elevatinn of 75 feet This pipe has been put in dnriog the past winter, and works "to a charm." About half a mile below the crossing of Blackhawk the company have two gisnts at work, making an opening in the gravel, and have some good prospects. They have grounds enongh at this point for a long run, and will, we are satisfied, make it very profitable. We consider this one of the permanent mining operations of Plumas county. The water privilege is the best one we know of, lasting, as it does, tho whole season. The ditch will probably be extended down the river as fast as required, and it is well known that numberless bars and gravel beds, under the ditch line, will pay handsomely for working in this way. The company have labored under many disadvantages heretofore, but are now fsirly at work, with a certainty of being richly rewarded.

To Capt. H. W. Berry, and other members of the company, we are under obligations for their kindness in showing us over the ground. They are hard working, practical miners, and we wish them the best success in their undertaking.—*Plumas National.*

Signalling to the Driven in Vehicles.—Some one has patented an apparatns which consists of a hollow ball disposed inside the cab having a whistle attached thereto which is placed in close proximity to the driver. The ball is secured in a disc of wood or other material on which are inscribed directions for using the apparatns. Thus, on the occupant of the vehicle compressing the ball, the whistle will he caused to soond one or more times, according as he wishes the driver to stop, go on, turn to the left, turn to the right, etc.

Self-feeding Copying Brush.—Those who make a practice of keeping letter-books will be interested in learning that these is now made a brush with a hollow handle attached containing water, which is forced down to the brush by means of air pressnre admitted throngh a case fixed in the top of the handle; the object being to facilitate the operation of copying letters hy the ordinary copying books, and dispensing with the usnal separate water-well or like receptacle—water tube and brush being combined by this invention in one and the same article.

Salt in Nevada.—Concerning the salt mines of Nevada, the Reno *Journal* says: "Ninety miles northeast of Reno is the region of the immense salt fields of Frank Murphy, capable of producing salt enough to supply the whole world with that nseful and indispensable article. This salt is of the very best and finest quality—superior in every respect to the best Liverpool. For several years past Mr. Murphy has supplied the entire demand in the counties of Lassen, Plumas and Modoo, California, and much of western Nevada."

The Ne Plus Ultra copper mining company, in Fresno county, last week shipped twenty tons of ore. At the present rates of freight only the highest grade of ore can be shipped, and, therefore, the mine cannot be worked to much advantage. If freights were reduced to a dollar a ton it would enable the company to ship three times the amonnt of ore they now ship, at least, and would make the mine pay handsomely.

The Visalia Branch Railroad.—The Visalia railroad, connecting Visalia with Goshen Depot, on the San Joaqnin valley railroad, was completed into Visalia on the evening of the 14th instant. A salnte of 100 guns was fired as the last rail was laid. The road is seven miles long, and is built and owned by the citizens of Visalia. Ground was broken July 4th, and the work commenced July 10th.

A ditch will be constructed this summer, for the purpose of bringing water from Rock creek to Green Mountain gravel claim, owned by Wm. Manson and others, of Downieville.

Encourage the Prospectors.

The Grass Valley *Union* throws out the following hints as encouragement for miners to persevere in their labors of prospecting. As some of the hints have a general application we copy the item for the benefit of our mining readers generally:

"The Seven-thirty mine is still sending good rock to the surface and to rejoice the hearts of Robert McCook, David McCook and E. P. Sanford, the owners. That mine is working itself and is paying dividends all the time. The same owners have the Pittsburg mine—which is not far off from the Seven-thirty. The Pittsburg will be sending out rock in the course of a few days. Last year the Pittsburg contributed a goodly quantity of gold to the revenue of the three owners, and in a week or so it will be doing the same thing again. These mines prove that prospecting pays. These mines have been worked in spite of the predictions which the growlers made against them. Had the idlers been listened to the McCook Brothers & Sanford would have had no mines to this day. Hundreds of merchants and business men here can get good mines by putting up a little money, a small sum each month, for prospecting purposes. This town and every inch of property in it and every business interest in it, depend on mining. Mining is the bed rock on which rests all the prosperity of Grass Valley. The men who own brick houses, frame houses, town lots, or who do business in any way must look at last to the mining interest for their living. That being the case each man in business should be ready to help, so far as he can, to prospect the district. The adage to strike while the iron is hot will do in flush times, but make the iron hot now for striking purposes is the better rule for the dull days."

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For designs no models are necessary. Duplicate drawings are required, and the specifications and other papers should be made up with care and accuracy. In some instances for design patents, two photographs, with the negative, answer well instead of drawings.

For further information, send a stamp for our illustrated circular, containing a digest of PATENT LAWS, 112 illustrated mechanical movements, and HINTS and INSTRUCTIONS regarding the RIGHTS and PRIVILEGES of inventors and patentees, which will be furnished post paid. Also a copy of NEW PATENT LAW of 1870.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and also of the manufactured article itself, must be furnished, with full description of the entire preparation.

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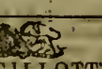

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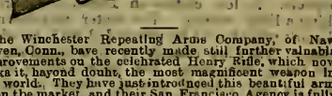

The Winchester Repeating Arms Company, of New Haven, Conn., have recently made still further valuable improvements on the celebrated Henry Rifle, which now make it, beyond doubt, the most magnificent weapon in the world. They have just introduced this beautiful arm upon the market, and their San Francisco Agency is fully supplied with all the various styles, together with cartridges for the same.

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The Carbine is now made with all the improvements above referred to, except the set trigger.

The Sporting Rifle and Carbine will also be made as Extra Arms, Gold, Silver or Nickel Plated, plain or beautifully engraved.

MILITARY ARMS.

Still further improvements have been accomplished which overcome all objections heretofore raised against the Repeating Rifle as an army gun. It is safe, certain and effective in fire, whether used with deliberation or during excitement in action, and no more motions are required than in operating the old model gun.

More extended and minute particulars concerning the new gun can be had by writing or applying to the San Francisco Agency for circular.

CARTRIDGES.

The trade is notified that the Shells of the Central Fire Carriage for the new gun can be reloaded, and that the Winchester Repeating Arms Company are manufacturers of every description of Cartridge used for Carbine, Rifle and Pistol of any make, and that the Company have a full stock constantly on hand at their San Francisco Agency

JOHN SKINKER,

Sole Agent for Pacific Coast,

NO. 108 BATTERY STREET, SAN FRANCISCO.

NOTE.—Also Agent for the Dupont Powder Company and Eagle Safety Fuse Manufacturing Company.

eow-bp

Certificate of Partnership.

We certify that we constitute a partnership, transacting the business of Printing in this State; its principal place of business is San Francisco, California; its name is SPAULDING & BARTO. The full names and respective places of residence of all its members are signed hereto.

Dated San Francisco, Aug. 5th, 1874.

GEORGE SPAULDING,

HARRISON BARTO.

Indorsed. Filed Aug. 5th, 1874.

WM. HARNEY, County Clerk.

6v29-4t By W. STEVENSON, D. C.

PURCHASERS please say advertised in Rural Press.

[Continued from Page 117.]

condition, and it is expected the wster will soon be drained snfficiently to permit of the resnmption of work in the mine.

Buckeye.—The north drift at the third station is in 198 ft., the face in quartz, with streaks and spots of fine ore. The sonth drift at the second station is in 23 ft., running the entire distance throngh milling ore.

New York.—The principal west drift of the 580-ft. level is making good headway, the face in hard rock, full of small seams of lively looking qnartz.

Savage.—Sinking the main incline is making steady hesdway. Cross-cntting on the 2,000-ft. level has developed nothing new dnring the week.

Sutro Tunnel.—Tolal length from mouth to fsce of main header, 6,507 ft. Better progress is now heing made than heretofore, ss two more Bnrleigh drills sre set to work. A small stream of wster is coming in at the face of the header, hut not enough to interfere with the work.

Arizona.

HASSAYAMPA DISTRICT.

Hurrah for the Hassayampa.—*Miner*, Ang. 8: This good old mining district, the highest, in altitude, of all Arizona mining districts, is now rewarding its workers well, as we learned yesterdsy afternoon from S. O. Frederick, who walked into our sanctnm and permitted ns to look at four very large pieces of gold, which he hsd just hronght to town from his quartz crnshing works, Hassayamps district, ahont eight miles south of Prescott. The pieces resemhled the soles of an old shoe, that is, in shape. He hsd not weighed them, hut guessed that they wonld bring him something like $3,000. Since then we have received a note from Mr. J. Marks (of C. P. Head & Co.) informing us thst the gold weighed 200 ounces, worth, st $16 per ounce, $3,200. This from a little over 70 tons of ore, crnshed hy five 650-pound stsmps, driven by a water wheel. The work of crushing, amalgamating, etc., was done in 10 days. He has now, ready for crnshing, some 70 tons more, which he expects will yield as well, if not better, than the last hstch.

British Columbia.

CASSIAR DISTRICT.

Discouraging News.—Nanaimo *Free Press*, Aug. 5: The steamer Otter, Capt. Lewis, arrived from Wrangel and way ports yesterday morning. The news from the mines is of a very discouraging character. A great many of the claims on Dease creek, of which so much had been expected, hsve, after heing thoroughly prospected, turned out nothing. On Thibert creek the result is somewhat similar; many claims after bottoming fonnd hut little or no prospects. A few claims on Dease creek are making a little mouey. The wster was down and work was ahle to he proceeded with to advsntage. They are rumors of rich bench diggings heing discovered, but they cannot be traced to any reliable source. Gruh is still very high and great disssfsaction is expressed at the monopoly which exists—the steamhoat and a certain party having it in their own hands charge jnst what they please.

Colorado.

Clear Creek County. — *Colorado Miner*, Aug 8: The Pay Rock and Hopewell are heing stesdily worked by Messrs. Ellis & Fairhsnks, who are employing a force of 30 men on the two lodes.

Gilpin County.—Mining is going on actively all over this district.

Summit County.—In Pern district, from the hesd of the Snake to Montezuma, prospecting is heing carried on with considerable activity. Jooker & Co. are hnsily engaged opening the Veta Msdre lode, carrying a large, well defined body of hismuth qnsrtz, and only requiring depth to reach that valuable mineral, the bismnth silver ore. Opposite the Revenne mine, on Cooper monntsin, Lewis, Cowles & Co. have strnck some very rich lodes. Mr. Fillins says that, after a careful examination of this district, he is satisfied that it ouly requires a development of some of the mines in this section to prove it to contain some of the best mines in the country.

San Juan.—A German who has had experience in Swsnsea, hss put up a smelter in Baker's park. Green & Son's smelters will soon be in operation. The mines are being vigorously worked, hut there is a scarcity of labor. Lawsuits ahout the ownership of mines are already in progress. News from the mines flattering. Working men in demand at $4 per day. Lots of ore out ready for the smelters. Horsehsck prospectors and sore-heads have left disgusted hecanse they did not find $20 pieces on the croppings.

Idaho.

Mahogany.—Oyhee *Avalanche*, Ang. 15: We hsve good news from this mine. They have strnck s vein from 2½ ft. to 3 ft. wide of fahnlonsly rich ore, in the 9th level north this week. This new strike is an important item, inssmuch ss nothing of mnch consequence has hitherto been fonnd in the Mahogany north of the shaft. In the 9th level south they have also s'ruck a continnstion of the rich ore body found in the 8th level. Our prediction is now fulfilled, viz: that the rich ore hody of the South Chariot wonld eventually he struck in either the 9th or 10th level of the Mahogany. About 225 tons of Mahogany ore is now at the Ellmore mill ready for crushing.

Golden Chariot.—There are uow ten bars of Golden Chariot bullion, valued at $30,000, ready for shipment from this place.

War Eagle.—This mine has abont 180 tons of fine looking ore at the mill resdy for crushing.

Empire.—On the 5th inst. this mine shipped three hars of hullion, valned at $5,450.44, and on the 13th inst. two more hars valued at $4,274.40. The Ellmore mill is stesdily running on Empire ore.

Pcorman.—Snperintendent Hoyt is sinking the new shaft and rnshing forward the hnilding of the new hoisting works as rapidly as possihle. The machinery hss arrived from Winnemucca.

Pauper.—The old Mahogsny hoisting works were purchssed by the Psuper company, and superintendent Phehy has them in operation on the mine.

Ida Ellmore.—The 10th level is yielding some good ore, with favorahle prospects for striking something better before long.

The Pavilion by Gaslight.

Tnesday night the Fair opened in good earnest, and the zest with which the three or four thonsand visitors entered into the enjoyment of the fsre presented, augurs well for the succeeding days and weeks, when everythiug shall have heen gotten in order and the attractions increased three-fold.

To those who saw the confusion and apparently hopeless disorder which reigned in the Pavilion on Monday, the tidiness and system which prevsiled on Tnesday, together with the gayety and even magnificence which the ten thousand gas-jets, aided hy the monster reflectors, lent the scene, provided a genuine and very pleasant surprise. The excellent music of the hand cansed tho gaily dressed ladies and their escorts to get up a sort of impromptn promenade concert, and the play of the fountains sparkling in the light, added the element of outdoor nature and helped greatly to intensify the feeling that a species of indoor picnic wss under wsy. Apropos of the fountains, the central oue deserves a medal for high play. Its jet touched the heam in the center of the arch, a trifle of ninety feet, and was so hoisterous withal that it was found necessary to put a stop to its fun while the hand played.

Progress Made.

The hall shows evidence of increased activity on the part of the exhibitors. They seem to be running a race, and rapid progress has really been made. It is to he regretted, however, that so much useless procrastination has heen shown. Considering the fact that every inch of space has heen taken, the display is not as full as it ought to he, although the hackwardness is only relative; the absolute quantity of material being even now much greater than at any previous Fair at the same stage.

The Music.

The musical feature is one of the most enjoysble of the Fair. Ths music itself has so far been of superior quality, and is greatly enjoyed hy the visitors. A capital treat in the musical way on Tuesday was the grand piano chorus given by twelve gentlemen performers on the Hallet, Davis & Co.'s pianos. It attracted crowds of listoners from sll parts of the hall, and elicited round npon round of applause. The enterprise of the owners of the instruments in furnishing this entertainment deserves especial praise.

In a few days things will settle down and hecome orderly, and this will, of course, produce a corresponding increase of interest. As it is, there cannot be a moto interesting place to visit than the Pavilion. The great puhlic interest already shown, indicates that this is to be the most succssful fair yet held.

The Seattle Cosl aud Transportation Co. are now filling the shute in Seattle for the purpose of losding a vessel with 1,300 tons of coal. They now use and employ two stesmers, two harges, one engine, some forty or fifty men, and a good force of horses.

The shaft of the Livermore coal compsny is down 200 feet, following a three-foot vein of first-olass coal. They expect to hegin shipping in three weeks.

The mines at Columbia, Tuolumne county, are psying well, and the yield, for the numher of miners now at work, is even hetter thsn in former years.

The numher of tons of ore worked hy the Belcher company dnring the month of July was 12,289 tons; bullion, $694,000; average per ton, $56.48; expenses, $316,000.

On Perry creek, B. C., the Rohert and Montgomery compsuies are doing well. On the same creek, and on the Mojole, Chinamen sre making from $4 to $8 per day.

Upward of 125 bnildings in the town of La Porte, Plumss county, have been removed, snd the ground piped away hy Oonly & Gowell, in the last few years.

An attempt will be made to introduce the Lincoln coal into the Vallejo market. It is expected that it can be sold for about $8 a ton.

Fant & Co., in Light's canon, Plnmas county, after a run of two weeks with three men, made a clean-up of $2,800.

The Zacatero gold mine, at West Point, Calveras county, last week yielded $7,000.

General News Items.

Now that the Saucelito narrow-gauge railroad has heen extended to San Rafael, the people of Marin county contemplste the formation of a mammoth milk joint stock compsny, to snpply this city daily with fresh milk from that county. The company will hny the milk from the dairy men, says the *Journal*, run it to the city hy a special or early train, and deliver from wagons to cnstomers. The milk will be as fresh as any that can he snpplied in the city, and as it is proverhially much richer and hetter thsn the product of ordinsry pastures, it is snre to find a resdy msrket.

The Bellinghsm Bay *Mail* is informed that the settlers on some of the San Jnsn Islands are mnch embsrrsssed by the presence of large herds of sheep on the principal sheep ranges of the county, which are owned by British snhjects who reside in Victoria, and who are only represented by Indian herders. It says this is getting to he an intolerahle monopoly, and one which is ruinons to American citizens, whose means are so limited that they are unahle to fence their ranches, and protect their interests from the encroachments of these non-residents.

On Monday evening the Pavilion contained as great a qnantity of goods as had by any previous Fair on the day of opening, yet not much more than one-third of the space taken was occupied. This gives an idea of the comparative magnitude of the present exhibition.

News from Gnatemsla is to the effect that Commandsnt Gonzales, of Magee ontrage notoriety, and his accomplice, Bulnez, have heen tried hy a Court-martisl and sentenced—the former to five yesrs' penal servitude, aud Bulnez to two years.

News from Europe in reference to the grain prospect is still in favor of California farmers. The crop in England, it is now estimated, will he helow the aversge, while the supply of old wheat is nearly exhansted.

Immense piles of grain are heing stored at Colusa, Princeton, Jacnto, Grimes' landing and Grand Island. Farmers are still holding their grain for sn advance in the market.

The grape crop of Pierce county, W. T., is very promising. The hnuches are numerous and very large, and the herries are plump and very healthy.

On Monday afternoon over two hundred and fifty mechsnics and lahorers were hammering, painting, hauling and fitting up the Pavilion generally.

A thousand tons of chrome iron from the Sonoma mine hsve been shipped to Philadelphis, and the work of extracting the ore continues.

The Los Angeles Tohscco compsny have commenced the manufacturing of cigars from tohacco grown there this season.

A storm of rain and hail passed over northern Idaho week before lsst and did some damage to the growing crops.

The annnal report of the Acclimatizaiou society shows that good work hss heen done in stocking our waters with fish.

Three months ago much of the lumher used in hnilding the Pavilion wss growing in the forests of Oregon.

Some of the timhers composing the Pavilion measure 80 feet in length, 12x12 inches, without a knot or flaw.

The trial trip of the "City of Pekin," the new Pscific Mail steamer, proved a success at New York, on Tuesday last.

The daily papers are in a row over the quaiity of their respective telegraphic dispatches. "Yon're auother," is the style.

The grain crop on the Sound is unusually heavy this year. Farmers are now in the husiest part of their harvest.

No drought, chinch hugs, grasshoppers, locusts, potato hugs, weevil or caterpillars to hurt the crops or fruits of Oregon this season.

Seventy cents a hnshel is the price for wheat at Salem, and sixty-five cents in the towns above.

A Washington county farmer hss 600 hushels of new wheat in store at Corvallis.

Austin, Nev., suffered a great loss of property hy a cloud-bnrst on Tuesday last.

The local option law engages onr Supreme court.

Senator Jones is investing heavily in resl estate at Long Branch.

South America is catching it in the earthquake line sgain.

Ohio elections have gone in favor of liquor license.

Vermont is ont of doht, and has $100,000 in the treasnry.

A water spout knocked spots ont of an Arizona military trsin the other day.

Our colored brethren are raising the mischief down South.

Religious fanatics are murdering people in Brazil.

The Carlists are getting the hest of it in Spain.

Hydrophobia alarms Chicago.

Base-ball is becoming popular in England.

The Beecher scandal mixed as over.

Bush fires are raging in Canada.

Drouth is ruining the crops in Arksnsas.

Mining Accidents.

On the morning of the 17th inst., hetween three and four o'clock, an accident occnrred at the Belcher hoisting works, killing engineer R. D. Bray, and seriously injuring Alfred Donald, a night hoss. It was cansed by the hreaking of a fly-wheel. The wheel had eight segments, and only half of them remained on the shaft; the halance flying npward, cut through ten-hy-ten timbers, and a large steam pipe of the incline engine, destroying a large portion of the roof and landing 200 feet in the rear of the works. Cntting the steam pipe filled the hnilding with steam so that others could hardly comprehend the true nsture of the accident until the supply had been shut off from the hoilers. The accident caused a delay of 36 hours in work at the mine.

On the morning of the 19th, an accident occurred at the Savage mine, similar to the one that happened at the Belcher. The large cog-wheel that is attached to the engine suddenly flew to pieces, but, fortunately, the engine was running very slow at the time snd no one was hurt. A large number of miners were standing around the shaft, resdy to descend helow to commence work. They made a general stsmpede, and all escaped from heing injured. The cage, loaded with ore, was caught about 100 feet from the surface hy means of patent fastenings. A new wheel has been ordered from San Frsncisco. All damages will he repsired in four or five days.

Another coal miner, Richard Ssvage, met his death this week in one of tho chutes of the Black Diamond mine from an explosion of foul gss, ignited hy his open lamp, he having neglected to take the safety lamp provided for the men in such workings, as was the case with Mr. Wesley, who died from like cause last week; though the jury of inquest in that csse charge part of the responsihility on another workman, in hsving left the air pipe covered with s shovel, as well as to his own neglect. The light of the safety lamps is not, it is said, so good, nor are they as conveniently msnaged as the common open lamps, and this prohahly inclines the miners to take lsrge risks of life rather than use them unless they have special reason for helieving it necessary. Mr. Savage's death was the third that has occnrred at the Black Diamond compsny's works within the term of a little more than a week, that of Owen Williams having preceded that of Mr. Wesley a few days, and resulted from the fall of a mass of rock npon him in one of the gangways at the moment he was setting timhers to support it. A man named D. Sitcovitch had his right leg hrokon helow the knee last week, hy a cave in the Amador mine at Sutter creek.

Never since the first settlement of Bentou county has there been such an acreage of grain to cut, aud never were the farmers more intent ou their work. Hsrvesting is all the go.

Mr. Foersterling, of Columhis, Tuolnmne county, last week picked np a nugget worth $90.

The grading of the Monterey and Saliuas Valley Railroad will he completed within a fortnight.

A marble quarry has heen discovered on the head of Butte creek, in Clackamas county, Oregon.

All the Chinamen have heen dischsrged from the coal miues at Tenino, W.T., and white meu taken in their ;lsces.

The Buckeye quicksilver mine, Colus county, is rctorting and shipping about 1,300 pounds per week.

A company is to he organized to develop the coal miues in the Sutter Bnttes.

A new mill is heing huilt at the Occidental mine, near Nevada city.

Send in Your Subscriptions for the Press.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Aug. 18th, 1874.

For Week Ending Aug. 4th, 1874.

Nozzle or Hose Sprinkler.—James H. Fowler, Oaklaud, Cal.

Car Coupling.—Thomas J. Hnbhell, Yountville, Cal.

Trade-Mark.

Cigars and Tobacco.—The Consolidated Tobacco Co., Gilroy, Cal.

———*The patents are not ready for delivery hy the Patent Office until some 14 days after the date of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possihle (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

METALS.

WEDNESDAY M., August 19, 1874.

American Pig Iron, ₱ ton	—	@	40 00
Scotch Pig Iron, ₱ ton	35 00	@	42 00
White Pig, ₱ ton	—	@	44 00
Oregon Pig, ₱ ton	—	@	45 00
Refined Bar, best assortment, ₱ lb	—	@	5½
Refined Bar, good assortment, ₱ lb	—	@	4
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	6
Sheet, No. 24 to 27	—	@	09
Horse Shoes, per keg	—	@	8 00
Nail Rod	9½	@	—
Norway IRON	8	@	—
Rolled Iron	6	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER—			
Brazier's	31	@	32
Copper Sheet	29	@	—
Old Nail's Pat	20	@	—
Sheathing, ₱ lb	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES—			
Plates, Charcoal, IX ₱ box	—	@	13 00
Plates, IC Charcoal	11 00	@	11 50
Roofing Plates	lv 50	@	12 00
Banca Tin, Slabs, ₱ lb	— 32	@	— 35
STEEL.—English Cast, ₱ lb	— 20	@	— 25
Anderson & Woods' American Cast	10	@	17
Drill	— 18	@	22
Flat Bar	— 18	@	22
Plough Points	— 16	@	17
ZINC	—	@	11
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	— 8½	@	— 8
LEAD—			
Pig, ₱ lb	— 8½	@	— 6
Bar	— 6½	@	— 7
Sheet	—	@	9
Pipe	—	@	8½
QUICKSILVER, per ₱	—	@	1 45

GENERAL MERCHANDISE.

WEDNESDAY M., August 19, 1874.

BAGS.			
Rec. Stand Wht.—13½	@	13¼	
Detrick's Machine	—	@	—
Sawed, 22x36 E.—	@	13	
do 22x36, do E W—	@	12½	
do 20x40, dn A.—	@	13¼	
Flour Sacks ¼s.. 14½	@	12½	
" ⅛s.. 6½	@	7¼	
Stand. Gunnies..			
double seam.—15	@	16	
single seam.—13	@	13	
" Wool Sacks.. 65	@	—	
Barley Bags 24x39	@	15¼	
do 23x40	@	15½	
do 21x40	@	16	
do 23x36	@	17	
Oat Bags, 21x40.. 16	@	16½	
do 28x36..	@	17	
Hessian 10-in. gda	@	9½	
do 45	@	10½	
do 60	@	15	
CANNED GOODS.			
Asst'd Pie Fruits			
2¼ ₱ cans.. 2 75	@	3 00	
do Table do..	@	2 75	
Jams & Jellies 3 75	@	6 25	
Pickles ½ gl..	@	3 50	
Sardines, qr local 80	@	—	
do half cases.. 3 20	@	—	
COAL—Jobbing.			
Australian, ₱ ton 10 00	@	—	
Coos Bay	—	@	10 00
Bellingham Bay.—	@	8 50	
Seattle	—	@	11 00
Cumberl'd, cks.. 22 00	@	23 00	
do bnk.. 18 00	@	20 00	
Mt. Diablo.... 6 25	@	6 50	
Lehigh	—	@	19 00
Liverpool	11 00	@	12—
West Hartley	12 50	@	—
Scotch	9 50	@	10 00
Scranton	15 00	@	17 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ bu	75	@	80
Coke, ₱ bbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Central America	—	@	22
Costa Rica per ₱	21	@	22
Goatemala	21	@	22
Java	28½	@	30
Manilla	22	@	—
Grocers' grade	—	@	20
Chicory	10	@	—
FISH.			
Pac. Dry Cod, new	5	@	6
cases	6	@	7
do boneless	11	@	12
Eastern Cod	7	@	8
Salmon in bbls.. 9 00	@	9 25	
do ½ bbls 4 50	@	4 75	
do 2½ ₱ cans	@	2 00	
do 1 ₱ cans.. 2 65	@	2 75	
do ½ ₱ cans.. 1 75	@	—	
Do Col. R. ½s..	@	—	
Pick. Cod, bbls 22 00	@	—	
do qr bbls 11 00	@	—	
Bos. Sm'k'd Herring 40	@	50	
Black'l. No. 1, ½ bbls 80	@	8 00	
" Extra	—	@	9 00
" in kits.. 2 00	@	2 50	
" Ex Mess.. 3 50	@	4 00	
" Ex mess, ½ bs..	@	12 00	
Sm'k Herr'g, bx.. 50	@	50	
NAILS.			
Assorted size, lb. 4¾	@	7	
OILS.			
Pacific Olue Co.			
Neat P't No. 1	—	@	1 00
Pure	1 25	@	—
Castor Oil, No. 1	—	@	1 75
do do No. 2	—	@	1 50
Cocoanut	45	@	50
Oliva Plagniol	5 00	@	—
do Possel	4 75	@	—
Palm	—	@	9
do Bagicslopl	—	@	—
Linseed, raw	—	@	1 02
do boiled	—	@	1 07
China nut in ca	—	@	85
do bulk	75	@	80
Sperm, crude	—	@	1 40
do bleached	—	@	2 20
Coast Whales	35	@	40
Polar, refined	50	@	55
Sperm	1 40	@	1 50
Lard	1 00	@	1 10
Coal, refined Pet	37½	@	40
Oleophine	—	@	34
Devoe's Brill't	25	@	28
Long Island	—	@	34
Eureka	37½	@	40
Oevue's Petro'm	26	@	29
Barrel kerosene	20	@	25
Olive	4 00	@	9 50
Ownnar Kerose'e	35	@	40
Gas Light Oil	—	@	34
PAINTS.			
Atlan. W. Lead	7½	@	12½
Whiting	—	@	2
Putty	4	@	4½
Chalk	—	@	2½
Paris White	2¾	@	—
Ochre	4	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ₱ lb	6¾	@	6¾
do 2, do	5¾	@	5¾
Japan	5¾	@	6
Siam Cleaned	7	@	—
Patna	—	@	6¾
Hawaiian	7	@	7¾
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Connemara	6 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	20 00	@	23 00
do coarse	15 00	@	20 00
SOAP.			
Castile ₱ lb	10	@	11
Local brands	5	@	8
SPICES.			
Allspice, per lb	15	@	16
Cloves	45	@	47½
Cassia	22½	@	25
Citron	—	@	30
Nutmegs	—	@	1 07½
Whole Pepper	17	@	17½
Pimento	—	@	15½
Gr'nd Allspice	—	@	1 00
do Cassia do	—	@	1 50
do Cloves do	—	@	1 50
do Mustard do	—	@	1 25
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	1 60
SUGAR, ETC.			
Cal. Cube per lb	11½	@	—
Paris' Pro. Cube bbl or 100 lb bxs	—	@	11¾
do in 50 lb bxs	—	@	12
do in 25 lb bxs	—	@	12¼
Clrcle A crushed	—	@	11½
Powdered	—	@	11
Granulated	—	@	11
Ory granulated	—	@	11½
Hawaiian	8	@	10½
California Best	—	@	11½
Golden C	—	@	10½
do Ke'g grade	—	@	6½
Cal. Syrup in bls	—	@	5½
do in ½ bls	—	@	55
do in kegs	—	@	62
Hawaiian Molasses	10	@	20
TEA.			
Oolong, Canton, ₱ lb	19	@	25
do Amoy	24	@	30
do Fhrmosa	40	@	80
Imperial, Canton	25	@	40
do Pinguoy	45	@	80
do Moyune	50	@	90
Onnpo'der, Cant	30	@	42½
do Pingeny	50	@	90
do Moynne	65	@	1 25
Y'ng Hy., Canton	28	@	40
do Pingeny	50	@	70
do Moynne	65	@	95
Japan, ½ chests, bulk	30	@	75
Japan, lacquered bxs, ½s and 5 lbs	46	@	67
Japan do, 3 lb bxs	45	@	90
do pl'n bx, 4½ lb	35	@	65
do ½ gl h paper	30	@	55
TOBACCO—Jobbing.			
Bright Navys	50	@	80
Dark do	45	@	55
Own ₱ Twist	57	@	62½
Plinch do	57	@	62½
Light Pressed	65	@	75
Hard do	60	@	70
Conn. Wrap'r	40	@	50
Penn. Wrapper	20	@	30
Ohio	15	@	15
Virg'a Smok'g	60	@	95
Fine ot obe'g, cr	8 50	@	9 25
Fine cut chewing, bucts ₱ lb	75	@	90
Sanner's Eureka	—	@	9 00
Eureka Cuts	8 75	@	9 00
TURPENTINE.			
Eastern	60	@	65

LEATHER.

WEDNESDAY M., August 19, 1874.

City Tanned Leather, ₱ lb	—	@	25@28
Santa Cruz Leather, ₱ lb	—	@	25@29
Country Leather, ₱ lb	—	@	24@28
Stockton Leather, ₱ lb	—	@	25@29
Jodot, 8 Kil., per doz	$50 00	@	54 00
Jodot, 11 to 19 Kil., per doz	66 00	@	90 00
Jodot, second choice, 11 to 16 Kil, ₱ doz	55 00	@	72 00
Cornellian, 12 to 16 Ko	57 00	@	67 00
Cornellian Females, 12 to 13	60 00	@	64 00
Cornellian Females, 14 to 16 Kil	66 00	@	74 00
Beaumerville, 15 Kil	60 00	@	—
Simon, 13 Kil., ₱ doz	61 00	@	63 00
Simon, 14 Kil., ₱ doz	65 00	@	67 00
Simon, 24 Kil., ₱ doz	72 00	@	74 00
Robert Calf, 7 and 9 Kil	35 00	@	40 00
French Kips, ₱ lb	1 00	@	1 25
California Kip, ₱ doz	40 00	@	50 00
French Sheep, a la, ₱ doz	9 00	@	15 00
Eastern Calf for Backs, ₱ lb	1 00	@	1 25
Sheep Roane for Topping, all colors, ₱ doz	9 00	@	13 00
Sheep Roans for Linings, ₱ doz	5 50	@	10 50
California Russett Sheep Linings	1 75	@	4 50
Best Jodot Calf Boot Legs, ₱ pair	5 00	@	5 25
Good French Calf Boot Legs, ₱ pair	4 00	@	4 75
French Calf Boot Legs, ₱ pair	4 00	@	—
Harness Leather, ₱ lb	—	@	37½
Fair Bridle Leather, ₱ doz	48 00	@	72 00
Skirting Leather, ₱ lb	—	@	37½
Welt Leather, ₱ doz	30 00	@	60 00

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PLAINSBURG, MERCED CO., CAL., June 22, 1874.

DEWEY & Co.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which you have displayed in procuring my patent.

Although you were entire strangers to me when I first communicated with you, I soon felt satisfied you were gentlemen of integrity, and shall always be happy to represent you as such. Very truly yours,

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CAMPO, SAN DIEGO CO., CAL., July 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

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A. M. GASS.

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Thursday Noon our last forms go to press. Communications should be received a week in advance and advertisements as early in the week as possible.

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Eagle Quicksilver Mining Company.—

Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—Is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of July, 1874, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 6, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessment shall remain unpaid on Monday, the 31st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Saturday, the 26th day of September, 1874, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H WATSON, Secretary.

Office, Rooms 5 and 6, No. 302 Montgomery street, San Francisco. jy-25

El Dorado North Mining Company—Location of principal place of business, 215 Sansome street, room No. 2, San Francisco, Cal. Location of works, Philadelphia District, Belmont, Nye County, Nevada.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 4th day of August, 1874, an assessment (No. 1) of fifty cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 215 Sansome street, room 2, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the 15th day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on sixth (6th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Directors. GEO. E. HOUGHTON, Secretary.

Office—No. 215 Sansome street, San Francisco, Cal.

NOTE.—Since levying the above assessment, the office of the El Dorado North Mining Company has been removed to room No. 4, Heyward's Building, No. 419 California street, San Francisco, Cal., and said assessment is made payable to the undersigned, who has been duly appointed Secretary of said Company. FRANK SWIFT, Secy. ag15

Electric Mining Company—Location of principal place of business, San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of June, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm R McCaw	18	2600	260 00
Wm R McCaw	65	300	30 00
Wm R McCaw	203	435	43 50
J B Houghton	15	1168	116 80
J B Houghton	201	272	27 20
Wm H Baker	7	500	50 00
Wm H Baker	8	2000	200 00
Wm H Baker	200	375	37 50
Wm H Sparks	64	500	50 00
Wm H Sparks	219	75	7 50
M Ellsworth	9	250	25 00
M Ellsworth	213	37	3 70
A C Knox	71	100	10 00
A C Knox	222	15	1 50
Maria Foley	136	50	5 00
Maria Foley	233	7	70
Maria Foley	234	½	05
Louisa Thompson	161	400	40 00
Louisa Thompson	239	60	6 00
Geo W Mullen, Trustee	126	1000	100 00

And in accordance with law, and an order of the Board of Directors, made on the 10th day of June, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 326 Pine street, San Francisco, California, on the 5th day of August, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. B. PAUL, Secretary.

Office—No. 318 California street, room 13, San Francisco, Cal. jy18

POSTPONEMENT.—The above sale is hereby postponed until Tuesday, the twenty-fifth day of August, 1874, at the same hour and place. By order of the Board of Trustees. A. B. PAUL, Secretary.

Germania Mining Company—Location of principal place of business, San Francisco, State of California. Location of works, Tintic District, Juab County, Utah Territory.

Notice is hereby given that at a meeting of the Directors, held on the fifth (5th) day of August, 1874, an assessment (No. 2) of one dollar per share was levied upon the capital stock of the company, payable immediately, to the Secretary, at the office of the Company, 408 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the twelfth (12th) day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the second (2d) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. TRIPP, Secretary.

Office—No. 408 California street, room 16, San Francisco, Cal. ag15

Kincaid Flat Mining Company—Principal place of business, San Francisco, California. Location of works, Sonora, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 18th day of August, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 217 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 2nd day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 12th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

R. R. CORNELL, Secretary.

Office, 217 Sansome street, (up stairs,) San Francisco, California. ag22

Plumbago Gold Mining Company—Certificate of incorporation dated and filed in the office of the County Clerk of the City and County of San Francisco, California, June 24, 1864, No. 3346. Mine and works at Plumbago Ledge, Sierra County, Cal.

TO ALL WHOM IT MAY CONCERN TO KNOW: The representatives of two-thirds (⅔) of the capital stock and stockholders of said corporation, having made and filed with the Board of Trustees, on the 4th day of August, 1874, their written assent that the place of business of said corporation should be changed from the City and County of San Francisco, to Minnesota, in Forest Township, Sierra County, Cal.

Notice is hereby given, that it is the intention of said corporation to remove its principal place of business from the City and County of San Francisco, to Minnesota, in Forest Township, in Sierra County, immediately after publication of this notice for the period of thirty days from its first insertion in the MINING AND SCIENTIFIC PRESS, a newspaper printed and published in the City and County of San Francisco, Cal. Done by order of the Board of Trustees. S. B. DAVIDSON,

Secretary Pro. Tem.

August 4, 1874. 6w28-1m

Providence Gold and Silver Mining Company. Location of principal place of business, San Francisco, State of California. Location of works, Lassen county, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 10th day of July, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
E O Brown, Trustee	128	47	$4 70
E O Brown, Trustee	151	50	5 00
B O Whiting, Trustee	159	100	10 00
B C Whiting, Trustee	160	100	10 00
B C Whiting, Trustee	161	100	10 00
B C Whiting, Trustee	162	100	10 00
B C Whiting, Trustee	163	100	10 00
B C Whiting, Trustee	164	250	25 00
B C Whiting, Trustee	165	250	25 00
B C Whiting, Trustee	166	132	13 20
A D Hatch, Trustee	118	200	20 00
Jas McLaughlin, Trustee	67	500	50 00
Harvey S Brown, Trustee	189	57	5 70
F P Howard	146	14	1 40
Henry Raymond, Trustee	150	114	11 40
Henry Raymond, Trustee	177	1000	100 00
Henry Raymond, Trustee	178	500	50 00
Henry Raymond, Trustee	179	198	19 80
Henry Raymond, Trustee	180	255	25 50
J H Kingsley	108	28	2 80
Cornelius Colo	168	100	10 00
Cornelius Colo	169	100	10 00
Cornelius Colo	170	83	8 30
John R Spring, Trustee	157	1000	100 00
John R Spring, Trustee	158	1000	100 00
D W Frary	171	100	10 00
Jas McLaughlin, Trustee	103	1000	100 00
Jas McLaughlin, Trustee	104	500	50 00
Jas McLaughlin, Trustee	105	250	25 00
Jas McLaughlin, Trustee	106	250	25 00
Jas McLaughlin, Trustee	107	100	10 00
Jas McLaughlin, Trustee	108	100	10 00
Jas McLaughlin, Trustee	109	50	5 00
Jas McLaughlin, Trustee	110	50	5 00
Jas McLaughlin, Trustee	111	40	4 00
Jas McLaughlin, Trustee	112	37	3 70
Jas McLaughlin, Trustee	142	25	2 50
Jas McLaughlin, Trustee	143	25	2 50
Jas McLaughlin, Trustee	144	25	2 50
Jas McLaughlin, Trustee	145	38	3 80
M L Morrison	114	25	2 50
S A Stevens	121	13	1 30
W J Miller, Trustee	129	12	1 20
W J Miller, Trustee	130	500	50 00
W J Miller, Trustee	131	500	50 00
W J Miller, Trustee	132	500	50 00
W J Miller, Trustee	134	100	10 00
W J Miller, Trustee	135	100	10 00
W J Miller, Trustee	136	100	10 00
W J Miller, Trustee	141	100	10 00
Solomon Heydenfelt	188	566	56 60
W H Knight, Trustee	190	57	5 70
Henry Raymond, Trustee	191	14000	1400 00
James Mee, Trustee	192	1000	100 00
T E Marks, Trustee	113	142	14 20
A D Bell	147	14	1 40
L Vilasria	116	28	2 80
M C Blake	117	200	20 00
S A Raymond, Trustee	120	1415	141 50

And in accordance with law, and an order of the Board of Directors, made on the 19th day of July, 1874, so many shares of each parcel of such stock as may be necessary, will be sold at public auction, at the office of Middleton & Sen, Auctioneers, 310 Montgomery street, San Francisco, on Monday, the 7th day of September, 1874, at the hour of 2 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

WM. H. KNIGHT, Secretary.

Office—331 Montgomery street, Room 18, San Francisco, Cal.

Saw Pit Flat Gravel Mining Company

Consolidated.—Location of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Plumas County, Cal.

Notice is hereby given, that at a meeting of the Directors, held on the 17th day of August, 1874, an assessment (No. 1) of five dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 7, 418 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the 21st day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Thursday, the 15th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, California. ag22

Tuolumne Hydraulic Mining Company.

Principal place of business, City and County of San Francisco, State of California. Location of works, Tuolumne county, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 19th day of August, 1874, an assessment of twelve and one-half (12½) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, room 14, 302 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 21st day of September, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the twelfth (12th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. I. T. MILLIKEN, Secretary.

Office, 302 Montgomery st., San Francisco, Cal. ag22

Virginia Consolidated Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Kearsarge Mining District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 31st day of July, 1874, an assessment of seven cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 7th day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 30th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office, No. 318 California street, San Francisco, Cal. Room No. 13. ag8

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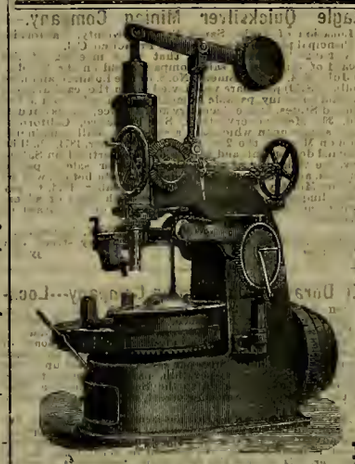

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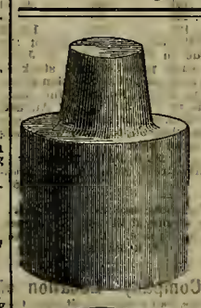
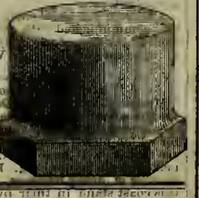


We guarantee the STEEL SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper. Price, 20 cents per pound, shipped from San Francisco. It takes 40 days to fill orders from the manufactory East.



Address all orders, with dimensions, to
CAST STEEL SHOE & DIE CO.,
Room 28, Hayward's Building, San Francisco.
1v29-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,
First Street, bet. Howard and Folsom, San Francisco.
Machinery and Castings of all kinds.

California Assay Office—J. A. Mars &

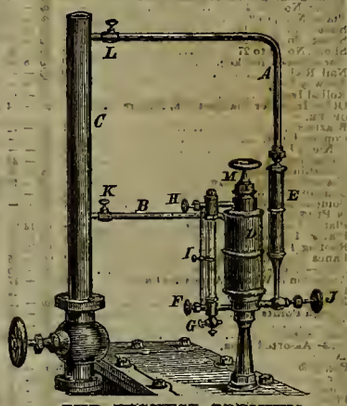
Wm. Ireland, Jr., Chemists and Assayers, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

FRENCH MUTUAL PROVIDENT SAVINGS AND LOAN SOCIETY.

TWENTY-NINTH SEMI-ANNUAL DIVIDEND.—A dividend of nine per cent. per annum, net (9 per cent.), upon the operations of the French Savings and Loan Society for the six months ending June 30th, 1874, has, in conformity with the report of the Committee of Verification appointed by the members of the Society, been declared by the Board of Administration at the semi-annual meeting held on the 15th instant. This dividend will be payable on and after the 17th instant, at the office of the Society, 411 Bush street.
GUSTAVE MAHE,
eg15-4t Director of French Savings Bank.

Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe O; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted t give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

THE AMERICAN TURBINE WATER WHEEL.

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.03; ½ 69.64; ¾ 78.73; ⅞ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "These are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to
TREADWELL & CO.,
SAN FRANCISCO, CAL.
Sole Agents for the Pacific States and Territories.
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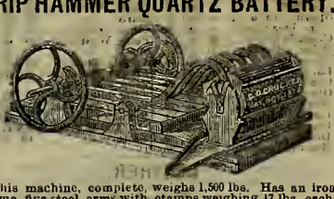
CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $400.
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17v26.tf 315 California street, San Francisco.

N. F. BURNHAM'S
TURBINE
Water Wheel.
POINTED
The best in the Market, and sold at less price than any other class Wheel. Pamphlet and Price List sent free.
N. F. BURNHAM, York, Pa.
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Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by
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The Cheapest and Most effective Furnace now in use Parties desirous of building above furnace, or for any information on same, address,

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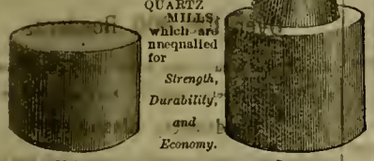
STEEL SHOES AND DIES

FOR QUARTZ MILLS,

Made by our improved processes. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS which are unequalled for *Strength, Durability, and Economy.*



Die. Shoe

Will wear three times longer than any Iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Stamping, and general Mining Machinery in all its details and furnishers of Mining Supplies.

All orders promptly filled.

MOREY & SPERRY,
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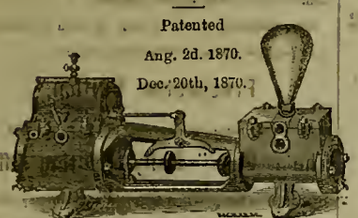
Examination solicited. 9v28-1y

THE SELDEN DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

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STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

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BOILER MAKERS

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Howard st., between Fremont and Beale, San Francisco

THEODORE KALLENBERG,

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

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THE

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Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

Standard sizes of railroad Car Wheels, with special patterns for Mining Cars. These small wheels are made of the best Car Wheel Iron, properly chilled, and can be fitted up with the improved axle and box—introduced by this company, and guaranteed to outlast any other wheels made in this State.

☞ All kinds of Machinery made and repaired.

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Have always on hand a large Stock of Bar and Bundle Iron, Sheet and Plate Iron Boiler Flues, Gasand Water Pipe, Cast Steel, Plow and Shear Steel, Anvils, Cumberland Coal, Etc.

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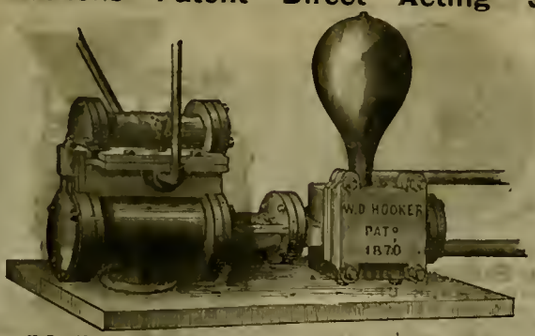
Hooker's Patent Direct Acting Steam Pump.



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SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.

The Best Pump in Use.

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N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump. Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco. 18v27-2am3m

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Metallurgy and Ores.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine those pans and setters for themselves, at the office, 229 Fremont Street, San Francisco.

Nevada Metallurgical Works,

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Ores worked by any process.
Ores sampled.
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Analysis of Ores, Minerals, Waters, etc.
Plans furnished for the most suitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

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On all kinds of Ores, and particular attention PAID TO

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We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

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Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

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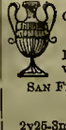
Important to Miners and Mill Men.

Silver-Plated Copper Amalgamating Plates, for Saving Gold.



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Having the Latest Improved Machinery, we can make it an object to

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HAY,
Grain,
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6,000 to 40,000 Pounds.

PLATFORM 12 TO 20 FEET LONG.

EVERY QUARTZ MILL AND MINE SHOULD HAVE ONE TO WEIGH WAGONS.

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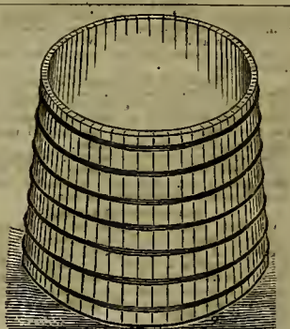

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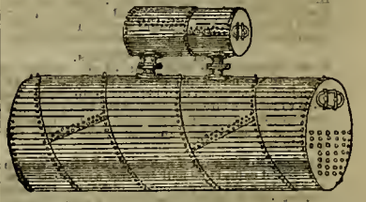

High and Low Pressure Boilers of all Descriptions.

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SHEET IRON WORK of every description done at the Shortest Notice.

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Fourth Year of the Pacific Rural Press.

The publishers of this journal design making its weekly issues during its fourth year (1874) still more acceptable and valuable than those of the past.

A Farmsr's Paper Always.

The RURAL PRESS—established Jan. 1870, has been thoroughly a farmer's paper—" first, last, and always." Its success in popularity and rapidly increasing circulation has exceeded that of any other weekly on the coast.

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We refer with satisfaction to the independent, chaste and useful character of our reading matter and the absence from our columns of questionable and demoralizing advertisements.

We shall strive to make it an ever welcome visitor to those who desire to constantly

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And shall give a larger space to our HOME CIRCLE department, which from the first has been a popular feature of the RURAL.

Our aim is to gather information from all reliable sources, in the varied forms in which it is to be obtained. Our work is to divest our gleanings of all superfinities; condense such information as is of most importance to our special class of readers—give it to these in the plainest and fewest words possible,—saving *their time* by *our labor*.

Our Leading Departmsnts

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The Home Circle,	The Horse,
Young Folk's Column,	The Swine Yard,
Short Stories,	Sericulture,
Home and Farm,	The Vegetable Garden,
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Domestic Economy,	The Vineyard,
Good Health,	The Orchard,
The Dairy,	Tropical Fruits,
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Poultry Notes,	The Cereals,
Horned Stock,	Pastnrage, etc.,
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Practical Farmers

Know how important it is that the above subjects should be treated from a local standpoint—that generally the farming tactics of the East will not do for this coast, that agriculture, in its infancy here, can derive greater benefits from an exchange of experience through the columns of the press than in older fields. Constantly observing and studying developments in the special field we represent, we can be expected to give truer information on agricultural subjects, than more general writers at home or abroad.

Our Traveling Correspondsnts

Will do much service by gathering a large amount of interesting information from various parts of the Coast, which, but for their research and practiced observation might never be placed on record or reach the eye of the reading public. Of our many

Local Correspondents

We have particular reason to be proud. No paper on this Coast—old or new—has ever been so highly favored with volunteer contributions. They are talented, reliable, independent and generous representatives of an intelligent and enterprising people, noble types of good humor, unselfishness and true progress.

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Original and selected, will hereafter appear in each number. Their selection, we trust, will be such as to render them popular and unobjectionable to all. In addition to a large number of

Fine Engravings,

Representing Choice Stock, Farm Products, Scenery, Remarkable Productions, Improvements in Farming Implements and Machinery, Works of Art and the Beautiful in Nature, we shall from time to time present the modest

Faces of Prominsnt Farmers

Who, as pioneers in the development of agriculture on this Coast, or as active laborers in the "Farmers' Cause," are worthy of the distinction they enjoy, and the favor with which they are looked upon by our many readers at home and abroad.

Engravings (costing thousands of dollars originally) are inserted in our columns during a single year. They afford instant and perpetual impressions often more perfect and real than words can convey.

Patrons of Husbandry.

We shall continue to give our weekly summary of matters connected with the interest and progress of this growing and important movement. We shall aim to give information as fresh as possible in this department. Its readers are aware that the RURAL has been in the lead in calling farmers to organize. We shall continue to work zealously with the Granges for the noble objects of the Order.

The present is an

Important Period

In the history of our Coast. The coming 12 months promise greater developments in its agricultural progress than has been experienced in any previous year. Agriculturists are alive to improvements in every direction, and those who would keep up with the spirit of the times should certainly read the RURAL PRESS.

Ths S. F. Markst Reports

Will receive greater attention in the department of DOMESTIC PRODUCE than that of any other weekly journal. We shall spare no pains to render the reports as reliable and complete as possible. By the employment of our special reporter we hope to make this very important part of our paper one of its best and most satisfactory features.

Kind Words and Acts

Have done much to build up in this isolated and sparsely settled coast so large and complete an agricultural journal as the PACIFIC RURAL PRESS. We commence the new year with a regular circulation of

Ovsr 5,000 Copiss,

A far greater issue than that of any weekly on this Coast, independent of a daily publication. If our friends will continue to "help us help ourselves," we hope to reach a circulation of 8,000 this year, and do a correspondingly greater service of good. While we have the greatest advantages and can make by far the best weekly for

Agriculturists on This Sids of ths Continent,

We cannot expect one-half so large a circulation as journals in older and more populous districts. Consequently readers cannot rightly expect such a paper here at Eastern rates.

No Premiums But a Good Paper

Do we offer. A flashy chromo (or cheap map), with an ill suited paper, will hardly satisfy the farmers of this Coast, whose time is too precious for trifling. To many of you the benefit of a reliable and valuable paper should reach a hundred fold its cost, while to all a poor journal would be dear at any price.

Sample Copies Furnished Free

On receipt of stamp for postage.

Agents are Wanted

Who will do more or less active canvassing. To such we will furnish free samples and pay liberally for their services.

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One year (payable in advance).....$4.00
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JOS. WAGNER,

113 and 115 Mission Street.....SAN FRANCISCO

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FRENCH BURR MILL-STONES

—AND—

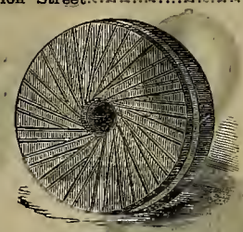
Portable Mills.

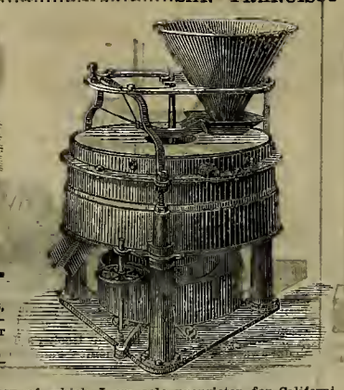
—ALSO—

MILLS

Especially adapted for

RINDING QUARTZ





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Dutch Anchor Bolting Cloths.

BOLTING CLOTHS MADE UP.

Eureka Smut Machines, Brad Dusters, Mill Irons, Spindles, Bails, Drivers, Steps, Regulating Screws, Silent Feeders, Pulleys, Proof Staffs, Hoisting Screws, Bails and Pins, Conveyor Flights, Plaster and Leather Belting.

Mill Picks, Mill Picks Dressed, Mill Stonss Repaired and Rebuilt.

Mill Stones Balanced with FELLENBAUM'S PATENT BALANCE, of which I am sole proprietor for Californi Oregon, and WasbingtonTerritory.

GIANT POWDER.

Patented May 26, 1868.

THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,

For hard and wet Rock, Iron, Copper, etc., and Snbmarins Blasting.

GIANT POWDER, NO. 2,

For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE nse savss from 30 to 60 per cent. in expsnses, besides doing the work in half ths tims required for black powder.

☞ The only Blasting Powder nsed in Europe and ths Eastern States.

BANDMANN, NIELSEN & CO.,
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GUIDO KUSTEL - - - - Superintendent.

WILL PURCHASE GOLD AND SILVER BEARING ORES, CUPERIFEROUS SILVER ORES, GOLD SULHHURETS, ETC., AT THE HIGHEST RATES, OR WORK THE SAME FOR ACCOUNT OF OWNERS.

Offics, 210 Front Street, San Francisco.

4v29-6m-16p

Removal.

July 13th, 1874, the business office of this Journal was removed just one block east of our former location, to No. 224 Sansome Street, southeast corner of California, over the Bank of British Columbia, where we have secured large and elegant quarters. This removal is made in consequsnce of the sale of the building which we formerly occupied, to parties who will proceed immediately to demolish the present structure and erect a new and magnificent block in its place.

[Diagram Showing Location of Dswey & Co.'s Nsw Offices.]

Hints to be Remembered.

A note dated on Sunday is void.

A note obtained by fraud, or even from one intoxicated, can not be collected.

If a note be stolen it does not release the maker—he must pay it.

An indorser of a note is exempt from liability, if not served with notice of its dishonor within twenty-four hours of its non-payment.

A note by a minor is void.

Notes bear interest only when so stated.

Principals are responsible for their agents.

Each individual in partnership is responsible for the whole amount of the debts of the firm.

Ignorance of the law excuses no one.

It is a fraud to conceal a fraud.

The law compels no one to do impossibilities.

An agreement without consideration is void.

Signatures in lead pencil are good in law.

A receipt for money is not legally conclusive.

The acts of one partner bind all the others.

Contracts made on Sunday can not be enforced.

A contract made with a minor is void.

A contract made with a lunatic is void.

THE NEW U. S. MINING LAWS.

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BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, AUGUST 29, 1874.

VOLUME XXIX Number 9.

Improved Tools.

Abont four years ago we called the attention of our readers to a line of new tools, koown as "Bailey's Patent Adjnstable Planes," then beiug introdnced for the first time into the markets of the Pacific coast. We gave at that time our opinion that a step had been taken, in the improvement of this most commou of all tools for wood-workers, which would be recognized by that entira class of mechanics, as a snbstantial benefit to them in their dsily pnrsuits

We gave illustrations on tha former occasion of both the iron and the wood smooth planes, and explained the method of fastening the plane-iron in the stock by a cam, instead of by driving a wedge, as also the accnracy with which the plane-iron can be controlled by the positive action of a thumb-screw, instead of the uncertain strokes of a hammer. At this time we fnrnish illustrations of two planes, now included in the assortment of Bailey's planes, each of which has special features, and a variety of uses for modern carpenters and general wood-workers.

The block plane (No. 9½), is a small plane, having a single iron set at a low angle and whetted from the upper side. The plana may be held in the hollow of the hand, with the forefinger resting on the brass thumb-screw near the front of the plane. It has no equal as a tool for planing endwise of the grain, or for fitting nice joints at the ends of mouldings or other kinds of work.

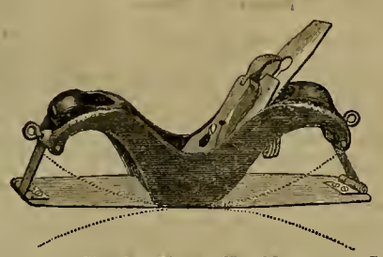
The circular plane (No. 13), has a flexible steel face, and by means of the thumb-screw at the end of the stock, the face can be adapted to plane a surface either concave or convex, as easily as an ordinary plane will smooth a flat surface.

It will be seen that the two planes here presented are indispenenble to the mechanic who wishes to avail himself of tha lateet improvemente in such tools. The use of any of Bailey's patent adjustable planes will do more to secure for the workman nniformly good work, and in the least possible time, than any tool of ite kind now before the mechanice of the country.

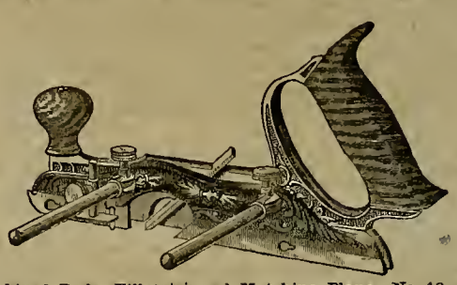
Another improved tool, an adjustable plow, etc. (No. 41), embracee in a compact form enough tools, as formerly sold eeparately, to nearly fill an ordinary tool-chest. The various parts are made of metal, and are not eubject to any change by warping. More than 30,000 of these tools have been eold, and their use eeeme likely to enpereede the old-fashioned wooden tools, ae the price at which they are sold is hardly mora than the price formerly paid for an ordinary plow.

A combination tool, mote recently introduced, a dado, filletster, etc. (No. 46), will be found a good improvement over any tool yet introduced for similar purposes. Cuttere accompany this tool hy which a dado of any required width can easily be had, while the tool may also be adjusted for plowing and matching.

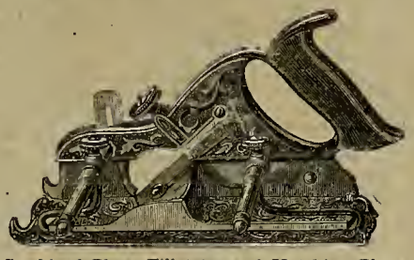
Printed instructions accompany all the tools referred to here. Illnstrated circulars, with full descriptions of the tools, may be had by applying through the mails to the mannfacturers, the Stanley Rule & Level Co., of New Britain, Conn., with warerooms at 35 Chambere et., New York. The tools are to be fonnd in hardwara storee throughout the country.



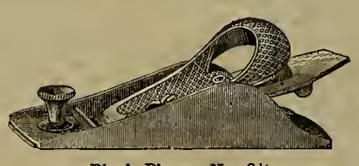
Circular Plane. No. 13.



Combined Dado, Filletster and Matching Plane. No. 46.



Combined Plow, Filletster and Matching Plane. No. 41.



Block Plane. No. 9½.

Casks by Machinery.—We learn from M. Fulda & Sons, of the California Wine Cooperage Company, that they will eoon have a new factory at work on Spear etreet, turning out stock for a large amount of work this seaeon.

The minoe in Little York townehip, Nevada county, are better than ever before, and very heavy results are looked for from next year's run.

All of the Silver city mills are running full blaet, on ore from the Comstock and neighboring mines.

A Splendid Success.

The Exhibition has now reached the end of its second week, and is daily becoming more and more attractive, both in the matter of exhibits and in the personality and magnitude of the attendance. The construction and arrangement of the present building is such as to furnish many decided advantages over any one previously erected by the Institute, whether in the matter of convenience for promenading, or for displaying and viewing articles on exhibition; the increased breadth of the aveuues and resting places, and, above all, the magnificent promenade along the gallery fronts, are most important and attractive features, and in striking contrast with the contracted arrangemente of structnree of the kind which have heea previously erected in this city. The advantagee and necessities for something really valuable in this direction were most happily alluded to in President Hallidie's opening address, as follows:

And, from the eocial standpoint, these exhibitions are eqnally a necessity. Elsewhere, in more favored summer climates the parks, the public walks out of doors offer opportuoities for public gathering; here in San Francisco the driving wind and damp fogs from the ocean prohibit out-door amusements. * * Under this canopy of carpentry, this structure dedicated to the mechanic arts, the people of this city can gather, protected from exposure to our sea fogs and summer winds, and enjoy the music from a well-trained orchestra of excellent musicians, wander through avenues flanked by specimene of industry and art, or stroll in the quiet of the art galleries among efforts in the department of the higher arts."

That the public entertains a just appreciation of this thonghtful effort for their pleasure and convenience, is amply shown in the great increase of attendance. The visitor is completely lost in bewilderment at the vastness of the building, the interminable extent of its avenue, and the almost endless variety of articles on exhibition. He is led along as if by magic, and all unconscious of fatigue, while he threads the graceful meanderinge amid the profusion of tablee, etands, pyramids, show cases and cosy little recesses which appear and disappear by turns, as he makes the full round of this great palace of California industry.

The managers deserve the highest credit for the taste and judgment they have thue far displayed in the arrangement and conduct of the exhibition. Refreshments are provided for the hungry, mild potations for the thirsty, and abundant sitting convenience for the weary. The lovers of mueic are bounteously entertained by a splendid brass band, located near the center of the Pavilion; while those who prefer parlor music can enjoy that from the pianos, located in one of the cosy corners of the western gallery, furnished by some of the best artists in the city. Taken as a whole, California may well be proud of this grand display of her skill, industry and taste, and the Institute may he congratulated on the complete financial success of the undertaking, the receipts from which have thus far exceeded all expectations, and give indubitable evidence that the final total well will nigh pay for the entire outlay, with running expenses. Such a result will enable the Institute to appropriate the bulk of its receipts from future exhibitions to the construction of a more magnificent edifice, which will become a real and permanent palace of industry, that will remain for centuries to come the grand central point of industry and art on the Pacific Coast.

The minere and laboring men of Grass Valley want a savings bank established in that city.

National Sportsman's Association.

The time hae been when the term sportsman was supposed to be depreciative of character; but that has past. The sportsman'e clubs throughout the land have been of service to the country to an extent that cannot he estimated by money valuation. It is principally through their persistent endeavors that the game laws of the different States have been suited to the needs of the present time and to the demande of the future; and their watchfulness has done a thousand fold more than any official efforts in securing the efficiency of the game laws. Tha wasteful and almost willful destruction of game hae been, to a great extent, stopped; and the streame of the country have been stocked with material that will furnish coming generations with a vast amount of wealth, comfort and pleasure. It is proposed now to hold a national eportsman'e association at Niagara Falls, on September 9.h, 1874. The benefits to be derived from the formation of such an association in providing for the protection of game in the partially eettled and newly acquired territory of the country, will be apparent to all; and we hope California will be duly represented at the meetiug at Niagara Falls; and that the sportsmen of our State will look ont for tha interests of game in the country at large.

Del Norte, Colorado, has gone wild over another new discovery. This time it is gold quartz, and aseays $5,000 per ton.

Sanitary Condition of the State.

The State Board of Health has issued a circular, signed by Dr. Thos. M. Logan, Secretary, for the purpose of obtaining as much as possible of the information which may hava accrued since the American occupation of California, respecting the effects of settlement, cultivation, drainage, irrigation, mining operations, aqueducts, reservoirs, forest and tree culture—especially of the *Eucalyptus Globulus*, or Australian gum tree—upon the sanitary condition of the inhabitants. This information is desired more particularly with a view of discovering some means of controlling—or, at least—of modifying the influence of malaria in the production of fevers, and also of determining by the vote of representative men both in and out of the medical profession, the prevalence of consumption in each section of the State, in its relations with soil-moisture, unaffected by immigration or emigration, likewise the best climates and localities for the amelioration of its special types and stages.

Dr. Logan solicits answers to the questions printed in the circular, and states that extended answers, striking exsmples in illustration of theories, topographical description of places represented, or a monograph on any subject, germane to these inquiries, provided it is written in a compact manner, would be gladly received.

The questions addressed to persons in different localities throughout the State are about as follows: character of soil; nature of subsoil; average altitude; population of district; number of acres of low or wet land; number and character of streame, sloughs, ditches, aqueducts, ponds and other bodies of water; season of year when water is stagnant on certain sloughs, streams, etc.; season when beds of streams, ponds, etc., are dry; topographical changes; natural and artificial drainage; number and size of drainage ditches on wet lands, and effect on health of residents; number of acres under cultivation; proportion of land covered with timber; kinds of timber originally growing and now predominating; extent of plantations of eucalyptus; quality and source of drinking water; depth and number of wells; distancee of wells from cess-pools; proportion of deathe to inhabitante; prevalent diseases; malarial diseases and results; increase or decrease of malarial diseases; cauee for increase or decrease of diseaee; number of deaths from consumption; results as compared with former years; caaees or circumstances attributed; climatic conditions during year; rainfall; average rainfall; proporlion of sunshiny days; average temperature; months favorable and unfavorable to consumption; does tubercular or scrofular consumption originate in the locality above 5,000 feet; percentage of persone of marked scrofular diathesis emigrating from low to high altitude who have been benefited by ohange; has altitude seemed to have injurious effect on such; instances in which planting of trees, especially the eucalyptus, has exercised a modifying influence on intermittent or malarial diseases, etc.

If it is a possible thing to have these questions correctly answered from all the localitiee to which they are sent, the State Board of Health can compile facts of great benefit to the people of the State. Every person who receives one of these circulars should endeavor, to the best of his abitity, to anewer as many of the queetione ae possible, for in so doing he will assist greatly in a laudable object.

Friday morning, Frank B. Crane, of the old Brigge orchard, Marysville, forwarded a car of pears to Chicago by the expreee train. The freight on a car to Chicago is $900; to New York, $1,100. This price makes the railroad a partner in every fruit-ehipping housa in the State.

Smiley, of Douglas City, Trinity county, etripped 180,000 feet of bedrock this season, and cleaned up $22,000.

CORRESPONDENCE.

The Stickeen Mines.

EDITORS PRESS:—A deal has beeu said in connection with the Cessiar mines, of which there are statements published in the various issues daily; but none of which I notice are in harmouy, but conflicting with each other. Under snch circnmstances it is impossible for the public to be reliably informed upon the present or past state of that section of British territory. More especially in this advauced stage of the season I am surprised that some paper has not instructed some reliable and truthful reporter to secure substentiel and undispnted information upon the mines and the general aspect of the country iu the vicinity of the mines. Io the early part of the seasoo the public were entirely deceived by reports that all would have imagined would have been undispnted, by coming, as stated, straight from the mines, giving such glowing and flattering accounts of the richness and extent of the mines, with the difficulties they had to contend iu resching, part of which was trne, but with a deal of untruth. The consequeuce was, it raised quite a feverish excitement in California and neighboring Territoies, and many were eager to get out there, even st the risk of life, and only taking expenses in as a secondary consideration—for to a miner and prospector difficulties and dangers are no bar where there is a chance of making a rich strike.

The consequence wes that nnder these varions influences many left comfortable and steady employment, with amply filled purses and eager hopes to reach the nortbern El Dorado of the present day, and peid enormons and exorbitant passages to the mines by the different means of transportation then in use, in addition to their own hard toil. Ou arriving at Dease creek they found that they had been deceived by exsggerated reports; for npon my arrival there, which was early in the mouth of May, I found no available ground to take up, and little country available for prospecting. Nor could I see 24 miles of paying ground on Dease creek, as represented by one Peter Gargcvitch, *alias* "Peter the Great;" but to the contrary, sfter indefatigable prospecting, only developed six miles of ground, supposed to be payiug by prospecting, but which could not be fully tested until opened into working order. Owing to the many disadvantages the prospector was subjected to, through swolleu streams and gravel frozen through to tbe bed-rock; they were only able to prospect whatever grouud the nature of circumstances would allow.

At the same time I am not goiug to entirely repudiate every assertion made in respect to the couutry, for Deese creek has sufficiently established the fact, no later theu the eerly part of last spring, that rich ground has been developed; end the probabilities are that richer yet will be worked before the closing fall. But when we look et the extent of grouud payiug for miuing on, it is uot snfficient to cause any excitement outside of British Columbia. Although there may be a few payiog claims—some very rich — is thet going to support a community of about 2,000 miners? Up to July there were upwards of 1,100 miuers' licenses reudered. Still, I am confident I am writing impartially and justifiably when I state that the extent of ground developed at the present time will not sustain a community exceediug 450 or 500 of every grade and calliog, in accordance with the requirements of the place. Nor is there a probability of more on the outside being strnck this season; and, jndging from the features of that region, I am positive that there will never be sufficient developed to maintain a large community, for all the ground that is staked out now could be worked in six months, could the mioers ooly utilize the time by looger seasons.

As for the assertion that the appearance of the couutry is indicative of an extensive field for prospectiug—as a miuer I cannot see it io that light, for it is impossiblo to discover paying ground in swamps and marshes, intersected at distances with lagoons. And I have seen the assertion that ground is gold-beering throughout that region where there are deposits of gravel. Such is not the case, which I can prove by my own prospects, for in many places I could not obtein the color, thongh there were very good indications on the surface. In sddition, tbe country had all b en prospected thoroughly in the immediate vicinity of the miniug region and Dease lake, and no paying ground had been developed. Parties had been out to the head of the Rapid river without striking anything; this is a distance exceeding 30 miles; and other parties had been down the Delure river, some for a distance of 100 miles, where the slate formation gave out, and granite and sandstoue came in, with like success; and these expeditions had returned by the middle of July. As for the essertions which are invariably made, that men will speak hitterly against the country, owing to what they subjected themselves to, although justifiable in a certain sense, the public must not he carried away with the delusion that the great majority of miners came back before they could justifiably form a proper estimate of the country. In that they are deceived, for there were various parts of that country which could have been prospected as early as the middle of May, especially the smaller tributaries to Dease lake. A large part of the more isolated section of the country was found by parties to have been prospected last year. I myself prospected where I thought there had not been a humsn foot, but was soon disabnsed of that idea, by discovering foot-marks through the soft moss and the remains of old camp fires. Of course, I admit Dease creek and other deep creeks could not be prospected, owing to their swollen streams, but they did not exclnde other sections from being prospected. If reporters have any desire to be well informed, they should seek out men who have just come in from prospecting; from them they will be able to obtaio reliable and unbiased information. In referring to the record, I find Buck's creek, Dulure and Beadie creeks were developed last February, for there was very little paying ground available on any of the creeks after Jennary, although a deal of ground has obanged hands for large amounts—some interests ranging from $100 to $600 to the share, while claims have averaged as high as $1,500. I have not the slightest doubt bnt thet there will be large nnmbers coming down and taking passage by every steamer, as now they see all their visionary prospects blighted. There is no other alternative, the country affordiug uo inducement for employment to recruit their funds. THOMAS ROBERTS.

Virtue Ledge, Baker City, Oregon, Aug. 10, '74.

Hurdy-Gurdy Water Wheels.

EDITORS PRESS:—In a recent issue you have an article headed "Advantages of Large Wheels," which refers to the use of what are commonly kuowu as hurdy gordy water wheels for driving quartz mills. The article seems to intimate that the larger the hurdy wheels, the greater the advantage; while a critical examination of the statement of "a correspondent" would clearly show that it was *not* the diameter of the wheel that made the more favorable result, but the msuner in which it was geared. The small wheel made 160 revolntions empty, the large one 75. The former with five stamps gives 56 drops, and with 10 stamps 38. The large one, with five stamps, 82 drops, and with 10 stamps, 57. To my mind the defect pleinly appears in the manner in which they were geared, and not in the application of the water.

A carefnl estimate of the results derived, would show that the small wheel with 5 stamps, 700 ponnds each and six inches drop, and 56 drops per minute, would show a yield of three horse power; 10 stamps, with 38 drops per minute, would show a yield of four horse power; five stamps, 700 pounds each, 7 inches drop and 82 drops per minute, would equal five horse power; and 10 stamps, with 7 inches drop and 57 drops per minute, would show nearly seven horse power. By looking at the statement of "a correspondent," that the small wheel was worked at a very great disproportion of velocity, to its velocity runoing empty, 38 and 56 drops to 160 revolntions empty, tbe large wheel did not work under the same disproportion, 57 and 82 drops and empty 75 revolutions. If these figures are correct, we maintain there will be no difficulty in showing that the disparity existed in the method of gearing and not in the size of the wheels.

I wish to call yonr attention to another fact in that article which shonld be highly interesting to millmen. That is, where small quantities of water are used nnder high heed, to propel machinery. "A correspondent" states "that 60 ioches of water was used, miner's measurement," aud "the fall was 100 ft." Now, 60 inches of water, miner's messorement, equals 160 cubic ft. per minute of water, which ought to yield 25 horse power; or as some estimate a miuer's inch is only equal to 1.66 cubic ft. of water, it would be equal to 100 cubic ft. of water per minute, which, under 100 ft. fall, would equal 16⅔ horse power. As estimated above, we allow 2.66 ft. to one miuer's inch, which is the exact amount when the water is measured nnder a six-inch pressure. If tbese estimstes are correct, end we know they are, then the application of water by the hurdy principle is very extravagant, as we know full well by many experiments and many quartz mills now driven by other wheels giving more than double these results; or, in other words, more than double the machinery is driven by the ssme quantity of water under the same fall, by other water motors. Our experience is obtained from results secured by the use of Leffel & Myers' double turbine, whose wheel is now most generally used in this State and Nevada to drive quartz mills.

EXPERIENCE.

Mining at Jonesborough.

EDITORS PRESS:—By the kindness of S. L. Howard, Esq., I am able to furnish the following reliable information respecting valuable "gold diggings" at the locality known as Jonesborough (Dog-town Ridge). This place is eighteen miles from Oroville, on the west branch of the Feather river—west branch of north fork of the Feather river.

On tbe Dnrgan claim, which is the upper claim on the ridge, they ran in a cut and took out eight hundred dollars in ten days; finding that the bed rock pitched back, they went below and ran a bed-rock tuunel. On the 18th of August they had ron in 180 feet, and again struck the gravel bed. A large bony of gravel is in sight, which prospects from five to eight cents a pan.

The claims, for two miles down the ridge, show eqoally as well if not better.

The "Blue Hog" claim, the "Indepeudent" and another claim below, have been opened by cuts showing rich gravel. The bed rock pitching into the hill, they resort to tnnueling as in the Durgan mine.

The beauty about these mines is the abundance of water, the great fall, and the never failing supply of water. The fall is from five huodred to six hnndred feet. The dump is one thousand feet.

Colonel Whitemau or Whitemar, nf San Francisco, is now there and opeuing a ditch to the mines. A company of forty men have located the fluming right for three miles up and down the river; into which all these mines will dump their tailings.

Mr. Howard, my informant, is a practicsl miuer of twelve years' experience, end he does not hesitate to say that these mines are among the best in Northern California.

Timber in abundance can be had within a radius of a mile from the mines. Geutlemen wishing to visit these mines can travel by cars to Oroville snd then take the stage to Jones' ranch. The stage at present starts on Wednesday at 7 A.M. and Saturday at 7 P.M., or on the arrival of the cars at Oroville. The hotel at Oroville is large, clean and roomy, sets an excellent table, and an obliging host presides over it.

The stage to and hotel accommodations at Jones' ranch are all that can be desired, as I am informed. More enon es I use the one and shall visit the other to-morrow. Mr. Howard hes promised your correspondent to keep us posted on fnture developments of the mines.

D.G.

Forest City Mines.

In a letter to the *Mountain Democrat* a correspondent says: Forest city is now one of the liveliest and most prosperous mineral sections in Sierra. As in the historic days of '49, everywhere was heard the jingling of coin, and "games" are in progress day aod night at West and Knowles saloon, which does a rushiog business. New bnildings are being pnt np in all directions, and the loud, steady ring of the hammer and the pick echo and re-echo far and near, up the high mountsins and down the deep cañons—even to tbe remotest breasts and shafts in the long tunnels, filled with busy toilers, unlocking the treasures of the world.

Prospectiug is going on vigorously, and everybody wishes and expects to strike as good diggings as the Bald Mountain. Half a mile below Forest city is the Yellow Jacket, Eastman, Kenselhack & Harp, owners, under the management of Petroleum V. Nasby. They have fiue prospects and very coarse gold. Treloar & Lee ere working Oregon creek, making their regular eight dollars a day. Tbe Welsh Co obtain good wages ont of the old Oregon clsims. Holmes & Hasner have leased the Live Yankee, with similar returns. The Sonth Fork have their tunnel in 1,200 feet, ruouing night and day; and by next spring expect to strike pay gravel. Rich streaks have already beeo fonnd; the lead is pitching, and, it is sopsuppose, 300 feet further will bring the rich ground into the tunnel. This claim is adjacent to the Bald Mountain. The North Fork boys are pegging away night and day with excellent prospects of puttiog their tunnel through by next summer; now in 2,516 feet. The Red Jacket, formerly Young America, owned by Heintzen, Nelson & Co., have already commenced their tunnel, which will be extended until it drains the whole ridge back to the Highland and Masonic shaft. This is one of the best located claims in Forest city, lying between Crane, Hauley & Co's and the Live Yankee, cornering on the Highland and Masonic. Next in importence is the Wisconsin, on the northwest side of Forest City ridge. The tnnnel here, 1,500 feet in length, was commenced in 1854, and has cost np to the present time over $36,000. It is too high to work the ground, but the company is satisfied that the running of another one 500 feet long will make their claim a valueble piece of mining property. The Bald Mountain Co. are working a large crew of men, filling their pay dumps for the incoming water season Their claim yields ss richly as ever. The net profits siuce the first of January last have been $110,000, making a dividend of $5,500 to the share or claim.

COAL.—Onr coal burners are busily at work conveying this necessary article to the smelting works under the supervision of Mr. Prescott. We are glad to see the steady, business-like maoner with which this enterprise is being csrried forward. There is no bombast — no extra assertions being made, but the work of getting ready for a rnn is being done silently and thoroughly. No doubt can exist that, when fairly ready, a start will be made resulting in the most complete and perfect success. This is of much more benefit to our people tban dozens of columns of reports or newspaper articles, and assures us that what is beiog done will end a long suspense one way or the other, and will demonstrate, beyond a donbt, a fact we all desire to know, whether our ores are susceptible of treatmeut or not.—*White Pine News.*

Three models for the deep-water ship, to be built at Vallejo, have already been submitted to the ship-building company.

Experiments in Explosives.

On Saturday, the select committee on explosive substances (the seme which has arranged for the meeting of Parliament, after the recess, the interesting spectacle of a member of the outside pnblic in custody at the bar of the House of Commons) had the opportnnity afforded it of observing in action one of the principal agencies which comes withiu its consideration in the committee room. The opportnnity was provided by the British Dynamite Co., and the scene of the experimeut was the park of Sir Gilbert Eest, abont four miles beyond Maidenheed.

Ont of a small leather bag, which the company were concerned to learn had accompanied them in the carraige ou their journey down from London, Mr. Downie produced a few handsful of cartridges, which, on being opened, were showu to contain a light brown, earthy substance. This was the terrible dynamite, the "giant powder," as the Americans call it. Standing upon the root of the tree, Mr. Dowuie proceeded, with easy confideoce, to demonstrate that dynamite was ou the whole a pleasant thing rather than otherwise to carry about with him in a leather bag on railway journeys. The theory upon which legislation has hitherto proceeded is that, supposing an accident were to befall a train carrying a few hundredweight of dynamite, the train, the passengers, and the nearest railway station would be distribnted promiscuously through space, consequent upon the explosion by concussion of the dynamite. It is, on the contrary, alleged that dynamite will not explode except in two ways, one being by concussion between iron and irou, and the other by the detonatien of a cap.

In proof of this Mr. Dowuie, taking ont a cartridge and laying it on the stump of the tree, swnng a sledge hammer round his head and prepared to strike. "It will just smash up like a bit of paste," said Mr. Downie. There was an uneasy feeling prevalent among the little group of hon. members and others standing around the stump that this was a very ssfe assertion to make. Supposing that the innocent-looking roll nf paper peecefnlly collapsed under the blow of the hemmer, Mr. Downie wonld have been justified. But supnosing, on the other hand, the test failed, and the dynamite exploded, he wonld be equally sefe from contradiction by any who stood around the tree. The prediction was, however, happily fulfilled. The hammer fell heavily on the cartridge and flattened it into the appearance of a cake. Other cartridges were hnrled against the stump, and being thus brokeu opeu had lighted matches applied to them, at touch of which they harmlessly went away. The immunity from danger by ordiuary accideut having beeu thus demoustrated, a series of experimeuts were carried out with the view of showing the snormons power of the explosives wheu properly directed. A couple of holes were bored in the sides of the tree stump, and a dozeu cartridges being inserted and fired by the fuse, the gnarled and knotted root, full five ft. in diameter, was rent in twaiu, the wreck being lifted a foot or two ont of the ground. The two stumps of trees being disposed of, half-a-dozen cartridges, tied together and conuected with a fuse, were thrown to tbe bottom of a pond, shaded by a clump of trees that bent together. the topmost trees 200 ft. above the level of the pool. Half a minute later a loud report was heard, and the water, snddenly upheaving, leaped in a mnddy fountain thrice the height of the loftiest leaf on tbe trees. Finally, an ancient bonlder, weighing abont half a tou, which had beeu fonnd in one of the neighboring fields, and had defied the tooth of chisel and the blow of hammer, was attacked. Six cartridges, containing a trifle less than two onnces of dynamite a-piece, were laid ou the top of the stoue and covered with a sod. The fuse was lit, the cartridge exploded, and when the compeny re-assembled from behind the trees and banks, whither, pending the issue of the experimeut, they hed retired in skirmishing order, the boulder was found split into a soore of pieces. This concluded the experiments.—*Colliery Guardian.*

REPRESENTATIVE.—Takeu as a whole the present Feir is a showing of the lateut skill, industry and taste of the Stete with which she has every reason to be gratified. Tbe design of making it tboroughly representative of California industry is being well carried out. Those who have watched the snccessive exhibitions of a similar charecter in this city, remark the great superiority of the present Fair and ell its predecessors in the matter of prominence of home over foreign industry. This feature is one that has grown steadily since the first exhibition, and gives the best possible evidence of the progress the State is makiug in indnstrial pursuits. The degree of advancement reached, as evidenced by the exhibition, is exceedingly hopeful, and will certainly stimulate our people to still greater energy in their respective industries. This exhibition proves that in not a few branches we have fully caught up with many of the older communities of the Eastern States.

Two wine merchants from Bordeaux, France, have applied for apace at the Ceoteonial Exhibition. One has expressed an intention of exhibiting 50 differeot brands of Bordeaux wines. This is a good chance for California wine men to set up their bottles for comparison.

Real estate to the value of $340,000,000 in the cities of New York and Brooklyn alone is free from tax because it belongs to religious and charitable institutions.

Scientific Progress.

A Laboratory Experiment, and What Came of it.

Sir Humphrey Davy, profiting by the results of Lavoisier's experiments, investigated the nature of flame, and communicated the results of his study to a large audience gathered to hear him. Among other things he demonstrated that it was possible to produce a flame which, at a very high temperature, contained either free oxygen or unburnt carbon; that a large grate, with a limited supply of fuel, would generate the former, while a small grate, abundantly supplied with fuel, would give a flame devoid of oxygen, but in which combustible substances might be melted without fear of consuming them. Probably many of his hearers thought that while this discovery was very interesting, it was of small practical importance, and not worth the trouble of finding it out—not so all of them. In the audience was a young man named Cort, for whom these remarks had an especial interest. Up to that time the conversion of cast iron into malleable iron was effected by melting the pig metal with charcoal, and exposing it to a blast of air. By this process only small quantities were produced at a time, and the iron thus made was costly, even in the days of cheap charcoal. It was impossible to obtain the same results by the use of mineral coal, as the sulphur it contained would render the iron unfit for use. So the problem of cheap and abundant wrought iron remained unsolved until Cort, from the facts presented by Davy in his lecture, caught the idea of decarbonizing pig iron by allowing the flame to play upon it without bringing the metal into contact with the coal. Profiting by the idea he devised the puddling furnace.

This invention gave us iron at a price which rendered possible its use in large quantities as a material of construction, and as a consequence we have railroads spanning continents, and radiating in vast and complex systems from the centers of trade. Where would be our modern systems of rapid and cheap transportation if we had not the rails? Where the rails if we had not the puddling furnace? Where the puddling furnace if we had no knowledge of the nature and properties of flame? Whence that knowledge had the element oxygen remained unknown? Thus we trace back through the principal events which mark the stages of its development, one line of progress beginning with Dr. Priestly's experiment with a handful of red oxide of mercury, and ending in the greatest triumphs of engineering, which were alone rendered possible by our knowledge of how to produce iron in any quantity needed at a cost which has enabled us within thirty years to build and equip 70,000 miles of railroad. With these facts in mind we can appreciate the justice of the gentle protest entered by the great Tyndall at the close of his series of lectures in this city, against the so-called practical spirit of the age, which meets the scientific investigator at every step with the question, Of what benefit are your discoveries? The question cannot be answered, for the benefits of every discovery are incalculable. Instead of thus discouraging scientific progress, let us rather encourage it by every means in our power, and honor those who discover nature's hidden secrets for the good which, though we cannot estimate it in advance, must certainly result to mankind from any contribution to the sum of human knowledge, however small and unimportant it may seem.—*Iron Age.*

Blue Sky and White Clouds.—The ethereal blue color of the sky is due to minute particles of matter which float in the air. Were these particles removed, the appearance of the sky would be deep black. It is a fact in optics that exceedingly fine portions of matter disperse or scatter the blue rays of light, coarser portions scatter all the rays, making white light. The atmosphere is full of aqueous vapor, the particles of which diffuse white light in all directions. When these particles are enlarged, they become visible in the form of clouds. The vapor particles of the white clouds are supposed to be finer and lighter than those of the dark colonds. That the diffusion of light in our atmosphere, the blue coloring of the sky and the colors of the clouds, are due to the presence of matter floating in the air, has been conclusively proven by Tyndall. On passing a beam of sunlight through a glass tube, the beam is rendered brilliantly visible by the reflection of light from the dust particles floating in the air contained in the tube. But on removing the dust particles, which is done by filtering the air by cotton wool, or causing the air to pass over a flame, the beam of light is no longer visible in the tube.—*Ex.*

When tinned sheet-iron—technically termed tin plate—is washed over with a mixture of three parts of hydrochloric acid and one part of nitric acid, diluted with three parts of water, and then cleansed with pure water, there will be observed a peculiar somewhat mother-of-pearl-like appearance, due to the crystalline particles of tin, produced by the rapid cooling reflecting the light unequally.

The man who has thoroughly mastered a scientific principle holds a key which opens many locks.—*Tyndall.*

Origin of the Diamond.

An ingenious theory is thus put forth by the *Scientific American:* A constant product of volcanic action, we know to be carbonic acid gas, which contains the basis of the diamond combined with oxygen—a gas capable of being liquefied by the pressure of a column of water less than fourteen hundred feet high, and the ancient South African Sea was several times that depth. We know that this same gas is frequently imprisoned in the soft mud of stagnant pools, where it lies unabsorbed, escaping as bubbles when the mud is disturbed. Is it not reasonable to assume that the less energetic discharge of this gas from the heated depths below the sea beds might be stopped in the muddy filling of the vents, where, liquefied by the pressure of the superincumbent water, it might remain until deprived of its oxygen by some process of Nature's chemistry, leaving the free carbon to crystallize as the sparkling gem so eagerly sought for by the miner?

This, of course, is a mere hypothesis, for we know of no process by which the oxygen could be so withdrawn; but in every other respect the supposition is based on known conditions, and there is apparently no other way in which the raw material of the diamond could be so readily distributed in crystallizable condition throughout these natural diamond factories. The matrix in which the diamonds are found is unquestionably of aqueous origin; and we know, from the vegetables and other substances found enclosed by diamonds, that they could have been formed only in the presence of water. The two seem, therefore, to be contemporaneous.

It is a well known fact also that diamonds sometimes contain cavities enclosing a transparent liquid. We have seen it stated, but are not sure of the authority, that diamonds of this sort have been broken and their contents found to be carbonic acid; a fact which, if true, would add materially to this new theory of their formation.

Fulminates.

In a paper read before the Polytechnic Club of the American Institute, Dr. Fenghtwanger said: The fulminates are, compounds of cyanogen and some metals, such as mercury and silver, used as explosive compounds. The fulminate of mercury, which is so largely employed for the manufacture of percussion caps, is prepared by the action of alcohol upon a solution of mercury, in excess of nitric acid, and care must be taken to avoid an explosion. The fulminate is separated during this process in fine needle-like crystals. Moderate friction or percussion will cause the same to detonate violently, it is therefore usually preserved in a wet state with about one-fifth its weight of water. For the use of fulminate of mercury in the cap-composition it is mixed with nitrate or chlorate of potash. The oxidizing property of these salts is preferable to insure the ignition of the cartridge. Chlorate of potash and powdered glass are generally added to increase the sensibility of the mixture to explosion by percussion.

Fulminate of silver is prepared in a manner similar to that of mercury, but its explosive properties are far more violent, and can only be prepared in small quantities; but the pyrotechnists consume much fulminating silver in the manufacture of torpedoes. Their method is to dissolve ten grains of pure silver in a liquid consisting of 1¼ drachms of strong nitric acid and 1 drachm of water at a gentle heat, and as soon as it is dissolved ¼ ounce of alcohol is added and the fulminate of silver will soon be deposited in minute needles. They may be washed and dried very cautiously and kept in small quantities in paper. The violence of its explosion renders it useless for percussion caps.

Effect of Low Temperature on Metals.—As the result of a long series of experiments on the effect of low temperature in changing the strength of metals, Professor Thurston concludes that the practical result of the whole investigation is that iron and copper, and probably other metals, do not lose their power of sustaining "dead" loads at low temperatures; but that they do lose, to a very serious extent, their power of sustaining shocks or resisting sharp blows, and that the factor of safety in structures need not be increased in the former case, where exposed to severe cold is apprehended; but that machinery, rails, and other constructions which are to resist shocks, should have large factors of safety, and should be most carefully protected, if possible, from changes of temperature.

According to A. Fricke an emulsion of fat with water is obtained by shaking them together in a glass vessel whose sides are moistened with water slightly alkaline. Such an emulsion saponifies without heat, by mixing with an excess of caustic soda solution of 20° B. and stirring. On standing over night the soap collects as a cake on the top.

New Rubber Product.—Mr. John Mackintosh, whose name has become in England a synonym for a water-proof coat, has patented a process for mixing carbon with india-rubber in a peculiar way, and claims that the product is better adapted for a variety of uses in the arts than any compound before known.

It has been shown by Carius that, contrary to the views held by chemists, ozone is absorbed unchanged and in considerable quantity by water.

Mechanical Progress.

Boiler Explosions no Mystery.

Mr. McMurtrie recently delivered a lecture in New York, in which he gave a succinct and very intelligent account of the principal of the many known causes of explosions, showing that they were all very simple and very easily understood, and that the mystery of steam boiler explosions arose merely from a difficulty in determining, from the scanty and usually conflicting evidence presented, to which of the known causes the disaster should be ascribed, rather than from the existence of any mystery in the nature of the cause itself.

It was stated that, out of thousands of cases of explosions which had been examined by experts, but a limited number, which might be counted on the ends of the fingers, were still involved in uncertainty as to cause; and even in these cases, the evident difficulty was insufficiency of testimony.

Neglect of boilers which required repair, ignorance of the proper methods of management, defective safety valves and other appurtenances, and the innumerable other causes arising from gross faults in those having boilers in charge, were shown to be invariably chargeable with the terrible loss of life and property annually produced by explosions.

The character of these several classes of defects in the boilers themselves, and in their management, was plainly shown to be easily comprehended by average intelligence, and the fact was impressed upon the audience that in no case was the phenomenon involved in mystery. In every example, where it has been possible to obtain reliable evidence, it has been found that the cause was readily ascertainable; and it was also found that the cause, when determined, was perfectly simple and readily comprehended by any well informed person.

It was shown that, in all cases where there existed any apparent mystery, it had been found that evidence was lacking, and that, where the disaster was due to well known causes, no reliable testimony was obtainable to reveal it.

It was therefore concluded that, whenever one of these so "accidents" occurs, it is the duty of those charged with its investigation to take the fact to be *prima facie* evidence of the criminality of some one, and to devote their attention to the detection of the criminal.

If there appears to exist no evidence revealing wrong doing, and although the testimony presented may seem to preclude the assignment of any known and probable cause, it is still to be concluded that the mystery does not attach to the conscience of the accident itself, but to those causes which conspire to hide its origin. The greatest apparent mysteries are often found, after long and almost discouraging investigation, to be explainable by absurdly simple trains of circumstances.

Economic Consumption of Smoke.—The operation, at Glasgow, of patent self-stoking smokeless furnace, which is, perhaps, a little better known in England than in Scotland, is thus spoken of in the Glasgow *Herald.* It meets the case more thoroughly than any invention of a similar kind that has hitherto come under notice, and is as simple in construction as it is efficient in operation. The coal is placed in a hopper, over the front part of the furnace, into which it drops in small quantities through a couple of apertures. It is not necessary to open the front door of the furnace, except to see how the fire is getting on, for by a simple mechanical re-adjustment the man in charge of the furnace may regulate the quantity almost to an ounce. As it is added to from above, the coal sinks down, and slides slowly until it reaches the bars from the bottom of the furnace. These bars are acted upon by plungers, which carry them forward together, with their layer of cold on the top, and then, an eccentric being applied, every third bar in the series is brought back to receive a fresh supply. In this systematic and continuous way the furnace is fed with coal, which passes right through in slow and easy stages, the same quantity of fuel being at all times in exactly the same state. Combustion is, therefore, perfect; the smoke is burnt up, and the waste fuel is discharged, in the form of clinker or slag, into the ash-pit.

Smallest Locomotive.—In an English journal, some three years ago, was an illustration of the "wee" locomotive "Topsy." It has 1⅜-in. cylinders and 1⅞-in. stroke, the coupled wheels being 4 in. in diameter. The weight of the engine, empty, is 54 lbs., or, say half a hundred weight. In steam the weight is 60 lbs. The "Topsy" drawe a lode of eight little trucks up the line (which has an average inclination of 1 in 16, with a maximum gradient of 1 in 11, and there is one curve of 9 ft. radius), and in all respects conducts itself with the propriety of engines of larger growth. Discussion as to the comparative size of locomotives, big and little, brings this little giant again into notice.

It is estimated that the projected tunnel beneath the English channel could be driven and completely fitted up in five or six years, and at a cost of from $40,000,000 to $50,000,000.

Making iron in peat-burning furnaces among the Lake Superior mines is a success.

More improved portable fire-extinguishers are added to the list every day.

A New Calculating Machine.

A short time ago (says a contemporary) we saw in the Reliance Machine Works, Philadelphia, a wonderful little mathematical machine, which was being manufactured in that establishment. There is nothing remarkable in the appearance of the machine, but there is in the result it achieves. It will add, subtract, multiply, divide, and, in fact, perform almost any arithmetical operation with perfect accuracy and perfect ease of management. It might be made of special service to politicians in office, for it understands "addition, division, and silence." As an example of rapid computation, recently before the Franklin Institute, the inventor, Mr. F. S. Baldwin, set up a multiplicand, consisting of eight places of figures and a multiplier, also composed of eight places, and performed the multiplication in a minute and a-half. The operator has simply to turn a crank. For instance, suppose the unit figure in the multiplier to be eight, the operator turns the crank eight times, then moves the multiplying gear one place to the left. The partial product is shown complete at each turn. The machine also proves its work by reversing the operation and turning the crank backwards until the starting point is reached. If correct, the product will then show a row of noughts. The machine has been used by a prominent railroad company for several weeks, and in a number of long computations has not made a single mistake, but has detected several mistakes in their prepared arithmetical tables.

Fire-proof Construction.—It must be strongly asserted, that, before a building can be fire-proof, it should be heat-proof, and that no building with any exposed metal forming an essential part of its construction can be so designated truthfully. Wherever iron is used, it should be protected either by good brick-work, sound plastering, or, if nothing better can be found for the purpose, solid wood-work round it. Wood-work, if really sound and solid, will resist for almost any length of time every possible effect of heat short of actual flame; even when flame has reached it, it is by no means destroyed at once, but, on the contrary, is sometimes found to last for hours; and wood protected on its under side by proper plastering, which will not fall down or crack on the application of heat, seems to be a powerful resister of flame. It is probably to the scamping now so common that we owe the diminishing use of timber as a material for the construction of buildings designed to carry heavy loads. Let this scamping only cease, let everything be as it represents itself to be, and either wood or some other heat-proof substance will be found to occupy a much more prominent part in the construction of our buildings than it does or ought to do at present.—*Builder.*

At the tests of artillery in Boston harbor, for the purposes of experimental tests, there were provided two guns of 25 tons each, and of 15-inch caliber. One of them was the common smooth bore, and the other was rifled in accordance with Mr. Wiard's invention, but in other respects there was no difference whatever. One hundred and forty pounds of powder, the largest quantity of ammunition ever used in a gun, was fired from each, and the projectiles were respectively of 460 pounds weight. The targets consisted of wrought iron plates of 15 inches in thickness, and they were erected side by side, 150 feet distant. The rifle projectile fired from the Wiard gun was of conical shape, and the one fired from the common smooth bore piece was necessarily round. The one first named went through the 15-inch plate and out of sight into a sand bank in the rear. The demolition of the almost invulnerable target was complete, and so great was the force with which it was struck that a fragment of 300 or 400 pounds was thrown clear across the island, a distance of not less than a quarter of a mile. The projectile from the smooth bore gun penetrated the target only about six and a-half inches.

Hay Cutters.—A Missourian has patented an invention which consists in improving hay and straw cutters by the application thereto of a grinding plate that takes up the wear on the knife as fast as it occurs, a peculiar support for the cutter blade, and also novel means for operating the feed roll. These are said to cause the machine to operate with less labor and to cut the hay or straw more uniformly than is usual.

Still Another.—Car couplings are still the rage. A promising arrangement is described as an improved automatic car coupling, wherein the coupling pin is held up by a slide until the drawheads of two cars come into collision, and are automatically coupled, the object being to relieve car couplers from the usual peril of their occupation.

Phosphosue Bronze.—Some of the brands will bear a considerably greater breaking strain than steel itself. It appears, also, to be suitable for sheathing ships, since, when immersed in sea water, it loses scarcely more than one-third as much as is lost by the best sheet copper.

It is proposed to tunnel Mont St. Bernard. The whole work will cost about $12,000,000; the tunnel alone, $3,400,000.

Moulds for casting steel, having spring sides to allow for the expansion and contraction of the metal, have been introduced.

Much ingenuity is expended in perfecting apparatus for automatically supplying locomotives with water.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Aug. 26, 1874.

NAME OF COMPANY.	IN MKT.	IN FEET.	IN MINE. SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.							
Alamo	....	300	6000	13¼W	12TH	....	¼
Alpha Con	....	3600	....	....	....	....	....
Alta	....	....	30000	7⅛TH	6¼W	....	....
American Flat	....	65	24000	5W	4F	....	½
Baltimore Con	....	....	54000	7¾F	7½W	....	....
Belcher	....	1040	104000	70F	66¼TH	3	....
Best & Belcher	....	224	22400	31W	29TH	....	....
Bowera	....	20	5000	....	....	....	....
Buckeye	....	....	16000	....	....	....	....
Bullion	....	2500	25000	8W	7s	....	....
Caledonia	....	5000	20000	20½W	19TH	....	½
California	....	....	....	39W	37½TH	....	....
Gholiar-Potosi	....	2800	28000	55½W	54TH	....	½
Confidence	....	130	24950	14⅝M	12½W	....	⅛
Con. Gold Hill Quartz	....	34½	20000	....	....	....	....
Con. Virginia	....	1160	108900	83½W	80½TH	1	....
Cook & Geyer	....	1600	24000	....	....	....	....
Crown Point	....	600	100000	78s	75W	2½	....
Daney	....	2000	24000	....	....	....	....
Dardanelles	....	1200	24000	12½W	12W	....	....
Dayton	....	....	....	6M	5⅝s	....	⅛
Eclipse	....	70	25000	....	....	....	....
Empire M. & M	....	75	50000	9⅛M	7⅞TH	....	¼
Exchequer	....	400	80000	70cM	64½TH	5	....
Fairmount	....	....	....	....	....	....	....
Flowery	....	3000	12000	....	....	....	....
Franklin	....	....	....	....	....	....	....
Globe	....	....	20000	2⅝TH	1⅜s	....	⅛
Gould & Curry	....	1200	48000	21⅜W	18⅝s	....	2⅜
Hale & Norcross	....	400	16000	44W	41F	....	1
Imperial	....	184	100000	9M	7⅞W	....	¼
Indus	....	....	....	....	....	....	....
Inaurance	....	2000	30000	....	....	....	....
Jacob Little	....	....	....	....	....	....	....
Julia	....	2000	30000	2⅝s	2¼W	....	⅛
Justice	....	3000	21000	11¾W	8TH	....	2¾
Kentuck	....	95	30000	16W	15TH	....	½
Knickerbocker	....	1200	24000	5⅞M	4⅝TH	1½	....
Kossuth	....	....	....	1W	⅞M	....	....
Lady Bryan	....	....	....	....	....	....	....
McMeans	....	3600	36000	....	....	....	....
Mint	....	1600	50000	....	....	....	....
Nevada	....	3000	40000	....	....	....	....
New York Con	....	3600	36000	3¼W	2⅞F	....	⅛
Occidental	....	800	10000	....	....	....	....
Ophir	....	1400	16800	20W	19⅝TH	....	3½
Overman	....	1200	37400	41M	38TH	5	....
Phil. Sheridan	....	1200	24000	....	....	....	....
Pictou	....	2000	30000	....	....	....	....
Rock Island	....	....	24000	....	....	....	....
Savage	....	800	16000	6½W	5TH	....	1¼
Seg. Belcher	....	160	6400	94F	87TH	4	....
Seg. Caledonia	....	....	10000	....	....	....	....
Seg. Rock Island	....	....	....	⅝M	½M	....	⅛
Senator	....	....	24000	....	....	....	....
Sierra Nevada	....	....	100000	4½M	3⅝TH	....	½
Silver Hill	....	....	54000	8W	7F	....	½
South Comstock	....	....	....	....	....	....	....
South Overman	....	....	24000	....	....	....	....
Succor M. & M	....	7600	22800	1¾W	1½M	....	....
Sutro	....	....	24000	....	....	....	....
Trench	....	20	....	....	....	....	....
Tyler	....	2200	33000	65cM	60cM	....	5c
Union Con	....	803	20000	14W	14W	....	1
Utah	....	....	20000	....	....	....	....
Woodville	....	1400	28000	8W	7¼F	....	⅝
Yellow Jacket	....	1200	24000	80M	73TH	....	....
NEVADA.							
Adams Hill	....	....	50000	....	....	....	....
Alps	....	800	30000	....	....	....	....
Amador Tunnel	....	....	....	....	....	....	....
American Flag M. & M	....	....	30000	3⅛W	2W	....	⅛
Arkansas	....	300	30000	....	....	....	....
Belmont	....	....	....	8¼T	6⅞TH	....	⅛
Bowery	....	....	30000	....	....	....	....
Chapman M. & M	....	....	30000	....	....	....	....
Charter Oak	....	1000	30000	....	....	....	....
Chief of the Hill	....	....	30000	....	....	....	....
Chief East Extension	....	....	36000	....	....	....	....
Columbus M. & M	....	10000	50000	....	....	....	....
Condor	....	....	25000	....	....	....	....
El Dorado South	....	....	....	2¼T	2¼TH	....	....
Eureka Con	....	....	50000	12½T	11¼F	....	1
Excelsior	....	....	12000	....	....	....	....
Harper	....	....	30000	....	....	....	....
Hayes	....	....	....	....	....	....	....
Hermes	....	1000	30000	....	....	....	....
Home Ticket	....	....	....	....	....	....	....
Huhn & Hunt	....	3600	30000	....	....	....	....
Ingomar	....	1000	40000	....	....	....	....
Ivanhoe	....	....	20000	....	....	....	....
Jackson	....	....	50000	....	....	....	....
Josephine	....	....	....	....	....	....	....
Juniata Con	....	5000	50000	....	....	....	....
K. K. Con	....	....	....	....	....	....	....
Kentucky	....	1000	30000	....	....	....	....
Kinston	....	1000	30000	....	....	....	....
Lehigh	....	1000	30000	....	....	....	....
Lillian Hall	....	1000	15000	....	....	....	....
Louise	....	2400	30000	....	....	....	....
McMahon	....	1000	30000	....	....	....	....
Marion	....	....	30000	....	....	....	....
Meadow Valley	....	24023	60000	5¾T	5½TH	....	1½
Mocking Bird	....	1200	30000	....	....	....	....
Monitor-Belmont	....	....	....	....	....	....	....
Murphy	....	2000	60000	....	....	....	....
Newark	....	800	32000	⅝W	⅜TH	....	½
Pacific Tunnel	....	....	....	....	....	....	....
Page & Panaca	....	2400	40000	60cW	30cM	30c	....
Peavine	....	1000	20000	....	....	....	....
Phoenix	....	....	50000	....	....	....	....
Pioche	....	1000	20000	5T	4¾F	....	....
Pioche West Ex	....	....	25000	....	....	....	....
Pioche-Phoenix	....	....	40000	....	....	....	....
Portland	....	....	....	....	....	....	....
Raymond & Ely	....	5000	30000	10¼TH	9⅞W	....	3⅛
Rye Patch	....	....	....	1¼W	1TH	....	⅛
Silver Peak	....	....	30000	....	....	....	....
Silver West Con	....	....	....	....	....	....	....
Standard M. & M	....	....	....	....	....	....	....
Star Con	....	18000	50000	....	....	....	....
Starnght	....	6900	25000	....	....	....	....
Sterling	....	....	30000	....	....	....	....
Spring Mount	....	....	35000	....	....	....	....
Spring Mt. Tunnel	....	....	20000	....	....	....	....
Ward Beecher	....	....	....	....	....	....	....
Washington & Creole	....	200	30000	....	....	....	....
Watson	....	....	....	....	....	....	....
Yellowstone	....	....	....	....	....	....	....
CALIFORNIA.							
Alpine	....	1200	12000	....	....	....	....
Bellevue	....	8000	24000	⅜s	⅜s	....	¼
Calaveras	....	3200	20000	....	....	....	....
Cederberg	....	....	24000	....	....	....	....
Chariot Mill	....	....	....	10s	9⅞TH	....	....
Con. Amador	....	....	....	....	....	....	....
Cottonwood Creek	....	....	20000	....	....	....	....
Dunderberg M. & M	....	....	....	....	....	....	....
El Dorado	....	....	....	....	....	....	....
Eureka	....	1650	26000	....	....	....	....
Gillis	....	....	24000	....	....	....	....
Independent	....	1800	25000	....	....	....	....
Keystone	....	....	10000	....	....	....	....
Mt. Jefferson	....	1500	25000	....	....	....	....
Oakville	....	....	....	....	....	....	....
St. Lawrence M. & M	....	....	....	....	....	....	....
St. Patrick	....	1800	30000	....	....	....	....
Tecumseh	....	3000	30000	....	....	....	....
Yule Gravel	....	400	10000	....	....	....	....
IDAHO.							
Empire	....	....	25000	1⅝TH	1½W	....	⅜
Golden Chariot	....	750	30000	8¾T	8T	....	....
Ida Elmore	....	1300	10000	....	....	....	....
Mahogany	....	720	10000	9¼T	6¾TH	2¼	....
Red Jacket	....	....	....	....	....	....	....
South Chariot	....	660	20000	10½W	10T	¼	....
War Eagle	....	1000	10000	2W	2W	....	⅛
WHITE PINE.							
General Lee	....	1000	20000	....	....	....	....
Mammoth	....	1800	36000	....	....	....	....
Noonday	....	1000	20000	....	....	....	....
Orig. Hidden Treas.	....	800	21333	....	....	....	....
Silver Wave	....	....	....	....	....	....	....
Ward Beecher	....	....	24000	....	....	....	....
UTAH.							
Deseret Con	....	2400	30000	....	....	....	....
Wellington	....	....	50000	....	....	....	....
OREGON.							
Virtue	....	....	20000	....	....	....	....

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Adams Hill Cons M Co	Eureka Nevada	5	5	July 7	Aug 12	Sept 2	W W Traylor	408 California st
Aline Gold M & M Co	Amador Co Cal	7	1 00	Aug 10	Sept 14	Oct 5	J F Lightner	438 California st
American Flag M & M Co	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney	320 California st
Andes S M Co	Washoe	2	50	July 6	Aug 10	Aug 31	B Landers	507 Montgomery st
Bellevue M Co	Placer Co Cal		50	Aug 18	Sept 21	Oct 15	D F Verdenal	409 California st
Belmont M Co	Nye Co Nevada	3	1 00	July 17	Aug 22	Sept 12	C H Bogart	402 Montgomery st
Best & Belcher M Co	Washoe	9	50	July 13	Aug 17	Sept 12	W Willis	419 California st
Buckeye G & S M Co	Washoe	11	50	July 21	Aug 28	Sept 16	G A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	8	3 00	July 15	Aug 22	Sept 11	R Wegener	414 California st
Caroline M Co	Ely District	5	25	June 30	Aug 8	Aug 31	R W Brown	402 Montgomery st
Chief East Extension M Co	Ely District	3	10	July 7	Aug 12	Sept 9	R Wegener	414 California st
Chief of the Hill M Co	Ely District	5	25	Aug 11	Sept 11	Oct 1	C S Neal	419 California st
Condor S M Co	Ely District	3	25	July 17	Aug 25	Sept 15	Geo T Grimes	240 Montgomery st
Daney G & S M Co	Washoe	10	75	Aug 6	Sept 8	Sept 30	G R Spinney	320 California st
El Dorado North M Co Belmont	Nevada	1	50	Aug 4	Sept 8	Oct 6	G E Houghton	215 Sansome st
El Dorado South Cons M Co	Nevada	4	1 00	Aug 7	Sept 14	Oct 1	W Willis	419 California st
Empire Mill & M Co	Washoe	15	50	Aug 13	Sept 17	Oct 8	G R Spinney	320 California st
Europa M Co	Washoe	2	25	July 14	Aug 18	Sept 10	F G J Margetson	418 California st
Eureka M & Smelting Co	Eureka Nev	4	25	July 11	Aug 13	Sept 7	T P Beach	424 Montgomery st
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 10	W Willis	419 California st
Indus G & S M Co	Washoe		10	July 30	Aug 31	Sept 17	D Wilder	Merchants' Ex
Josephine Cons S M Co	Nye Co Nevada	1	15	July 20	Aug 22	Sept 12	O H Bogart	402 Montgomery st
Julia G & S M Co	Washoe	19	1 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Lady Washington M Co	Washoe	1	50	July 18	Aug 3	Aug 31	H C Kibbe	419 California st
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	C B Higgins	402 Montgomery st
Mammoth S M Co	Whits Pine		10	July 13	Aug 17	Sept 15	D A Jenninga	401 California st
Monitor-Belmont M Co	Nevada		50	July 7	Aug 13	Sept 7	W W Hopkins	411½ California st
Newark S M Co	Ely District	8	1 00	Aug 8	Sept 23	Oct 15	J W Clark	418 California st
North Bloomfield Gravel M Co	Cal	33	1 00	Aug 11	Sept 15	Oct 5	Thos Derby	320 Sansome st
Page & Panaca S M Co	Ely District	7	50	Aug 4	Sept 8	Sept 23	H P Bush	Merchants' Ex
Pioche S M Co	Ely District Nevada	7	1 00	July 29	Sept 7	Oct 2	C E Elliot	419 California st
Portland S M Co	Ely District	5	25	Aug 21	Sept 28	Oct 22	B J Gray	438 California st
Raymond & Ely M Co	Ely District	1	3 00	Aug 17	Sept 23	Oct 16	T W Coburn	418 California st
Rock Island M Co	Washoe	4	1 00	July 17	Aug 21	Sept 9	J W Clark	418 California st
Rye Patch Cons M & M Co	Nevada	3	25	July 21	Aug 24	Sept 19	D F Verdenal	409 California st
Sierra Nevada S M Co	Washoe	39	1 00	Aug 5	Sept 8	Sept 29	R Wegener	414 California st
Silver Cord M Co	Idaho	4	80	July 3	Aug 6	Aug 31	F Swift	419 California st
South Comstock M Co	Washoe	1	50	Aug 18	Sept 22	Oct 12	J M Buffington	Merchants' Ex
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Succor M & M Co	Washoe	9	1 00	Aug 18	Sept 22	Oct 14	W H Watson	302 Montgomery st
Sutro M Co	Washoe		50	Aug 14	Sept 18	Oct 12	G W R King	434 California st
Tyler M Co	Washoe	6	25	Aug 15	Sept 18	Oct 3	O D Squire	538 California st
Union Cons S M Co	Washoe	6	1 00	July 7	Aug 12	Aug 31	J M Buffington	Merchants' Ex
War Eagle M Co	Idaho	7	1 00	Aug 21	Sept 26	Oct 17	L Kaplan	Merchants' Ex
Washington & Crcole M Co	Ely District	12		July 21	Aug 24	Sept 16	F D Cleary	Merchants' Ex
Yellow Jacket S M Co	Washoe	18	5 00	Aug 11	Sept 15	Oct 16	G W Hopkins	Gold Hill Nev

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Cupel & Tiger S M Co	Arizona	2	50	Aug 12	Sept 14	Oct 2	C J Eaton	Express Bldg
Edith Quicksilver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart	113 Leidesdorff st
Germania M Co	Utah	2	1 00	Aug 5	Sept 12	Oct 2	J W Tripp	408 California st
Gold Run M Co	Nevada Co Cal	7	25	Aug 7	Sept 15	Oct 7	C C Palmer	Cor Market & Spear sts
Gresham G M Co	Cal	4	70	Aug 10	Sept 15	Oct 6	J F Lightner	438 Montgomery st
Hartford M Co	Washoe	2	20	July 13	Aug 13	Sept 1	E F Stone	419 California st
Heckerdorn G & S M Co	Cal	13	25	July 7	Aug 10	Aug 28	P J Roberts	620 Washington st
James Point Gravel M Co	Cal	2	10	Aug 12	Sept 15	Oct 3	D O Ferris	223 Montgomery st
Kossuth M Co	Washoe	2	25	Aug 25	Sept 25	Oct 14	E F Stone	419 California st
Mosquito Hydraulic Quartz M Co	Cal	1	15	Aug 12	Sept 15	Oct 3	C S Healy	Merchants' Ex
North Fork M Co	Plumas Co Cal	4	1 50	July 24	Aug 24	Sept 15	A Martin	520 Washington st
Oneida M Co	Amador Co Cal	8	75	July 28	Aug 31	Sept 19	L Kaplan	Merchants' Ex
Sanderson G M Co	Cal	12	30	Aug 12	Sept 8	Sept 26	W Stuart	113 Leidesdorff st
Starr King S M Co	Nevada	7	25	Aug 6	Sept 11	Sept 30	L Kaplan	Merchants' Ex
Stanislaus River M Co	Cal	3	15	July 20	Aug 19	Sept 5	W Stuart	113 Leidesdorff st
Tecumseh G S & C Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Umpire Tunnel & M Co	Utah	3	5	June 29	Sept 2	Sept 21	P A Eakins	23 Kearny st
Ward Ellis S M Co	Robinson District	2	10	Aug 21	Sept 28	Oct 19	J M Buffington	Merchants' Ex
Wonder G M Co	Cal	2	10	July 18	Aug 18	Sept 7	David Buck	331 Montgomery st
Wyoming G M Co	Nevada	3	25	July 28	Aug 31	Sept 18	W J Gunn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Beach & Paxton M Co		E Landers	507 Montgomery st	Annual	Sept 5
Best & Belcher M Co	Washoe	Called by Trustees	419 California st	Special	Sept 24
Crown Point Ravine M Co	Washoe	J M Buffington	Merchants' Ex	Special	Sept 7
Exchequer M Co	Washoe	Called by Trustees	Merchants' Ex	Special	Aug 29
Gold Run M Co	Cal	C C Palmer	Cor Market & Spear sts	Annual	Sept 7
Independence Cons M Co	Cal	F J Hermann	418 Kearny st	Special	Sept 4
Independence Con M Co	Cal	F J Hermann	418 Kearny st	Annual	Sept 4
Little Panoche Quicksilver M Co	Cal	Geo R Spiney	320 California st	Annual	Sept 7
Oakland Quicksilver M Co	Cal	F P Reynolds	111½ Leidesdorff st	Annual	Sept 7
Oceanic Quicksilver M Co	Cal	A C Peachy Pres	409 California st	Special	Sept 3
Page Tunnel Co		Jacob Hardy	408 California st	Special	Sept 2
Succor M & M Co	Washoe	W H Watson	302 Montgomery st	Annal	Sept 7
Yarborough M Co	Kern Co Cal	Edward Barry	415 Montgomery st	Annual	Sept 14
Woodville G & S M Co	Washoe	Called by Trustees	401 California st	Special	Sept 28

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver.	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Aug 10
Cederberg G. M. Co.	California.	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Aug 10
Con. Amador M. Co.	Cal.	F. B. Latham.	402 Montgomery st	50	April 8
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 00	July 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	July 11
Diana M. Co.		N. O. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co		L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	S. B. Minor.	411½ California st.	50	Dec 5
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12

Mining Stocks.

Mining stocks went up very strong until Monday afternoon, when they broke badly. The stocks in mines in outside districts are looking up a little notwithstanding the depression in other quarters. The *Enterprise* in speaking of the low prices says: There are occasional slight movements up and down, but they possess no special significance. About all that any one can feel sure of is that they cannot go much lower. When they are likely to make a permanent rise no one can say; but all have a feeling that the time for such a rise is not far distant, and those who have money to invest are beginning to look about for a good place in which to put it. At each little rise these people become nervous and fear they may have waited just a little too long, and not a few purchase a few shares of something to have a finger in the pie in case it shall turn out that the big rise has indeed begun. Of course it is rather provoking to find stocks settling back again in a day or two, but none of those who have purchased at any of the figures which have ruled of late are likely to lose in the long run. The work of prospecting is being vigorously pushed in all the mines, both great and small, along the Comstock range, and in most instances the explorations made have resulted in the development of favorable indications if not in paying ore. Those mines which have been long flooded with water are at present nearly all clear again and getting in shape to resume work in their shafts and on their lower levels.

The "watering" of mining stocks is again in order, as several companies have called special meetings for this purpose. The Woodville Mining Co. notified its stockholders that a meeting of the company will be held on the 28th of September to take into consideration and decide upon a proposition to increase the capital stock from $2,800,000, divided into 28,000 shares, se at present, to $6,000,000, divided into 60,000 shares.

The Best & Belcher Co. have called a meeting to take into consideration the proposition to increase the capital stock from $2,240,000, in 22,400 shares, to $10,080,000 in 100,800.

The Exchequer Mining Co. propose to increase the capital stock from $2,400,000, or 8,000 shares of the par value of $300 each, to $10,000,000, or 100,000 shares of $100 each.

A Gold Hill paper says the recent attempt to increase the stock of the Yellow Jacket mine from 24,000 to 96,000 shares fell through for want of a sufficient representation of stock at the meeting. It is quite probable that the project was defeated by the pending assessment. It is very pleasant, in the absence of a better dividend, to have one's shares multiplied by a majority resolution.

INJUNCTION DISSOLVED.—There was great rejoicing in Pioche, on Wednesday, on the reception of the news that the Supreme Court had dissolved the injunction granted by the District Court in the case of the Magnet Mining Co. vs. the Page and Panaca Silver Mining Co. The last named company were enjoined some two months from working upon and removing ore in their mine.

A WELL defined ledge of silver ore is said to have been discovered in Pope valley, about 20 miles northeast of Calistoga. The work of prospecting is rapidly progressing.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

DIAMOND GOLD MINING CO.—August 20. Location: Grass Valley mining district, Nevada county. Directors: H. O. Howard, John O. Hanecom, J. K. Cooper, Rodger O'Donnell and John G. Jonee. Capital stock, $1,000,000.

NORTHERN BELLE MILL AND MINING CO.—Aug. 21. Location: Columbia Mining district, Nevada. Directors: J. C. Bateman, A. J. Holmes, B. P. Hazeltine, H. H. Allen and J. H. Beait. Capital stock, $5,000,000.

DEXTER WIND-MILL CO.—Aug. 24. Trustees: H. F. Shepardson, A. H. Southwick, Wm. Weighd, H. H. Johneon and A. S. Moore. Capital stock, $45,000.

GEYSER QUICKSILVER MINING CO.—Aug. 26. Location: Sonoma county. Trustees: Geo. W. Gilbert, J. C. Wilmerding, E. B. Mott, Jr. and Mosss S. Friedberg. Capital, stock, $6,000.000, in 60,000 shares.

MERCURY QUICKSILVER MINING CO.—Aug. 24. Truetcee: Geo. W. Gilbert, Robert Hamilton, Moscs S. Friedberg, S. P. Boswell and A. H. Rutherford. Capital stock, $6,000,000, in 60,000 shares.

The following named Company has filed a certificate of incorporation in the office of the Secrstary of State at Sacramento:

GOLDEN SULPHURET MINING CO.—Place of business: Sonora, California. Capital stock, $450,000, in shares of $100 each.

THE Oro quartz mine near Oroville, has tnrned out 250 tons of ore during the past three years. A tunnel is now being run to tap the vein 600 feet below the croppings. When the tunnel ie finished the company intend to run a mill by water power, as they have water enough to run 100 stamps. The tunnel ie now in 250 feet and it is expected that they will tap two other veins. There ie also another ledge on the bank of the river (near the mill) which ie six feet wide. The contractor who ie running the tnnnel is using s drill propelled by water power, with a pressure of about 300 ft. acting on an 18-inch wbeel. With this machine holes can be bored in any direction.

CORNUCOPIA, Nevada, is a comparatively new camp which attracted considerable attention last year. A correspondent writes ne from there that the mines are good, bnt that s mill is much needed because the ore could be worked at Cornucopia at less expense than by freighting it to the mille already built at Winnemucca and Mountain City, as is being done now. The district is surrounded by agricnltural and pasture land.

THE LAVA BEDS.—The mines known as the "Lava Bede" near Oroville, give employment to about 4,000 Chinamen. Sbafts have been and are being snnk in several placee, one being 85 feet deep. The stratnm of gravel runs a dietance of 12 miles and there is plenty of water, from Feather river; water can also be obtained by sinking from eight to twenty feet.

W. E. DARBY, an expert, sent from this city to examine the supposed coal lands in Santa Cruz county, reports that he failed to obeerve anything either by croppings or in the tnnnels which would, in hie judgment, indicate a true coal measure, and thinks it useless to continue the prospecting tnnnels.

A GREATER amonnt of prospecting is going on in the western part of Nevada this season, says the Virginia *Chronicle*, than ie generally supposed. It is not confined to s search after silver-bearing ledges, bnt coal, cobalt, borax and quicksilver are sought for, and some valuable mines have been discovered.

THE Tnnckee *Republican* states that 68 car loads of steel rails have alresdy arrived there from the East this season, and 192 more are yet to come. This will make a total of 2,000 tons of steel raile for this seasone. These rails are to be nsed between Truckee and Blue cañon and will supersede the present iron rail.

GOOD progress is being made in the erection of the heavy foundation walls of the large new mill of the Consolidated Virginia mining company. The principal walls are about completed; bnt there is much heavy etone-work yet to be done about the fonndation of the batteries and engines.

TIMES are lively, in a mining point of view, in the Jesus Maria district, Calaveras county. Two mills are in operation—one on the Austrian and another at the old Whisky Side mine. The work of development ie progressing favorably on a number of promieing ledgee.

OWING to a recent break in the Amador canal, near the West Point bridge, the watsr has not yet reached the distribnting reservoir. If no accidents happen, however, the water will probably be through by the first of September.

THE mines at Anbnrn district, Baker county, Oregon, are proving more favorable than they ever have heretofore, new ones being opened that will last and pay better than any gronnd ever discovered in Oregon.

THE end of the litigation in the Ophir case leaves the superintendence of the mine still in the hands of Samnel T. Cnrtis. No work is being done at preeent npon the 1,700-foot level, on acconnt of bad ventilation.

THE Humboldt Agricnltnral, Mining and Mechanical Society have decided to hold the next county fair at Winnemncca, on the 12th, 13th and 14th of next October.

THE last ore taken from the New York gold mine, near Grass valley, yielded $35.79 per ton. This mine has alresdy produced upwards of $500,000.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALAMEDA COUNTY.

COAL.—Livermore *Enterprise*, August 22: Parties are making preparations to prospect the newly discovered coal vein on the Redwood road. The present prospects give fair indications of a good body of coal. The H. A. Coal Mining Company are contracting to sink 100 ft. further on their present shaft. The indications for striking the main body are sufficient to warrant the undertaking. The company are erecting houses near the mine, and making such other permanent improvements as are necessary.

AMADOR COUNTY.

AMADOR CANAL.—*Ledger*, August 22: The water is being carefully conducted through the canal to the distributing reservoir, and will reach that point in a few days.

FAOM VOLCANO.—Quartz interests are looking up, and will doubtless give a new impulse to quartz mining in the neighborhood. There has been recently several small lots crushed taken from lodes in the vicinity, all of which have yielded from $40 to $45 per ton. Griesbach & Co. struck a very rich quartz vein up Sutter creek, about four miles above town, a few days ago, the rock from which, by ordinary process, paid $45 per ton. George Story had a crushing from his lead which returned $40 per ton. Rodgers & Co have struck another very rich lode, from which they took about 90 tons of rock and had the same crushed, and which yielded the sum of $3,000. The Placer mines, on Union Flat, sold a short time since by T. Sorocco to Booth & Co., of San Francisco, are proving to be very valuable mining grounds and yielding well.

BUTTE COUNTY.

DUTCH HILL MINES.—*Record*, Aug. 22: D. D. Harris and John Wayland returned this week from a visit to the Big meadows. While there they visited and inspected the Dutch hill mines. Very little work is being done at present on account of a scarcity of iron for tubing. As a 400-ton consignment is arriving here and Aldersly has commenced shipping it over the mountains to Dutch hill, the probabilities are that work will soon be resumed.

CALAVERAS COUNTY.

ZACATERO.—*Chronicle*, Aug. 22: The Zacatero quartz mine at West Point has made a splendid commencement. The first clean-up of the new mill, after a run of eight days, yielded $7,000. Some idea of the exceeding richness of the rock can be formed when it is considered that the battery is composed of but 10 stamps.

NEWS from the Gwinn mine is most cheering. In the 900-ft. level pay ore was struck 100 ft. nearer the shaft than before, and the rock is very rich.

EL DORADO COUNTY.

RICHER THAN EVER. — *Mountain Democrat*, Aug. 22: Since the crushing works have closed down on the Saint Lawrence mine, underground operations have been continued to the running of a contract drift on the 800-ft. level to the northward of the shaft. Last week, in timbering this drift at a point 140 ft. north from the shaft, the contractors cut into quartz at the bottom, in widening to make a footing for their timbers, and found ore which is estimated to be good for a yield of $100 per ton. They cut into this fine ore about 18 in., but as they are running straight ahead, on a contract, they are not authorized to prospect the width and condition of the ledge at this point.

GEORGETOWN. — *Republican*, Aug. 20: The California Water Co. are driving ahead with their works, and expect to complete them this fall, and then it is believed that all who want water can be supplied. The company have a large force in constant employ, and Supt. McKnsick is kept as busy as a man well can be to run things to the best advantage. We saw at the water company's office, which is in charge of J. H. Miller, several specimens that were taken from claims in which the company is interested, that were very tempting, among them a couple of nuggets of several ounces each, and several very handsome specimens of quartz, bearing gold to over half their weight. The Woodside is engaging more attention than any other mine about those parts. This mine is only a few rods from the very center of the business portion of the town, and has just got in working trim, since machinery for pumping and hoisting was put in. The shaft is down 130 ft., and the water had just been got out when we were there. This mine paid well a few years ago, and it is generally believed that with the machinery now employed, which is all new and of the best, the mine will prove the greatest success of any mine in the country.

THE Mansfield mine, a short distance from St. Lawrence, J. L. Smith, Supt., is looking exceedingly well, and negotiations are now in progress for the erection of a mill.

HUMBOLDT COUNTY.

RYE PATCH. — *Register*, Aug. 21: The Rye Patch Mill and Mining company have reduced the force in their mine at Rye Patch, to 12 men. The mill is kept running on tailings.

IT is reported that Sol. Kunkel discovered a valuable mine, last week, in the mountains south of the Humboldt house.

INYO COUNTY.

STRUCK IT.—*Independent*, Aug. 18: The ledge for which Supt. Wingard has been running his tunnel on the Virginia Consolidated was struck Thursday last, and at a depth of 200 feet from the surface. The vein rock is loose and requires timbering before the ledge can be cut through to determine its thickness; and this work has been done at once, but enough is developed to know that that the ledge is large and the whole prospect very satisfactory.

PIUTE DISTRICT. — Francisco Gonzales and two other men came down from the Bishop creek district, Thursday, bringing with them some particularly rich gold rock from a new ledge recently struck. A Mr. Johnson had purchased a half interest in the discovery claim, having paid $4,000 for it, and is now gone to San Francisco to procure the machinery for a five-stamp mill, to be erected and put to work on this ore immediately. Griswold & Co.'s arrastra was running steadily.

PANAMINT —Henry Jones says he will have a 20-stamp mill running there in less than 100 days. The machinery for the Jacobs' mill was all on the ground. The toll road, recently washed out, is in repair again.

KERN COUNTY.

MOUNTAIN CORRESPONDENCE.—Cor. *Southern Californian*, August 20: A week ago Graham and others unearthed a ledge near the Howe property from which they took six tons and crushed it, which yielded the sum of $621. The last crushing of Mr. P. Murphy agreeably surprised him; he cleaned up $4,000 from 120 tons of Venus. The more the Summer mine is developed the better it shows. It is the leviathan mine of the county. In many places it is 30 ft. across the vein. Hoisting works, which will cost $100,000, are now being put up. The managers are opening the mine to correspond with the 80-stamp mill which is in course of construction. Sageland is looking better than ever. Here is a mine nearly on the edge of the desert, getting richer below the depth of 600 feet than at the surface, which effectually explodes the theory that deep and permanent veins exist only at the top of large mountains. Piute is running on good ore, with two years' work in sight.

MARIPOSA COUNTY.

COULTERVILLE MINES.—Cor. *Gazette*, Aug. 21: The Kate Kearney has a vein of good size, 4 ft. thick, with well defined walls of good formation, showing a true vein. The ore is very regular, prospecting about the same from all parts of the vein. The Baodaretta mine the Goodwin B others took hundreds of thousands of dollars from, and it is still keeping up its lick. The day I was there they were smelting their bullion into bars. They had 25 lbs. of pure gold, weighed on butcher's scales, being the result of 100 tons' crushing. The Hasloe is running to its full capacity, on good ore, and from former runs there is no doubt as to the result. The machinery about this mine is all new and of the best quality—all works smooth, and is of sufficient strength to work the mine to an indefinite depth.

MENDOCINO COUNTY.

IRON DISCOVERY.—*Democrat*, Aug. 22: Report has it that an iron lead has been discovered near Ukiah, but a few miles off, near Gobbi's Soda spring. Our informant says it was supposed to be a continuation of that near Cloverdale.

NEVADA COUNTY.

OMAHA.—*Transcript*, Aug. 20: A clean-up of 25 tons of rock from the Omaha mine, was made at the Larrimer mill on Monday. The product was 70 ozs. of amalgam, or about $22 to the ton of rock. This was a much larger result than was anticipated. More of the same quality of rock is being hauled from the mine to the mill, preparatory to another crushing. Work at the mine continues, and the ledge is increasing in size.

MINING.—Men have all been at work during the summer. Not an idle man could be found who desired to work. They have been in the mines taking out the gold which will be in circulation during the winter.

OCCIDENTAL.—The machinery of the Banner mine was purchased and is being put in position at the mine, and we understand will soon be in running order. The ledge at the Occidental is large.

MINING NOTES. — *Transcript*, August 20: The North Bloomfield company will soon have their mine opened, and if the yield shall bear any comparison to the outlay in opening it, will greatly swell the proceeds of the county next year. The mines at Moore's Flat will all be worked next year when the Milton ditch is built to that place. The mines in Little York township never looked as well as they do today, and it will exceed anything ever taken out there heretofore. All the mines in this vicinity are very prosperous. The Manzanita hydraulic mine, near this city, has yielded bountifully this season, and has proved itself much better than its owners anticipated. The quartz mines are all at work and doing well. Machinery has been put up on several new ledges and the prospects justify the outlay which has been made on them.

NEVADA.—*Transcript*, August 22: The rock continues to increase in richness. So soon as the water is more plenty the returns from the mine will greatly exceed anything heretofore taken out.

DEEP DOWN. — *Tidings*, August 22: The shaft of the Eureka mine in this place is expected to reach the point at which its 1,300-ft. level will be established this week. A drift will at once be run to tap the ledge (the incline does not follow the variations in pitch of the ledge,) when the all-important question of the future of this mine—great, even if now abandoned—should be determined.

THE Perrin and the O'Connor mines are being negotiated.

THE mines in Little York township, it is said, are looking better than ever before, and very heavy results are looked for from next year's run. The hoisting works of the Webster mine, near Randolph Flat, were burned to the ground a few days since. Damage, $2,000.

PLACER COUNTY.

STONE COAL.—*Herald*, Aug. 22: We were shown a piece of what had the appearance of hard glistening stone coal, found a few miles northeast of Auburn. This coal was submitted to experts here, who at once pronounced it the best quality of stone coal. It was tested in a blacksmith's forge in our presence, and burned as well as the best. These specimens are supposed to come from cropping of a large ledge, not yet found.

GOLD RUN.—The old Cedar shaft, on which there has been so much labor and capital expended, has at last been put down to bedrock; the result is $6 to the pan, and ground enough to last 20 years, the gravel deposit being about three-quarters of a mile wide, by four miles long, with an average depth of 200 ft. The water has "gin out" at this place for the season, and all the claims have shut down in consequence. This season has been a good one for claim owners, most of whom have reaped a good harvest. There will be another branch tunnel (from the big one) which is intended to tap the Cedar ground some 60 ft. below the bottom of the shaft; when that is accomplished look out for lively times.

PLUMAS COUNTY.

CLAYBANK CLAIM.—*National*, Aug. 22: The drift is in bedrock, the top showing the "old-fashioned" quartz gravel, which prospects better every foot they make towards the main channel.

CONLY & GOWELL.—About six acres have been stripped this year, but only one-half of the bedrock cleaned, as the water gave out three or four weeks sooner than was expected. Their large flume is 6,000 ft. in length, and part of that distance has a grade of only four inches to 16 ft. The present year's work has uncovered a large basin which has proved a very rich part of the claim. The amount cleaned up has been large and $100,000 would not be much above the figures.

SAN LUIS OBISPO COUNTY.

RINCONADA.—*Tribune*, Aug. 22: A few days after this claim was bonded a rich deposit was struck, which will undoubtedly prove the most extensive in the county. We have a specimen of the ore on our table which excels any specimens we have yet seen in that line. We are assured that there are tons upon tons of the same class, lying open to view, which they think will average 50 per cent. all through.

WE understand that a valuable asphaltum mine has been discovered and is now in successful operation, on a tract of land recently sold to Frenchmen. Large quantities have been taken out and it is pronounced by experts to be of the very best quality. A contract has been made with a party for the hauling of fifty tons to the landing, to be shipped to San Francisco.

SANTA BARBARA COUNTY.

TUNNEL.—*Press*, Aug. 18: There is a rumor of an "enterprise of great pith and moment," no less a project than the boring through the Santa Ynez mountains, to make a passage for water to the mines, and also for the transmission of ore to this city.

SIERRA COUNTY.

GRAVEL. — *Mountain Messenger*, Aug. 18: Kuder & Co. have struck fine gravel in their mine at Saddle-back. They raised a shaft 50 ft. from their tunnel and tapped a fine looking bed of river boulders and washed gravel. They think they are on the rim of the channel only.

GOOD PAY.—Philo Haven is reported to have struck very rich diggings at Gold Lake, having taken out 60 or 70 ozs. in three days last week. We trust the report is correct.

MILL.—Clough & Co. will immediately proceed to build a five-stamp mill on their ledge near Rock creek. They intend to have it running before winter.

SISKIYOU COUNTY.

GOOD CLAIM ON THE KLAMATH. — *Yreka Union*, Aug. 22: We learn that Miller and the Mott boys have struck excellent pay in their claim on the bar on the Klamath river, opposite the mouth of Horse creek. Report says they are taking out from 6 to 7 ozs. a day, with but four or five hands at work.

OAK BAR.—Reports from Oak Bar are of a very favorable character. The claim of Clever, Delaney & Co., which paid so well last year and the year previous, is said to be paying well again.

SOLANO COUNTY.

BROWNLIE MINE.—Vallejo *Chronicle*, August 22: The Brownlie mine will start up its furnaces within a few days. It has now 200 tons of fine ore on the dump and will therefore be able to put a goodly quantity of quicksilver on the market after commencing operations. Workmen are now engaged in erecting a housing over the trestle-work track leading from the dump to the furnace.

SONOMA COUNTY.

PHŒNIX.—Napa *Register*, August 22: Sixteen flasks quicksilver came down from the Phœnix last week, and 12 more were received yesterday. Mr. Fellows, the superintendent, came down yesterday, and reports everything as going on well, the product being about 70 to 80 flasks per month. The water bursting out from some hidden reservoir, still continues to flow, though with diminished volume. 20 flasks quicksilver from the California to-day.

TRINITY COUNTY.

TRINITY-CENTRA. — *Journal*, Aug. 22: The Cinnabar mine is in full blast. The retorts were got up some weeks ago, and the ore was there ready and waiting for them.

THE McGillivray D. & H. M. Co. have done a great deal of work in the way of fitting up their mines. Extensive bed-rock ditches have been run and new flumes put in at a large expense. At a recent clean-up, however, enough was taken out to pay all expenses to date, and left a margin to go on.

SMILEY, at Douglas city, stripped 180,000 ft. of bed-rock the past season. We learn that $22,000 was the amount taken out.

TULARE COUNTY.

PORTEAVILLE.—Cor. *Delta*, Aug. 22: Mr. McCaslin of this place, who has been absent on a prospecting tour for the last two months, returned a few days ago to get a new supply of provisions, and tools to work with. Reports finding a gravel bed about eight feet in depth at the point of discovery; and that it dips back into the hill, and rests on a decomposed bedrock. Mac is an old placer miner, and he says he thinks that it will pay well to work it; he panned out some, and says that it pays about two bits to the pan in fine gold.

TUOLUMNE COUNTY.

MINES.—*Independent*, Aug. 22: The Table Mountain Alpha company are still running on the channel—prospects fair. The superintendent has expressed himself as well satisfied with the favorable indications. A party of experts have started for the Summit silver mines.

Nevada.

WASHOE DISTRICT.

OPHIR.—Gold Hill *News*, Aug. 21: Ore breasts on the 1,300-ft. level are yielding finely as usual, and look more promising than ever. The ore stopes on the 1,465-ft. level are also looking well and are yielding excellent ore. The Empire State mill is kept steadily running on ore from the mine, while at the same time there is a steady accumulation of ore in the dumps.

SAVAGE.—Sinking the main incline below the 2,000-ft. level is making rapid progress, the rock in the bottom working finely. The main south drift on the 2000-ft. level has reached the south line and has been discontinued for the present.

GOULD & CURRY.—Sinking the double incline winze below the 1,700-ft. level is making steady progress. It is now down 188 feet below that level, the bottom still in vein matter. There is some little water coming in, yet not enough to at all impede the progress of the works.

CON. VIRGINIA.—Daily yield 300 tons of ore The ore breasts both north and south on the 1,300-ft. level are yielding finely. The ore stopes on the 1,400-ft. level never looked better than at present. The north winze from the 1,400 to connect with the south drift on the 1,500-ft. level is down 97 ft. Work on the new mill is making steady and as rapid progress as the nature of the rock will admit of.

BELCHER.—Daily yield, 450 tons of ore. The ore breasts on the 1,300, 1,200 and 1,000-ft. levels are all looking well and yielding finely, as usual. Sinking the new air shaft is being pushed with all the vigor possible, the bottom being in fair running ground.

WOODVILLE.—A strike was made in the north drift, on the 200-ft. level, and appears to be an entirely new and very rich discovery. While running that drift an apparently cross ledge was struck, which has been drifted on 20 ft. in a southwesterly and 20 ft. in a northeasterly direction, both drifts running the entire in fine ore. A winze has also been started, which is down 12 ft., and is still in good ore.

CROWN POINT.—Daily yield, 500 tons of ore. This ore is being mostly extracted from the 1,000, 1,300 and 1,400-ft. levels. The ore stopes and breasts on all of these levels are looking well, and promise a fine yield for months to come. The new machinery is all working splendidly, and the future looking bright and prosperous.

HALE & NORCROSS —The main west crosscut from the incline on the 2,000-ft. level has cut a number of streaks and spots of fine ore, but nothing that will pay for extraction or reduction. Daily yield, 50 tons of ore, which is being extracted from the old upper levels.

CHOLLAR-POTOSI.—Daily yield, 80 tons of ore. This ore is being extracted from the stopes on the old upper levels. Its assay value is $30 per ton.

A COMPANY of seven old experienced California miners from Marysville, Cal., are now engaged in putting in a flume near Auburn, Baker county, Oregon, that cannot be excelled by any in the State, commencing near Powder river, on Mill creek, takes in Quacomas, Ohio, French and Hogeye gulches, and when finished will be about three miles in length and three and a half feet wide, three feet deep, and the bottom lined with rock 12 inches thick.

BLACK HILLS.—A large meeting of old miners and others was held at Sioux City, on Tuesday. They organized an expedition to Black Hills. Two hundred and fifty names were enrolled, and it is understood the party will move in conjunction with others forming at different points on the frontier.

The Fair as an Educator and Elevator.

One of the most important and suggestive paragraphs in the excellent opening spsech, pronounced on Tuesday by Col. Barnes, was his reference to the present social and political status of the farmer and mechanic—so changed from what it has been in years gone by. In alluding to the fact of the present great uprising among the indnstrial classes throughout the country, he remarked that, "the coming years will see destroyed whatever they deem hostile to their material interest and established by their consenting judgment, whatever may seem for their advancement. That state will be the wisest, safest, and happiest which gives to them such knowledge of the real principles of economic and mechanical science as shall guide, if it cannot control, their policy and direct their aims, and, while enabling them to sweep away their disabilities and wrongs, shall not suffer them to march under those early inspirations of uneducated liberty to an uncertain and ruinous goal." One of the most effectual means of thus controlling this newly developed element, and directing into healthy and legitimate chaunels the growing power of the industrial classes, is just such exhibitions as that which has now been inaugurated in this city. From the commencement of the industrial exhibition epoch the profound significnce and value of snch exhibitions have come to be more and more realized by both peoples and governments everywhere. Their beneficent influences are many and wide-spread; they advance hnman knowledge in every direction, and more than anything else serve to bring together, in friendly counsel and social converse, the heretofore too much antsgonised elements of capital and labor. Through the universal language of the products of labor, the artisans of various sections hold communication, not only with each other, but as well, also, with that clsss of the community which more especially represents the moneyed interests, the relations between which and labor constitute the great aud vital problem of the day. By the friendly greetings and words interchanged on the common platform of the exhibition room, ancient prejudices are broken down; unfriendly olass elements are fraternized; generous rivalries in the peaceful field of industry are excited, and a better understanding is fostered between labor and capitsl.

It is gratifying to note the increased interest which all portions of the community are taking in these exhibitions, planned more especially in the interests of the mass of the people. They cannot be otherwise than largely promotive of both the material and moral welfare of the community, while they serve to give a more just appreciation of ths true dignity of labor, and its paramount claims on the consideration of all as the sole basis of national wealth and power.

It is largely to the influence of these exhibitions, which have become so popular in this city, that our people have been educated up to so fully see the need of a great industrisl school of srt in our midst, and the gratification of which laudable wish has recently been so fully placed within our reach by the timely and munificent bequest of our distinguished fellow oitizen, James Lick. Let us hope, with the orator of Tuesday, thst the foundation thus laid will be hnilded on and strengthened until it shall give to our own State, at least, a race of skillful, theoretical and practical mechanics, whose labors shall bring honor and profit to the land of their birth.

Complaint Against Alfalfa.

The *Utah Mining Press* contains an acoount of the death of a valuable horse, which was supposed to have been caused by eating lncerne or alfalfa. The lucerne had been cut and partially dried, and the animal, it is probable, had been deprived of all green or fresh-cut feed to an extent that induced excessive eating. The case excited some interest in the neighborhood, as it was the first complaint heard against alfalfa as feed. It should not, however, create any distrnst of this valuable food. We have known a good many cases in which borses, and cattle also, have been seriously injured under similar circnmstances, and some where the result was fatsl. Animals when first "turned out" in spring are very apt to be injnred by over-eating; bnt the most serious cases are those where horses or cattle have broken into gsrdens, grain fields or meadows, even. It is generslly during the short feed of midsummer that these hungry raids occur, and animals often remain several hours in these tempting spots; gorging themselves and suffering, as a consequence, hoven or bloat. Probably the case mentioned above was one of these. We have known of alfalfa having been fed on Eastern farms for a term of several years, and have never heard of any injurious effects following. In changing from stable-feeding to grass, cattle and horaes should not be allowed to fill their stomachs at first, but should have a slight feed each day until fully accustomsd to it; and if plenty of salt is accessible it will lessen the danger of bloating, and perhaps save the lives of valuable animals.

Bazaine annoys the French officials by writing letters to them.

Pretty Rich Rock.

We all know that California, as a mining country, can't bs beat; but soms parts of the State have not received due credit for richnsss of rock. It is not the fault of newspapers, either, for some of them tell pretty hig yarns of these respective localities. If any of our interior contemporaries can "top over" the following, from the Trinity conuty *Journal*, the editor had better form a partnership with Mark Twain and writs a book: "George M. Grover, of Junction city, has been to Bullychoop and returned fully satisfied that the quartz of that section is the "biggest thing in the State." Billy Wsldorff and Grover packed a mule with 150 pounds of the rock, in gunny-sacks, to Indian Creek. The friction occasionsd by the motion of the mule causing the pieces of rock to rnb together wore them somewhat, and a small qnantity of the dust thus msde was found in the sacks after the rock wss taken out. Shaking this into a pan. George panned it out and obtained $6 10. Thinking the Junction city boys would like some specimens, George pnt a few pieces of the rock in his pockets and carried them home. Of course these wore away some, and emptying the dust from his pockets into a pan, he washed out $3 20. Since then George hss discovered that there were holes in his pants' pockets, and some of the dust must have gone through. At last accounts he was engaged in shaking the dust out of his boots, and expected to realize $1 30. It is but fair to state that Grover says the rock brought away was the poorest that could be fonnd. We have known Mr. Grover intimately for a long time; he is a native American, and not in the least given to exaggeration; still, where more than one of our readers live in ths same house, and the story appears to them to be a little large, they can divide it among themselves, each taking as mnch as he thinks he can stand."

For Croakers.

One having all long held the faith that California has in her the making of a msnufacturing State must derive great enjoyment in walking up and down the aisles of the Pavilion and seeing the rapid advance made since the last Fair. Per contra, the constitutionsl Croaker, whose natural hopelessness of disposition and carping manner have made him and his class a nuisance for years past, must feel that his prophecy department needs re-organizing.

The increase in qnantity and quality of home manufactured articles is exceedingly gratifying, and the quiet way in which the progress has been made indicates a healthy and continuous energy among our people. Despite the perpetual moan about the high price of labor and the scarcity of fuel, California, as the present exhibition indicates, is going ahead in manufactures, at a rate which, with the constantly increasing momentum of accomplished results, will, before many years, give her fair rank in the list of manufacturing States.

Plumas County Mines.—The *Quincy National* says: By a working test during the past fifteen years it has been demonstrated that one of the best paying gravel leads in this county is that which includes Gopher, Badger and Shores' Hill, Curtis Point, Wahponsee creek, Pine Leaf and Quien Sabe ravines. A more clearly defined, extensive and better-paying deposit of gravel cannot bs found in the State. A large portion of the ground on the line of the snpposed "old channel" is located or claimed, but, owing to the want of means and the scarcity and high price of water, only a few, comparatively, of the claims have been opened and fitted up for systematic and profitable working. It usually requires a large outlay of money to open a claim and fit it np with all the improvements now considered necessary for hydraulic mines; and unless the original locators, who, as a general thing, are unable to bear the expense, can induce men with capital to assist them, the claims will remsin undeveloped. Such is the case along the lead above referred to. Less than two years ago Garland & Dow purchased a set of claims in Quien Sabs, and have since located and applied for a patent to eighty acres of mineral land on the main lead; they have been at work ever since the purchase, and have succeeded in fitting up the claim in good shape. They have put in abont 1,200 feet of flume, dug a ditch which gives them between 200 and 300 feet pressure, set up iron pipe, hydraulic chief, and all necessary improvements for a first-class claim. The ditch takes water from the ravine, and will in ordinary seasons supply them with three month's run of water, and the Spanish ranch ditch, which runs just above their own ditch, can supply an abundance of water for a much longer period. They have a splendid bank of gravel, which prospects well.

A Good Disinfectant.—A reliable home-made disinfectant may be prepared as follows: Dissolve a quart of salt in a gallon of water, and with the salt water slack a half peck of lime, which should be wet enough to form a kind of paste. For the purpose of a disinfectant, this home-made chloride of lime is nearly as good as that purchased at the shops and drug stores. Use it freely about sinks, cellars, gutters and out-houses, and in this way prevent sickness, suffering and expense.

Daniel O'Connell, the journalist, has returned to this city.

Deep Sea Soundings in the Pacific.

Capt. Belknap, commanding Unitsd Statss steamship "Tuscarora," engaged in deep sea sounding in the Pacific, in a report datsd Hakodadi, Japsn, June 26, 1874, gives an interesting and valuable account of his recent soundings. It will be remembered that Commander Belknap first ran a course of soundings from Puget Sound to San Diego, thence to Yokohama *via* the Sandwich Islands. It was his intention to return on the line of the great circle passing through the Island of Tanogo, of the Aleutian group, and towards Puget Sound. He left Yokohama, on his return voyage, on the 8th of July at daylight, and next morning began sounding homeward. When about 100 miles east by south from King Kassen, or Senda Bay, on the east coast of Japan, the lead sank to a depth of 3,427 fathoms, showing a descent of 1,504 fathoms in a run of 30 miles. This result seemed extraordinary at so short a distance from the land, but the next cast of the lead revealed a depth still more astonishing, the sinker carrying the wire down 4,643 fathoms without reaching bottom. On this occasion, when some 200 fathoms of wire had run out, the sinker was suddenly swept under the ship's bottom by a strong undercurrent, and all efforts to get the wire clear and prevent it from tending underneath were unavailing; the difficulty being increased by a fresh wind and a moderately heavy sea. Finally, when 4,643 fathoms of wire had run out, and only about 150 fathoms were left on the reel, it broke close to the surface and about five miles were lost. After this experience Commodore Belknap concluded that the current of the Japan stream would prove too strong for a light of eight miles of telegraph cable, and perhaps render the process of laying the cable impossible. He therefore ran back in shore in order to skirt the stream, and beyond it start out again on the new great circle of Point Komala. In latitude 40° north on this new line he found very deep water; at one cast of the sinker it reached a depth of 4,655 fathoms, with but a slight current. The conditions under which these latter deep casts were made were favorable; the wind was east, the sea smooth, the swell remarkably slight for the Pacific, and the ship was quiet.

Robinson District.

During the week, says the *White Pine News*, we have met several gentlemen from Mineral City and Nevada district, and all concur in the opinion that at last the district is showing unmistakable signs of "coming out" the present season. The mill of the Watson company is being run constantly on ores from the Portland and Sumner mines, and the shipments of bullion illustrate the fact of a steady production of the precious metal. Although somewhat base, as yet, in its character, it still works well by the milling process. It is anticipated, as depth is attained, that the character of the ore will change from its present condition to a more free description, which will he all the better for the district.

The new furnace lately erected under the supervision of James Montgomery, for the Canton mining company, is moving along finely, its product exceeding the most sanguine expectations of all. Superintendent Walsh is highly and justly pleased with the result, as on its successful working rests the real future of the district. It is said that two new furnaces will soon be commenced there, which will be but the pioneers of many others. It is a matter for congratulation that Judge Walsh had the wisdom to employ only the most competent men in the erection of his furnace and the manipulation of ores, as much of serious and permanent harm is often done by egotism and self-sufficient estimate of talent. Montgomery says the ores smelt with much greater facility than those at Eureka, and, being abundant, no doubt can possibly exist as to the prominent place to be occupied by Robinson district in the near future.

The Ward-Ellis Consolidated Co. have purchased several valuable locations containing large bodies of smelting ores, which will necessitate the speedy erection of other reduction works, thus adding to the general prosperity. All residents are jubilant over the outlook, and we congratulate them on their perseverance and pluck in holding on so well and so long.

Pacific Mill and Mining Company.—A New Incorporation.—Mackay, Fair, Flood, O'Brien and others have just incorporated all of their mines and mills under the above name. They incorporated under the laws of California, and their certificate was filed for record in the office of the County Recorder of Storey county, August 8th. The business of the company, as set forth in their certificate, will be the mining of precious metals and the reduction of gold and silver-bearing ores. The capital stock is $8,000,000, divided into 80,000 shares of $100 each; principal place of business, San Francisco, the company to remain in existence 50 years. The Trustees are: W. S. O'Brien, J. C. Flood, James G Fair, John W. Mackay and Edward Barron. The incorporation embraces the Consolidated Virginia mines and mills, of which the parties above mentioned have control.—*Virginia Enterprise.*

The revival of the whipping-post, as a cure for "morbid impulse," is called for by the Troy *Times*.

Spain is doing a great deal of fighting for its size just now.

Original Gold Hill.

The ground of the Original Gold Hill Gold and Silver Mining Co., situated immediately adjoining the most noted mines of Gold Hill proper, is ons of the oldest locations along the section of the Comstock. The claim was located in 1861, and considerable work was done tnward its development. A shaft was sunk tn the depth of 330 feet, and at the 220-foot level a fine body of ore was found, but it was of too low a grade to psy, owing to the great cost of milling; therefore, after considerable prospecting about for richer ore, the company was obliged to suspend operations. Since then the claim has been allowed to lie idle, until within the last yesr; it falling into other hands, work was resumed under far more favorable auspices, the reduced price of milling giving a good margin for profits, and the present company being oomposed of men of capital, energy and ability. They have been retimbering and repairing the shaft, and having prospected the ore deposits to their satisfaction they feel warranted in going to the expense of erecting new and efficient steam hoisting works, the hoisting having heretofore been done by means of a hand windlass and a whim. They have thoroughly perfected the title to their mine, which certainly is one of the very best and most valuable locations, and the assessment recently collected not only paid all costs, but left money enough in the treasury to defray all possible expenses for the next three or four months to come, independent of ore production.

The new hoisting works are situated over the mouth of the shaft, about half way between the American Flat and Ophir toll grades, and the engine and machinery are of sufficient power to work the mine to a depth of 700 feet. The fonndations are solid and everything is of the most substantial character. The platform nr floor for the main bnilding is strongly built of heavy timbers, with three-inch plank flooring. The bnilding, which will soon be np, is to be 60 feet long by 32 wide. The shaft consists of three compartments, each four and a-half hy four feet in the clear. It is one of the best shafts along the lead, and is fitted with first-rate cages and all the reqnisite applianoes. Under the energetic direction of Mr. Scott, the foreman, a vast amonnt of very effective work has been done during the psst month, and the new hoisting works started into operation day before yesterday. This morning the clearing ont of the debris at the bottom of the shaft was completed, and some water encountered. Water, however, cannot interfere with deeper sinking, as the whole grnnnd is drained by the much deeper mines near by. The company dn not propose sinking the shaft deeper at present, but will open a new level from the bottom of it, 100 feet below their present working level already opened. This 100 feet is all new, unprospected ground, and valuable ore developments will nndoubtedly be msde in it. Meanwhile, they propose, as soon as properly prepared tn do so, to take ont ore frnm the 220-foot level for milling. J. C. Corey, late of the Ophir mine, is Snperintendent; and the prospects for the Original Gold Hill may safely be laid down as very flattering.—*News.*

A Singular Geological Freak.

In the bottom of the main shaft of the Virginia City Coal Company, El Dorado cañon, Lyon county, has been encountsred the trunk of a large tree four feet in diameter—a lone relic of an ancient and extinct forest. Where cut throngh by the shaft this old tree is fonnd to be perfectly carbonized, turned into coal. Outside the old log is completely crusted over with iron pyrites, many of which are so bright that the crystals shine like diamonds. These crystals also extend into the body of the log, filling what were once cracks or windsbakes, and even forming clusters abont what once was the heart of the tree. This relic of an old time forest lies far helow the two veins of coal the company are abont to open. The finding of this old trunk is evidence that the country was at some time, ages and ages ago, covered by a forest of large trees; thongh the native timber growth, when the country was first visited by the whites, and as far back as the traditions of the Indians extend, was bnt a scrubby species of nut pine. A few miles from the shaft in which this carbonized tree was found are to be seen on the surface the petrified remains of many large trees. In the early days of Washoe, but the prospectors had broken them np for specimens, pieces of tree-trunks two or three feet in diameter, and twenty or thirty feet in length were to be seen lying npon the surface of the gronnd. However these trees and even the one fonnd in the bottom of the shaft of the coal mine, may have come from the foothills of the Sierra mountains—may have drifted out when seas of water everywhere covered our present valleys. The water lines on the hills show that the whole country was filled with lakes, and the petrified trees lying here and there on the snrface of the ground probably floated out on the water of the extinct lakes, and finally sank to the bottom in the places where they are now fonnd.—*Virginia Enterprise.*

Woodward has discontinued the late cars on the Mission street line. Quarter past twelve is the last.

Fifty tons of fruit—five car loads—were forwarded eastward from Sacramento on Wednesday.

Vallejo's face is swollen with the mumps.

Useful Information.

Salt in the Seas.

Many people imagine that the ocean water is naturally salt, and will be surprised to know that the salt comes from rocks, and is washed into the sea.

The sea depends on the disintegration of rocks on land for its saltness. It does not originate in oceans and seas. Rains wash it and hold it in solution as particles are liberated by violence, decomposition and gradual action of many natural forces. All streamlets and rivers, therefore, are constantly transporting salt to the sea. If there is more than can be held in solution, then it accumulates in masses at very deep points, which, in the revolution to which matter is subject, may again be a stratum of salt somewhere remote from where the mass was found. Thus the salt mines of Portland, and the vast horizontal beds of pure salt in Texas, as well as that mountain of rock salt in St. Domingo, were collected at the bottom of ancient seas, which are now dry land, remote from water.

There are places in Africa where the process of disintegration of salt from rock is regularly going on, but there is not water-power enough to force it onward to the sea. Hence the particles are spread abroad and mixed with the soil. The negroes of Northern Africa having discovered its distribution where there is no water to dissolve in the ground, leach it. In that way they separate the salt. By evaporating the water holding it in solution, an excellent article for domestic purposes is produced. Salt pervades the earth. It exists in the grasses and most vegetable products on which animals feed. In that way they derive enough in most countries to meet the demands of their natures. They require as much as civilized humanity. With them salt is necessary, as with ourselves, for keeping the organs of vision in good condition. Stop the supply, and blindness would ensue.—*Ex.*

Mud Spots on Varnish.—On this subject the *Carriage Monthly* remarks: High grade finishing varnishes, whether of English or American makes, possess their wearing qualities from the simple fact that they retain their elasticity or oily principle to a great length of time. The surface hardens sufficiently to resist dust and to admit of being washed, but the body of the varnish remains soft and sensitive, and must allowed to dry on the surface of the varnish both stains it and extracts by capillary attraction the oil contained in the varnish. Each spot of mud, according to its size and shape, acts on the varnish immediately under it, but no further; from the fact that a suction is created by the evaporation of the moisture contained in the mud. Different kinds of soil act with more or less injurious effects. Sandy soil would have but a slight effect on a varnish which would be badly stained by more adhesive clayey soil, and the filth of a large city would be still more fatal to the gloss of the varnish.

Protecting Composition.—In answer to a correspondent, who asks how to make a composition for coloring and preserving gates, roofs and timber generally from the weather, the editor of the *American Builder* says: Melt 12 ounces of rosin in an iron pot or kettle; add three gallons of train oil and three or four rolls of brimstone; when they are melted and become thin, add as much Spanish brown (or red or yellow ochre, or any other color you like, ground, as usual, with oil) as will give the whole the shade wanted. Then lay it on with a brush, as hot and as thin as you can. Some days after the first coat is dried, lay on a second.

An Amusing Chemical Experiment.—Place five glasses in a row, then pour into the first a solution of potassium, the second a solution of corrosive sublimate, the third a small quantity of iodide of potassium and some oxalate of ammonium, the fourth a solution of chloride of calcium, and the fifth some sulphide of ammonium. Now pour parts of the contents of the first glass to the second, and a scarlet color will be obtained; next pour the second into the third, and the mixture will be colorless; again, pour the third into the fourth, and the contents will be white; finally, pour the fourth into the fifth, and the mass will be a dense black. Then you will have had two glasses of colorless, one scarlet, one white and one black.—*Ex.*

Desilverino. — It is sometimes needful to know how to dissolve silver without attacking copper, brass, or German silver, so as to remove the silver from silvered objects, plated ware, etc. A liquid for the purpose is simply a mixture of one part of nitric acid with six parts of sulphuric, heated in a water-bath to 100 deg. F., at which temperature it operates best. By this means the old silver attached to plated ware, old daguerreotype plates, etc., may be removed and saved without any necessity for wasting acids in dissolving a large amount of useless metals.—*Jour of Chem.*

Substitute for Ground Glass.—To half an ounce of white, hard varnish add two ounces of methylated spirit. Shake well up, and allow it to settle for an hour or two. Clean very carefully the plate of glass, and coat with the varnish. When dry, a semi-opaque film of exquisite fineness will be left on the glass, which answers well.—*Artisan.*

Learn to Forge Your Own Tools.

The following sensible advice is from the Newark *Manufacturer*: Many mechanics have an idea that after they have mastered the more legitimate duties of the workshop they have learned all that is necessary, and can undertake anything in their line of business. Machinists particularly are prone to this error—a common one, by the way—and think that a knowledge of fitting and turning, once acquired, makes up for all other deficiencies. In reality, the self-styled finished mechanic is, paradoxically, the unfinished one; for he who acknowledges his shortcomings, and tries to correct them by obtaining all the information he can, will acquire a more thorough knowledge of his profession. Comparatively few machinists are competent to dress their own tools, or, indeed, handle the blacksmith's hammer on any work. How many times such knowledge would have been invaluable, we leave individuals to decide from their own experience. A simple weld, which they were unable to make, a faculty for dressing chisels without putting their own eyes in danger by striking the anvil instead of the tool, would assuredly have stood persons, ignorant of such details, in good service in time of need. Apprentices who go to the tool dresser to have the edges of their chisels or other instruments renewed, will do well to observe the process and inform themselves of it, instead of throwing coal at the helpers, or otherwise conducting themselves in an unruly manner. Observation and experience are twins, and no youth, or, indeed, any adult can hope to attain eminence or proficiency without paying some attention to the matters herein alluded to.

Cleaning Kid Gloves.—During the warm weather, kid gloves are easily soiled, particularly as the prevailing colors are quite light; and as it costs time and money to have them cleaned at the dyer's, we let our readers into the secret of cleaning them at home, which can be done just as well as if paid for outside. Take a little sweet milk and a piece of white or brown soap. Fold a clean towel three or four times, spread it over your dress, and spread out the glove smoothly upon it. Take a large piece of white flannel, dip it into the milk, then rub it upon the soap, and rub the glove downwards toward the fingers, holding the wrist of it by the left hand. Continue this process until the glove, if white, looks a dingy yellow, but if colored, looks dark and entirely spoiled. Now let it dry, and then put it on your hand, and it will be soft, smooth, glossy, and clean. Take care, however, to omit no part of the glove in rubbing it, and see that all the soiled parts are thoroughly cleaned. This process applies only to white or colored kid gloves. For black gloves that are soiled, turned white, and otherwise injured, take a teaspoonful of salad oil, drop a few drops of ink into it, and rub it all over the glove with the tip of a feather, then let them dry in the sun. White kid boots and slippers can also be cleaned by the first process to look "as good as new," and black kid boots and slippers can be restored to their pristine gloss by the latter method.—*Ex.*

Indestructible Paint.—One of the conditions most to be desired, and chiefly aimed at in the production of matter in certain forms, is indestructibility, and any material, either for constructive or decorative purposes, fulfilling this condition must inevitably meet with favor. In the natural order of things it would take a very long time—eternity, in fact—to prove the presence of this quality in any substance claiming to possess it. The application of tests, however, with a limited term of use may enable a fair conclusion to be arrived at, thus dispensing to some extent with the element time.

Cement for Attaching Labels to Metals.—Take 10 parts tragacanth mucilage, 10 parts honey and one part flour. The flour appears to hasten the drying and renders it less susceptible to damp. Another cement that will resist the damp still better, but will not adhere, if the surface is greasy, is made by boiling together two parts of shellac, one part borax and 16 parts water. Flour paste, to which a certain proportion of sulphuric acid has been added, makes a lasting cement, but the acid often acts upon the metals.

Rose colored Stain for Wood. — Monnier recommends steeping the wood for several hours in a bath of 1,200 grains iodide of potassium to the quart of water, and then immersing it in a bath of 375 grains of corrosive sublimate, when it will assume a beautiful rose-red color by chemical precipitation. It should subsequently be covered with a glossy varnish. The baths will not need renewal for a long time.

Babbitt Metal consists of 24 to 96 parts of Banca tin, eight of antimony and four of copper. This alloy of 24 parts of tin, eight of antimony and four of copper is called hardening; for lining the boxes 72 parts more tin is added, or simpler, one part of the hardening alloy melted with two parts of Banca tin.

Dim writing, nearly effaced by age, may be restored by the application of a solution of prussiate of potash of water. Wash the parts with a hair pencil, and the writing will appear if the paper has not been destroyed.

Blacking brass is simply done by plunging the brass object for a very short time into nitric acid, and then into the fire, when the acid evaporates and leaves the dead black, well adhering film of oxide of copper behind.

Good Health.

Iodized Albumen.—M. Collas, in the *Bulletin General de Therapeutique*, describes a new process for the administration of iodine. Alcoholic solution has been found too irritant in many cases, and as the iodine acts on the alcohol, forming a hydriodic ether, the tincture is liable to vary in its composition. Iodide of starch has been recommended, but this preparation is of variable strength, and has besides an unpleasant taste. Iodized albumen, M. Collas considers, obviates all these inconveniences, and can, without much difficulty, be formed into pills. The albumen is prepared by agitating actively an albuminous solution with iodine in very fine powder or in solution in some appropriate vehicle. The mixture is at first highly colored, blackish-brown, but this color gradually disappears in several hours of contact, and the preparation no longer strikes the violet color with starch. The product is then dessicated under gentle heat in an air bath, when it may be made into pilular mass. The dose is so arranged that each pill shall contain 5 milligrammes of iodine. The experiments by Professor Dolbean have shown that iodine thus prepared has no bad effects whatever. It may be continued for several weeks without stomach trouble or other inconvenience.

Recovery from Wound of the Brain.—Dr. R. F. Baldwin, in the *Richmond and Louisville Medical Journal*, adds another to the list of cases in which recovery has occurred after severe wound of the brain. A lad 16 years old was accidentally wounded by the discharge of a pistol in the hands of a companion a few feet distant. Upon receiving the shot the boy fell with violence, but did not lose consciousness. The ball, about the size of a buckshot, entered the right frontal bone an inch above the center of the eyebrow, and, passing through the brain, lodged in the occipital bone near the center of the occipital cross. A silver probe passed by its own weight to the center of the brain without touching the ball. As a precautionary measure he was bled, and Epsom salts were administered. The wound healed rapidly without any constitutional disturbance, and in 10 days he returned to his home. He is still living in good health, and has never suffered the slightest inconvenience from the accident.

Cure for Rattlesnake Bites.—In view of the numerous cases of rattlesnake bites being almost daily reported by the interior press, the following recipe from the Trinity *Journal* may prove of some benefit: A physician in Texas was recently bitten by a rattlesnake, and, in order to test the efficacy of iodine as a remedy, he waited until the swelling in his leg and the pain compelled him to lie down—about 20 minutes after being bitten—when he took half a teaspoonful of saturated tincture of iodine, repeating the dose in diminished quantities, at intervals of 15 minutes for an hour. He also applied the tincture to the wounds and the whole surface of the swollen leg; and in five hours the pain had so far subsided that he fell asleep and slept several hours. On waking, he was entirely free from pain, though his leg was fearfully swollen and tender to the touch. He used no other remedies, and in a few days was entirely well.

Cure for Burns.—Comte de la Tour du Pui publishes the following for the benefit of the world at large. He says that a pretty strong solution of ammonia in water is an excellent remedy for burns in cases where the skin is not destroyed, and as "much trouble doth environ those who meddle with *hot* iron," our readers are peculiarly interested in such remedies. The count says, that having by accident taken hold of a crucible which was nearly red hot, he suffered great pain, plunged his hand into some ammoniacal water, and kept it some hours afterwards covered with a piece of linen soaked in the same; the pain was allayed almost immediately, and no blisters or suppuration occurred.

Lemon Juice as a Local Application in Diphtheria.—In the clinical lecture by M. Bucquoy he expresses his preference for lemon juice, as a local application in diphtheria, to acids, chlorate of potash, nitrate of silver, perchloride of iron, alum or lime water. He uses it by dipping a little plug of cotton wool, twisted around a wire, in the juice, and pressing it against the diseased surface four or five times daily.

To Conceal Bad Tastes of Medicines.—The bitter taste of quinia, colocynth, aloes, quassia and other bitter medicines is said to be instantly removed by chewing a piece of licorice root. To disguise castor oil rub two drops oil of cinnamon with an ounce of glycerin, and add an ounce of castor oil. Children will take it and ask for more.

Ether and Chloroform.—We are able to say that in the present state of science the medical man is responsible for every case of death occasioned by the application of ether, because a careful watching of the respiration is capable of preventing death, while the lethal effect of chloroform depends in part on individual predisposition, which the physician is unable to recognize.—*Schiff.*

The Butte *Record* says that saleratus, applied immediately, is a sure cure for tarantula and scorpion bites.

An Artificial Face.

At a recent meeting of the Medical Society of London, a member, Dr. Hutchinson, exhibited a patient who had lost a large portion of his face by disease, and to whom the deficiency was supplied by artificial means in a way similar to that by which some of our dentists treat loss of palate, nose, etc.

The disease had resulted in the destruction of the superior maxilla, all the spongy bones, and also of the soft parts, including the nose, some of the cheek, the upper lip, and nearly all the soft palate. A rhino-plastic operation being deemed impracticable, the case was treated mechanically. To supply the lost parts internally an apparatus was constructed of vulcanite, bearing mineral teeth, which articulated with those of the lower jaw, and this was held in position by the vulcanite being adapted to the whole of the inner surface of the nasal fossæ, thus affording a hold by means of suction. For the sake of lightness the whole of the apparatus was hollow, while the outer surface was coated with soft gutta-percha; the floor of the artificial piece formed the roof of the mouth. Mr. Hutchinson had also made an artificial nose of vulcanite. This was fixed to the man's face by an elastic band which passed round the head. The junction was partially hidden by means of a moustache fixed to the upper lip, which was also artificial. Mr. Hutchinson comments on the fact that the man's occupation (he was a mason) and his position in life compelled him to treat the case in the simplest manner possible. Various delicate improvements in the shade of color, mode of attachment, and usefulness of mastication, could be made in the case of persons in a higher sphere of life, who would appreciate delicacy of manipulation.

Camphor Medication.—Camphor is a poison, and yet it is largely used by many families for alleviating pain and curing sores. It is a nervous irritant. If taken in small doses, its acts like alcohol and opium. In large quantities, it excites the nervous system even to the extent of camphor spasms and death. Camphor also acts as an irritant on the mucous membrane of the stomach, leading to constipation and ulceration. On these accounts it should not be used without the advice of a physician. Families easily get into the habit of running to the camphor bottle for every trifling ailment, until after a while insidious maladies break out whose origin is little suspected.—*Journal of Health.*

Gurjun oil in Leprosy.—Dr. J. Dougall, of Port Blair, Andaman island, has published a report of his experience with gurjun oil in the treatment of leprosy. Of twenty-four cases under treatment during six months, he says that all have been decidedly benefited. The oil is administered internally in combination with lime-water, and is also applied externally to the affected parts. Gurjun oil is an oleo-resinous product of the *Dipterocarpus lævis* and other allied trees. Experiments with the new remedy are being made at the present time in London and elsewhere.

Croton-Chloral in Facial Neuralgia.—In *The British Medical Journal*, Dr. F. B. Lee reports the case of a lady, æt. 32, who had suffered for years from attacks of facial neuralgia, had had several teeth extracted, had been blistered behind the ears, and had tried numerous other means without avail. He prescribed croton-chloral in three-grain doses every four hours. After the third dose perfect ease was experienced, and although three months had elapsed, there had been no return of the disease.

Reason Why.—Nitrous oxide causes people to laugh who inhale it, because it introduces into the body more oxygen than can be consumed. It therefore deranges the nervous system, and, being a powerful stimulant, gives an unnatural activity to the nervous centers and brain. This derangement usually exhibits itself in a pleasurable excitement to those who inhale it—causing them to be merry, almost to insanity. It has therefore been called laughing gas.—*The Druggist.*

What Candy is Made of.—The New York *Mail* says candy-eaters are welcome to the appetizing information that terra alba (which is nothing but plaster of Paris or gypsum) glucus, lampblack, sulphuric acid, aniline, verdigris, Brunswick green, gamboge, smalt, ultramarine, oil turpentine, Prussic acid, rotten cheese, fusel oil, chrome yellow, and other drugs and compounds are largely used in the manufacture of cheap candies.

The beneficial effect of Alpine health resorts has been attributed to the greater abundance of ozone in the mountain air, and the theory is supported by recent investigations; but Dr. Haller, of Switzerland, says that though it seemed likely that as one ascended, an increase of ozone would be met with, yet at the highest accessible points there was no marked difference.

Diet in Erysipelas.—A very important department of the constitutional treatment is proper alimentation. A milk diet, with farinaceous pudding, rare cooked eggs, beef tea, then poultry and fish, will all in their proper place be useful, and assist much in promoting a speedy recovery.—*Pac. Med. Jour.*

Cod-Liver Oil in Consumption.—When the patient is losing health and strength the oil is serviceable. The most agreeable preparation to take will do the most good.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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Design Patents.

But few persons understand the nature and value of a design patent, and many do not even know that our patent law has provided protection for works of taste, beauty and ornamentation. In many cases a design patent will serve a much better purpose than a trademark or even a mechanical patent. A mechanical patent is issued where the invention involves *utility* resulting from mechanical constructions and combinations, while a design patent secures to the inventor or designer the exclusive right to any design which involves ornamentation or beauty—something which is pleasing to the eye solely, without combining utility with it. The manufacturer who desires to establish a reputation for his products or articles, can easily ward off imitators by securing a suitable design which shall become known in connection with the articles which he manufactures. A trademark would certainly protect him if the purchasing public were studious and particular enough to bear in mind that the real article is sold under a special trademark, but as a general thing the public does not examine so closely into such matters, and are more apt to overlook a trademark than a peculiar shape or design upon the article, such marks more firmly imprint themselves upon the memory than mere trademarks. Another advantage in favor of a design patent is that it can be secured for the term of either three and a half, seven or fourteen years, as the applicant sees fit to demand, and the cost is graduated accordingly, being $30 for three and a half years, $40 for seven years, and $50 for fourteen years, including all fees and charges.

IRON has been discovered a few miles from Ukiah, Mendocino county.

Fruit Drying.

In our issue of August 8th, we described a machine for drying fruit which it was claimed had been "thrown open to the public" over twenty years ago. We do not understand, from the article, which was clipped from the *Horticulturist* and which we republished in the PRESS, that the machine was ever patented; but on the other hand we should judge that the writer meant that the invention was "thrown open to the public" by the fact of its being described and illustrated in a public journal. Since writing our previous article we have taken some pains to inquire into the merits of the various fruit-drying machines now offered to the public, and to learn the difference in treatment and the quality of the final product of the different machines.

The process of placing the fruit in a closed chamber like a stove oven, and then heating the air in the chamber until the fruit is dry, is not a dessicating process, practically speaking, but rather a baking of the fruit. A small quantity of the moisture in the fruit is taken up by the air in the oven, but as the air has no escape it soon becomes charged with water and a steam is generated in the oven, which partially cooks the fruit.

When the fruit is dried in kilns, which are distinguished from the oven process by the fact that the air has free access and exit to the fruit during the drying process, the fruit is liable to become burned or scorched by the heat before it is properly dried, as the organic moisture in the fruit is soon carried away by the heated air, especially if the temperature is not high enough to seal the outside of the fruit, so as to prevent the escape of the moisture; and the consequence is that if the fruit is not scorched it is shrivelled and dried so completely that it is tasteless and incapable of being restored to its original flavor.

The secret of drying fruit, so as to leave it in a thoroughly preserved condition, without detracting from its original quality, the inventor of the Alden process, which is now being introduced quite extensively upon this coast, claims to have discovered. Mr. Alden claims that, to properly preserve fruit and vegetables by drying, only a small portion of its moisture must be removed. The fixed moisture which is not removed but remains in the fruit, he asserts, can be so chemically combined with the constituent elements of the fruit and vegetables that its presence instead of being an objection is absolutely necessary to prevent the succulent properties from being destroyed. This combination is effected by exposing the fruit or vegetables to a gradually decreasing temperature and increasing moisture. For this discovery Alden secured his patent, and although he uses an upright furnace with a chain carrier similar to the one described as having been thrown open to the public over twenty years ago, his process could be carried out in almost any style of a furnace. In the old process it is evident that the fruit was carried from top to bottom of the stack or chamber. It is also evident that the heated air was admitted at the lower end of the chamber and passed out at the upper end. The fruit was therefore exposed in its passage down the stack to increasing heat, dryness and decreasing moisture, just the opposite of the process employed by Alden. The twenty-year-old process is therefore quite a different thing from Alden's. The apparatus, however, being old, can be used by all who desire to use it without infringing, as long as no patented improvement is added to it and as long as the old process is followed out.

The rationale of the Alden process is that when the fruit is subjected to the high degree of heat at the lower part of the chamber or stack, the heated air commences to eliminate the moisture, and is converted into steam. This steam, rising upward in the stack, envelops the fruit above so as to keep the pores of the fruit open, and thus permit the free water to escape while the remainder forms a component part of the fruit. Thus we see the difference between the Alden process and other processes which were previously in use. And if anything is needed to show us the superiority of the process, it is the excellence of the dried fruit produced by it.

Another fruit drier which is offered to the public, and which deserves especial mention, on account of its cheapness and great efficiency, is the American Fruit Drier, patented Nov. 12th, 1872. Mr. Ryder, the inventor of this machine, agrees with Alden, that the fruit should be subjected to the greatest heat at first, so as to seal its exterior, and be gradually moved towards a lower temperature; but, instead of keeping the fruit surrounded by the steam of the newly introduced fruit, or other moisture, he carries the steam off as soon as it leaves the fruit; thus moving the fruit towards both a decreasing moisture and a decreasing temperature. The operation is carried on in an inclined chamber, through the middle of which the fruit is conducted on trays. The heat is admitted to the under side of the fruit line from the furnace, and rises through the fruit to the space above it, where the current of hot air carries the moisture off through the upper end of the chamber, without allowing it to strike the fruit above the point where the steam is generated. The goods produced by this drier are thoroughly dessicated, and, instead of being damp and clammy, like the Alden goods, are dry and firm. Either of these processes unquestionably preserves the fruit, and at the same time retains most of the properties of fresh fruits and vegetables in a condition ready to be developed again by returning their quantum of water. Fruit-drying machines are destined to become as necessary, in a commercial point of view, as the flour mill, sugar refinery, or other well established manufacturing apparatus. Every farmer who has a surplus of fruit or vegetables above what is necessary for home use, will require some arrangement for preserving them, and thus render them available during the months when fresh fruit and vegetables cannot be obtained. California, with her superabundance of fruits of all kinds, will appreciate the great value of these machines, and will use them for the purpose of enabling her to send these otherwise perishable products to all portions of the world where a demand exists. The fruit-drying industry is now in its infancy. A few years hence, we believe, will show a different state of things. Large drying establishments will be in full operation. Large farmers will have their own driers, and the dried products will be found upon every table. Time alone will tell which of the machines offered to the public is the best.

An Interesting Mine Model.

One of the most interesting and unique novelties in the Pavilion, is the representation on glass, of the New Almaden quicksilver mine. It is not only an exquisite work of art, but it constitutes the most palpable, truthful and comprehensive work of representing the underground workings of a mine which has ever been devised. No description can do it justice; it must be seen to be appreciated. The whole mine—its topography, with the trees, buildings, etc., thereupon, and all the shafts, tunnel's, drifts and ore-bodies below the surface are distinctly shown in a model of about twenty-six inches square surface by ten inches deep, just as it would appear to a clairvoyant who might possess the power, while standing upon the lower portion of the surface of the mine, to look directly through the earth and rock, and view collectively the entire underground work.

The model stands upon a pivot and may be turned so as to view more closely from any given point any particular portion or section of the mine. The direction and inclination or depth of the various tunnels, shafts, etc., are most distinctly and accurately shown. The ore-bodies, as they existed before being worked out, are distinctly shown in red color (the color of cinnabar), by which they are readily distinguished from the misty or light slate color of the country rock, and the blackness in which the dead openings have been made in various directions to reach the ore.

It is well known to quicksilver miners, and indeed to all who are thoroughly read up on this speciality of mining, that cinnabar ore never occurs in regular veins or lodes, like silver or gold; but is found in detached bodies or deposits. This fact is made strikingly apparent by the merest glance at the model on exhibition. Yet by gradually turning the same or passing around and viewing it from different directions, it will be seen that the main bulk of the ore-bodies bears a most striking general conformity to the abrasion of the surface.

This fact may afford some important hints for prospecting elsewhere among the quicksilver deposits which are now being so largely sought for in various portions of the State. This model thus represents the most perfect means for a careful study of the mine, and shows in a most striking manner the greater amount of uncertainty met with in mining for quicksilver over the search for precious metals, which are almost always found in more or less continuous veins. We believe this is the first attempt of this mode of mine delineation and will, no doubt, be generally introduced at mining schools for purposes of instruction, as well as for record and aid in practical mining explorations—a copy therefrom should form one of the first requisites for our School of Mines at the State University, or should be supplemented by similar representatives of three or four of our principal gold and silver mines. Much credit is due to the artist, Mr. Charles T. Healey, C. E., by whose painstaking skill this beautiful exhibit has been prepared and placed on exhibition for the general benefit of the public.

In order to enable the reader, who has not or cannot examine it in person, we will say that the model consists of twenty-six plates of glass about 26 inches long by 11 inches in width, set edgeways in a frame and one inch apart. Each inch representing one hundred feet, whether in hight, depth or length. To prepare the model the surface ground of the mine is first surveyed off for the topography by running lines 100 feet apart north and south, east and west. Similar and corresponding surveys are next made throughout all the underground workings. There are twenty-six plates of glass upon each of which one of the surface lines is drawn; whatever points in the underground workings these lines would cut if they were projected so as to form a sectional plane to the lowest explored depths are then depicted upon the glass in their proper position. When each plate of glass, thus prepared is placed in its proper position in the frame, the observer is enabled to view from the outside where each of the lines would cross, and of course the excavation between the points of crossing can all be shown as upon an ordinary map as sectional drawings. The whole thus placed together, the glass being transparent, enables the observer to view, as with a clairvoyant's eye, every exposed portion of the mine through a cubical space of about 2,600 feet in depth, from the highest point, which is as low as excavations have been made.

An Interesting Feature.

Those who have witnessed the previous exhibitions in this city cannot fail to notice the marked superiority of this over any other of its predecessors, in the way of the prominence which is apparent in the matter of home over foreign industries and productions. This distinctive feature forms a most interesting and encouraging subject for quotation, and affords the most indubitable evidence of the rapid progress which our young State is making in those industrial pursuits without which our gold would be as dross, and our silver as worthless stones. This fact is most notably apparent wherever we move throughout the whole extent of this magnificent and varied display of industry.

No one or two visits can convey any adequate conception of the variety, extent, or interest of the exhibition. Every department may be made a study, and visited again and again. If the visitor will follow us carefully through our daily reports and notices of special interest, which cannot be completed in short of a month of our daily issues, he will find many a hint thrown out with regard to the various articles on exhibition, which alone but the practical skill and observation of a professional and special reporter would be likely to discover.

The present exhibition will form a most important era in our history as a State, and cannot fail to stimulate to still greater exertions in the great race of progress which we have so successfully inaugurated with the older communities of the Atlantic States and Europe. It would add much to the important results of the exhibition if the Institute would appoint a suitable commission to study and report upon the various exhibits according to their several classes, and in a proper form for official publication. A most valuable and instructive volume of from three to four hundred pages might be thus prepared for circulation both at home and abroad, which work, if properly done, would well repay the outlay, and add largely to the reputation of the Institute and the credit of the State. Such a work is all the more needed at this time, from the fact that in the absence of any award for premiums, and consequently of the usual "committee reports," no record will exist after the close of the exhibition, except the meager and fugitive reports which may be gathered up here and there from the various newspapers of the day.

A Good Feature at the Fair.

A gratifying feature of the present Fair is the large number of mechanics among the audience. While the Fair, owing to its many attractive qualities, is justly regarded as a desirable place to spend an evening in the enjoyment of good music and the exhilaration of a well-mannered crowd, it is yet not forgotten that it is essentially an *industrial* exhibition. Hence, it is pleasant to see our workingmen coming night after night, generally with their families, and taking an intelligent interest in all the mechanical contrivances, and otherwise increasing their knowledge. A large proportion of the artizans of the city are men whose intelligence is far above that which people coming from Europe and some of the best manufacturing centers of the East, would expect to find in this class. Here the man who is employed to-day may quite likely be the employer a year hence. The time will soon come when the surplus capital which is accumulating in this State will be engaged in manufacturing enterprises, and the man with hands and mind trained in some industrial specialty, will find himself in possession of a lucrative capital. Many of our mechanics make a point of attending the evening schools where mechanical drawing is taught, and where they may obtain theoretical knowledge of the principles of mechanics generally. These men are the ones who will rise, and these are they that are seen attentively studying the workings of new machines at the Pavilion. It is to be regretted that workingmen generally have not a stronger realization of the importance of what not a few hold in contempt—"book knowledge." It is the man who unites this with his practical skill who becomes the foreman and eventually the employer.

We hope to see an increase in the attendance of mechanics. To them more than any other class the Fair belongs, and it is chiefly the results of their labor which make the Pavilion the attractive place it now is for all classes.

JOHN A. BALL, the inventor of the dredging machine which was recently used in excavating the channel in San Antonio creek, at Oakland, proposes in his advertisement, on another page of this paper, to construct and furnish a complete dredging machine for the sum of $20,000, and guarantee the machine to remove six cubic yards per minute. This certainly appears to be a reasonable offer. In a subsequent issue we propose to say something more about this dredge.

TWENTY-FIVE white and 50 Chinese miners are hard at work in the Loon creek diggings, Idaho. The prospects are encouraging.

THE lately discovered quartz mines on Bully-choop mountain, Trinity county, are attracting considerable attention.

A Model Hydraulic Mine.

We were able thie week to get aome facts concerning the operations of the Spring Valley Mining and Canal company at Cherokea Flat, Butte county, California. We are rather glad to get some notes from the locality, as the company referred to is spoken of as one of the best managed and worked in the State. The outfit is complete, and if visitors to California want to see a representative hydraulic mine, they should visit the Spring Valley company's property. The claim comprises 1,500 acres of ground, containing pay gravel to an average depth of 300 feet. The company hae expended in tha works, flumes, ditches, reservoirs and water privilegee over $1,000,000.

They have on the line of their ditch about *four miles* of iron pipe, 30 inches in diameter. One section of this pipe conducts the water across the west branch of the Feather rivar. It is laid in tha form of an inverted siphon, and has a vertical depression of 856 feet. The accompanying diagram will give an idea of the position of the pipe, which is somewhat eimilar to the pipe used by the company, which furnishes water to Virginia City and Gold Hill. *A* is the ditch which leade the water to the pipe. *B* is a ditch on the opposite mountain which receives it. Thia pipe has a depression from the level of the discharging arm of 856 feet. The receiving arm has a head of 180 feet vertical pressure. The length of the inverted siphon is two and a half miles, and the pipe is 30 inches in diameter.

There are ten miles of sluices, varying from four to six feet in width, and 23 undercurrents from ten to 40 feet in width. For the year ending July, 1874, the sum of $476,112 in gold waa washed out and shipped. They employed 160 hands all the year round, and expended $125,000 during the same time, of which $85,534 was for labor. The quickailver alone used by the company for the year cost $13,309. For iron pipe they paid ont $8,839.

The water need is brought by two ditches, 60 miles in length, from Butte creek, and from the head waters of the west branch of the Feather river. The ditchee are six feet wide at bottom and eight feat wide on top. They are four feet deep and run a conatant stream of 2,200 inches of water.

This company is known aa a "close corporation;" that ia, the stock ie not dealt in at the stock boards, being held hy few persone. That the claim ia profitable may be judged from the fact that they paid out $150,000 in dividends during the year ending July. During the year they constructed a continuous line of sluices 3,560 feet in length and six feet in width. This gives them a triple line down Sawmill ravine. Three undercurrents were built and three abandoned. The mining claims purchased during the year cost $28 308. They used up over $11,000 worth of powder during the year. The aasets of this company in July amounted to $4,344,496 and the actual liabilities amounted to $143,869. The officers of the company are as follows: Egbert Judson, President; Mr. R. C. Pulliam, Superintendent; Louis Glass, Secretary; Trustees, E. Judson, Wm. Gregory, Isaac E. Davis, M. R C. Pulliam and Richard Abbey. The miue turned out last year the largest gold bar ever made, being valued at the mint at $71,273.15, and it has been said that they will send a bar worth double this amount to the Centennial Exhibition.

A rather peculiar feature in this claim ia the fact that diamonds are found in the washings; most of them, however, hy the primitive method of rocking. One diamond worth $250 was cut in Boston in 1864, and last year several were tested in Amsterdam and Paris and pronounced diamonds of the first water. Professor Silliman has examined these saods carefully and enumerates the mineralogy of the Cherokee washings as yielding gold, platinum, iridoemine, diamonds, zircon, topaz, quartz in several varieties, chromite, magnetite, limonite, rutile, pyritee, garnets, epidote and almadine. One of the diamonds found weighed 2¼ carats.

Stickeen Mines.—A letter, in another column, gives some interesting statements concerning the Stickeen river mines. We notice that the Indians up that way are becoming troublesome. We see by a dispatch from Victoria that the "Otter" brought down $90,000 (?) in gold dust from the mines. Only four beeves and 90 sheep now remain to supply 500 or 600 miners with fresh meat, at 65 cents per pound, and by the end of this month there will be no fresh meat, unless the overland trains arrive. These are owned by Messrs. Nelson & Bent. From Mr. Johnson, mail carrier, we learn that on Deese creek the McIntyre claim was paying about the best—30 to 40 ounces a day of 24 hours, to eight hands. The Brady claim was said to have yielded 300 ozs. in one week. The ground is very spotted, in places paying from $7 to $8 a day to the hand, with rockers. About one and a quarter miles of Thibert's creek pays pretty well, but the pay dirt is only 12 to 18 inches thick, and is soon worked out.

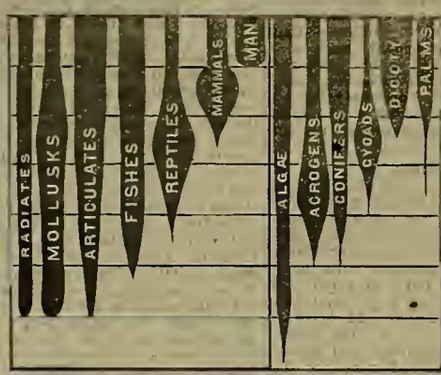
The American quicksilver mine, in Lake county, recently purchased by George S. Wright and others, last week made its first shipment of 45 flasks, the result of 15 day's run with six retorts.

The freight receipts over the Virginia and Truckee railroad, since the first of the present month, have been greater than ever before.

Progress of Life.

In our issue of August 8th, we gave an illustration showing the building up of the earth's crust, and the various periods into which it has been subdivided by scientists. To-day we illustrate the progress of life, as developed by an examination and study of the fossils contained in the various deposits and geological subdivisions of as much as is known of the earth's crust.

Referring to our illustration, it will be observed that the diagram is separated into two general divisions, the one for animals, the other for plants. It is again divided into seven subdivisions, corresponding to the geological "periods" already alluded to. Commencing with the lower or Azoic period, we find the first appearance of life was vegetable—the *Algæ* (sea-weeds), a flowerless order of plants, propagated by spores instead of seeds, and vegetating in low, swampy places, or such as are entirely covered by water. This is the lowest form of life, and just what we might expect to find at the very beginning thereof.



PROGRESS OF LIFE IN GEOLOGICAL AGES.

As soon as we leave the Azoic period we come into the lowest order of animal life, which consists of Radiates, Mollusks and Articulates (crustaceans and worms). Each of these have continued in slightly varying quantities through all geological periods to the present time. The width of the shadings represent their increase or decrease through the several periods.

Fishes next commenced their existence, and have slowly increased in numbers up to the present time.

Next follow Reptiles, and after them Mammals, with very important variations in quantities until we reach the age of man, the last and crowning act of creation.

In Regard to Plants,

As we have already said, we first find the *Algæ* or sea-weeds—flowerless plants; next come the Acrogens, a second class of flowerless plants, embracing the coal-plants, the wonderful abundance of which, during the carboniferous age, is strikingly manifest from our diagram. The Conifers also began to appear about this time, and, as will be seen, have steadily increased to the present time. In subsequent succession came the *Cycads*, the *Dicotyls*, and lastly the palms—the most magnificent of vegetable creations.

The remains of all these animals and vegetable creations are found as fossils, and always in the order of superposition as here given. This diagram presents a most interesting and instructive study.

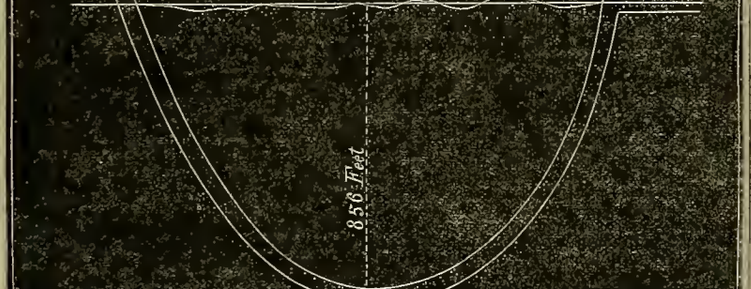
The hydraulic claim of Messrs. Veith & Shear, Calaveras county, has reported again. A recent clean-up, after a run of 20 days, paid $3,000. And the claim isn't fairly opened yet. It will pay $6,000 per month this winter.

The test of the Soapstone gold mine, at El Dorado county last week, was very unsatisfactory. The specimens received at this office were very handsome, and looked pretty rich.

The Marysville Foundries.

One of our travelling correspondents has lately visited the town of Marysville, and sends us the following notes concerning the foundries in that place;

The Empire Foundry and Machine Shop, Williamson & Cory, proprietors, during the past two years have made a specialty of the Little Giant hydraulic machine. The superiority of their work was apparent, and of course they obtained the preference, and they have received orders from all the mining districts in this State, and from Oregon and Mexico. A few days since they received an order from Ohio for one of their machines, which will not reach its final destination till it gets to Michigan. Mr. H. B. Williamson showed our correspondent over the works. Among the manufactured articles was a fine show of enormous nozzles, some of them of such dimensions as to be capable of discharging a stream of water equal to 50¼ square inches, the nozzles being 8 in. in diameter. These works cover an area of over 50,000 square feet. Besides their other departments they go largely into the manufacture of agricultural implements, and have skilled workmen who are prepared to make, repair and keep in order all kinds of ponderous machinery, and even the little, useful sewing machine. They put up a sawmill, run by a 45 horse power, which cut 22,700 superficial feet in the time between 12:40 P M and 6 P M. They have been constantly employed on mill work for the past year, and have orders which they have not yet filled. They run a gang of 60 hands.



INVERTED SIPHON ON SPRING VALLEY COMPANY'S PROPERTY.

They are putting a handsome cast-iron fence aronnd the Court house at Yuba city, Sutter county. They are also making the iron doors for the Grangers' warehouse, and the engine and machinery for the new steamer now being built by Orr Bros., of Yuba city. Their portable engines are much admired.

Another of the large and prosperous foundries of this State is that of the enterprising firm of Preacott, Eckert & Co., of Maryaville, Yuba county, whose card appears in another part of this issne. This foundry was established in 1854.

The buildings in which the various industries of this establishment are carried on are of brick. The works require an area of 30,000 feet, and give constant employment to more than 40 employees, who, judging from their cheery looks, must like their work, their wages and their "bossea." The specialty of this firm is mining machinery. A silver mill is now receiving the finishing touches, and will be shortly sent to its destination—Battle Mountain. Another, a gold mill, left their works last week for a firm at San Diego. Their work is found in every mining locality west of the Rocky mountains. The increasing demand for their work requires the enlargement of some of their machinery, and general increase of their facilities.

W. C. Howes has been appointed Superintendent of the Table Mountain Blue Gravel mine, Tuolumne county. They are now running for the back channel.

Our Sugar Interests.

One of the most important interests connected with the manufacturing industries of California is that represented by our sugar manufactories and sugar refineries. The amount of capital invested in this business is very large; while the products of the industry reach fully five millions of dollars annually. Of manufactories proper we have two—both engaged in the production of beet sugar: the one at Sacramento, and the other at Santa Cruz (formerly at Alvarado). We have also four refineries, all located in this city, which obtain their raw material (cane sugar) from China and the islands of the Pacific.

The only exhibit of this important industry is made by the Bay Refinery, located at the corner of Union and Battery streets. This company makes a very interesting exhibit—first, of the various raw sugars as they are imported; then of the various stages of refining, represented by the sugar in solution after its first, second and third processes of filtering; and finally of the refined sugar, as brown, white, loaf, crushed, granulated, etc. But the most interesting part of this exhibition consists of the small, regularly formed cubes, so remarkably uniform and crystalline in appearance. This sugar is made by what is known as the

Partz Cube Sugar Process.

This is especially a California invention, and one of the most important and valuable which has been introduced into sugar making for years. It consists in a process by which hard, white sugar is produced in a much less time and at less cost than has hitherto been done. Moreover, the sugar produced by this process is decidedly superior to any other, and commands a higher price in the market. This sugar is now made by the Bay Refinery only, which has the exclusive control of the process on this coast for cane sugar, where it has been in successful operation about one year. Its application to beet sugar being reserved by the proprietors of the patent, the process will soon be introduced at the Santa Cruz beet sugarte.

These little cubes that look so nice, so hard, and so regular, are turned out by an ingeniously constructed machine, whereby the soft, granulated sugar, as it comes warm from the centrifugal, is in a few hours transformed into cubes as shown. The process of making the sawed cubes, which are far less a perfect and uniform, requires as many days for its accomplishment as the Partz process does hours; while the preparation of loaf and crushed sugar requires almost as many weeks. Moreover, the introduction of this process into any refinery increases its capacity from one-third to one-half, without any further addition of floor room. These facts may enable the reader to form some idea of the value and importance of this California invention, the products of which are now for the first time placed on public exhibition.

It is to be regretted that it has not been found practicable to place one of these ingenious machines on exhibition in the Pavilion. Only one has yet been put in operation. Three more are in process of construction at the Ætna Iron Works in this city—one of which is for the Bay Refinery, another for the Santa Cruz beet sugarie, and the third is to be sent to a refinery in New York City.

Harvest Fires.—Reports still keep coming in of destructive harvest fires occurring during the harvest progress. A note from a subscriber informs us that on Aug. 17th a large portion of the wheat on the ranch of George Morres, of Potter valley, Mendocino county, was burned, together with Hughes' "Separator" threshing machine. The fire is supposed to have caught from a neighbor's threshing machine.

The water in Klamath river is lower than it has been for years at this season. This is good for the miners, as it will give them an opportunity to work to the bed and bars by means of wingdams.

The proposed Colfax and Nevada railroad will not be built unless the amount demanded by the Directors—$74,000—is forthcoming by the first of September.

The discovery of some rich gold-bearing rock in Cucomonga cañon is causing considerable excitement in Los Angeles. A number of claims have been recorded.

The Phœnix quicksilver mine, Napa county, is now producing between 70 and 80 flasks per month.

Rapid progress is being made at the hoisting works of the Dayton mine. The new boilers are in position and ready for use.

The quartz mines at Rocky bar, Idaho, are yielding a handsome return, and business is consequently prospering.

Work on the Columbia marble works, Tuolumne county, has been suspended, owing to some difficulty about contracts.

Moony & Kinder have sold their mine in Placer county to a Philadelphia company for $70,000.

A smelting furnace is being erected in the Newark district.

Hydraulic Mines of the San Juan Range.

A correspondent of the *Bulletin* writes as follows from North San Juan: As the hydraulic or deep gravel mines in this section of the country are now attracting the attention of speculators, and are largely owned by San Francisco capitalists, a few lines concerning their extent, value, present condition and manner of working may not be uninteresting to the readers of your paper. The mines, or what is known as the San Juan range, extend from French Corral to Snow Point, a distance of about 30 miles, and are located on an immense ancient channel, or river-bed, that traverses the ridge of land embraced between the south and middle forks of the main Yuba river, coming from the direction of the Sierra Nevada mountains, and terminating at French Corral, which is the western extremity of the ridge.

The Ancient River-Bed—The Blue Gravel.

This ancient channel is, in elevation, from four to six hundred feet higher than either of the rivers between which it lies, and its gravel deposit is, from 200 to 1,500 feet in width, and from 100 to 600 feet in depth; gold is disseminated throughout the entire deposit, but the gravel is always the richest near the bottom or bed-rock. The color of the gravel is, in the upper portion of the deposit, red and white, and near the bedrock is deep blue. The blue gravel is generally cemented, and requires blasting before it can be washed. The channel is not continuous, but has been cut in places by deep ravines and cañons, and broken by land-slides. The largest of these breaks occurs between San Juan and Badger Hill, where all trace of the channel is lost for a distance of about five miles.

Principal Mining Districts.

The most important mining districts along the line of the channel are French Corral, Empire Flat, Kate Hayes' Flat, Birchville, Buckeye Hill, Sweetland, Manzanita Hill, San Juan, Badger Hill, Cherokee, Chimney Hill, Columbia Hill, Kennebec Hill, Grizzly Hill, Lake City, Malakoff, Humbug, Relief Hill, Woolsey Flat, Moore's Flat, and Snow Point. All of these districts were established in "early days," and each has its own peculiar local laws, prescribing the manner of locating claims, and the amount of work necessary to be done in order to hold them after being located. In many districts, however, the records have been lost, or intentionally destroyed; consequently where conflicting interests arise, and the courts are appealed to, the party that can do the "tallest swearing" generally wins, and I have noticed that men can swear in mining suits with as little regard to a hereafter as in any other class of cases that come before our courts.

Leading Companies.

There are now three water companies on the ridge to supply the mines with water, *i. e.*, the Eureka Lake and Yuba company, consolidated; the North Bloomfield Gravel Mining company, the Milton Water and mining company.

Eureka Lake and Yuba Canal company consolidated, M. Z. Mirabach, of San Francisco, managing agent, is a New York corporation, the oldest of the companies named, and formerly enjoyed a monopoly of the water business of the entire ridge. The property of this company consists of a consolidation of the water rights and ditches of the Old Miners' ditch, Poor Man ditch, Lake ditch, Humbug ditches, Bloody run and Grizzly cañon ditches, and the San Juan or Yuba canal companies' ditches. The company have now in use three main ditches, with an aggregate capacity of about 3,900 inches per day which, in a favorable season, will run for about ten months in the year.

The North Bloomfield Gravel Mining company is a San Francisco corporation. S. F. Butterworth, L. L. Robinson, D. O. Mills and W. C. Ralston are the principal stockholders. They have one main ditch with a running capacity of 3,000 inches per day. The Milton Water and Mining company is another San Francisco corporation, in which Egbert Judson and A. Block, are largely interested. Quite a number of the business men and miners living in this vicinity are also shareholders; among the number are Simon Furth, V. G. Bell, Daniel Furth and H. C. Miller. This company recently purchased the water-rights and storage reservoirs on the middle Yuba river, formerly owned by the Sierra Nevada Lake Water & Mining company, of London, and are now engaged in constructing a ditch from the Milton dam, with a running capacity of 2,500 inches per day. The ditch will be completed by November next, and will be one of the most substantial works of the kind in the State. Each of these companies own large tracts of mineral land, and the North Bloomfield Gravel Mining company and the Milton Water and Mining company are both engaged in the construction of extensive works for the development of their several possessions.

Enhanced Value of Mining Property.

The improvements that have recently been made in hydraulic mining, and the reduced price of water, brought about by competition, have greatly enhanced the value of mining property here, and added new life to mining enterprise. Ground that has been lying idle for years, and that never could have been profitably worked, under the old system of hydraulicing, and the high price of water, is now valuable and being put in working condition. The fact, too, that a patent or permanent title to the mineral lands can now be obtained from the government has added greatly to the value of mining property, for it removes at once the principal objection that capitalists have had to to taking mining risks; and now, when titles are perfected in that way, money for the development of mines is easily obtained at fair rates of interest. Though hydraulic mining has been carried on here for nearly twenty years, until recently but little has been done toward the development of the great gravel deposit, all of the work having been done at points readily accessible, and where the gravel could be reached with short tunnels; and though during that time a large amount of gravel has been washed away, but a very small portion of the channel has been disturbed; and, notwithstanding that there are districts where the mines cannot be profitably worked, in consequence of the great depth of pipe-clay and mountain dirt, overlying the pay gravel, and others situated so far back from outlets that there is not sufficient fall for the construction of a drain-tunnel, through which to work the bottom gravel, yet the next fifty years' washing will not exhaust the auriferous gravel that can be mined with profit, and it is more than probable that long before the expiration of that time there will be improvements made and changes take place that will so far lessen the expense of working as to make valuable mining ground that is now looked upon as being entirely worthless. The value of a hydraulic mine depends in a great measure upon the advantages there are for working it.

Causes of Failure.

The great aim of mining speculators seems to be to get hold of a large tract of ground that will make a good showing on paper, and from which rich prospects can be obtained with a pan. Whether in reality it can be profitably worked, is a minor consideration with them; for so long as they can put it on paper, and work it in such a manner as to get capitalists and outside parties interested, and make it profitable to themselves, it is all they desire. This, together with the appointment of incompetent persons to superintend mines, is the principal cause of the many failures that have been made in large mining enterprises in this State. Mining is a business that it takes years of experience to learn; and no man, whatsoever his qualifications, is competent to manage and superintend the working of a hydraulic mine, unless he has served an apprenticeship, and in that way gained a thorough knowledge of the business. Where this rule is not followed, failure will be the result in nine cases out of ten.

Mining Enterprise.

For a number of years J. H. Bradley has owned a valuable piece of mining and ditch property at Henry's diggings, near Grizzly Flat, this county. The mine is a gravel claim, embracing about 240 acres, with a rich pay streak averaging about four feet in thickness next the bed-rock. The deposit in the center of the hill is estimated at about 150 feet in depth. There is a fine outlet and practically unlimited advantages for dumpage of tailings. The water right will afford a supply of fully 1,000 inches of free water for six months in the year. Bradley had invested his all in securing the mine and the ditch property. He estimates the cost of constructing a new flume and opening the mine in good shape for hydraulic operations, at $6,000. For years he has been striving to induce parties with that amount of capital to take hold of the enterprise, leaving him a fair amount of unassessable stock. We are delighted to learn that he has at last succeeded. A number of San Franciscans, with ample capital and of resolute will, have become associated with Bradley and have incorporated under the name of the "Carrie Hill" Mining Co. Bradley is to superintend the immediate construction of the new flume, for which 80,000 feet of lumber has been ordered, and a large invoice of spikes and nails have gone forward. As a matter of necessity, from the impossibility of obtaining white labor, a gang of Chinamen is being organized. Our energetic and long-suffering old friend is also to superintend the opening and working of the mine, for which purpose we are quite sure that no more capable man could possibly be found. And we have no hesitation nor fear in venturing the prediction that if the mine is opened according to his ideas and plans he and his associates will reap an abundant reward. We have a strong conviction that the Carrie Hill is destined to prove a magnificent mining property—a very fortunate investment for those engaged in it; and it affords us unaffected, unalloyed pleasure to anticipate the well earned success which is to reward Bradley's indomitable perseverance. We always like to see one of these half-dog, hang-on miners win an ultimate triumph over a seemingly unconquerable concatenation of adverse circumstances and surroundings. There is a sublimity in their frequent exhibitions of faith and patience which we admire more than we can express.—*Mountain Democrat.*

BLUE PIGMENT OF THE EGYPTIANS.—Fifteen centuries before the Christian era, the Egyptians appear to have been acquainted with the preparation of three distinct kinds of blue pigment, prepared from mixtures of sand, soda and lime, with oxide of copper. One of these fine colors has been lately examined by M. Fontenay, and by analyzing he has been able to reproduce them in all their qualities of brilliancy, permanency, etc.

THE "dry inkstand," which needs only to be supplied with pure water, is now found to be an old device.

Mining at Dutch Flat.

The Nevada *Transcript* says: The mining district of Dutch Flat and Gold Run, for the two towns are so close together, and their mining interests are so closely blended, that it has long been noted for its yield of the precious metal, and for the certainty with which the hardy miner could count on a return for his labor. The hydraulic process was first begun in the spring of 1865; the Bear river ditch supplying about 650 inches of water, having been brought in. The yield that year was light; but in the succeeding years of 1866 and '67, work was prosecuted more extensively, and about $600,000 was taken out each year. In 1868 a party of miners owning these claims bought the Bear river ditch, and organized the Gold Run Ditch and Mining Company, and it is now the largest operator in that place. The capital stock is $905,000, and it is all owned by citizens of Gold Run and Dutch Flat. The stockholders are J. H. Kinder, Wm. Judd, J. F. Moody, J. L. Gould, Allen Towle, Frank Sachs, S. D. Moore, H. H. Brown and Victoria Walcott. Allen Towle is President, H. H. Brown is Secretary and Treasurer, and J. L. Gould is General Superintendent. They have over $200,000 invested in mining property, of which $80,000 is in ditches. Their water comes from Bear and South Yuba rivers through twenty-eight miles of ditches. This season they have had plenty of water and expect to run seven or eight months. They are working five claims, and 2,000 inches of water, and employ 40 men. They own the following claims: Indiana Hill, North Star, two-fifths of the Druid, one-half of the Gold Run, Church and Golden Gate, Kearsarge, Bay State No. 2, Pinetop. Thus far the surface gravel to the depth of 100 to 175 feet only has been worked, the lower stratum of over 200 feet in thickness not being workable, for want of fall to carry off the tailings. The company are now engaged in the prosecution of an enterprise that cannot fail to have a very beneficial influence on the mining interests of this section.

To procure the necessary fall, and enable them to work these rich beds, the Gold Run company are running a tunnel over 3,000 feet in length through the mountain at a depth of 600 feet below the crest of the ridge. The lower end of this tunnel opens into Cañon creek, while the head will open directly under the great deposits of blue gravel and furnishing means of working them to the bed-rock. Hoskins & Bro. are working a claim of 70 acres. They employ 15 men and use 600 inches of water. The Fishhawk company have a claim of 40 acres, use 550 inches of water and employ six men. O. Harkness uses 500 inches of water, employs seven men and works on a claim of 40 acres. The Indiana Hill Blue Gravel company is drifting on the channel, and crushing the gravel in an eight-stamp mill, driven by water-power. It is working 30 hands and is doing well. J. F. Moody works the tailings of all these claims, and is making a better thing of it than any of the claims. He owns about 3,000 feet of the cañon, in which he has fitted flumes and undercurrents, and now has nothing to do but catch the gold that escapes the workmen above. His clean-ups have been of the most satisfactory character, and this season's work will probably net him a larger amount than usual. In fact, all the claims have paid well, and an expression of satisfaction rests on the countenances of all the miners.

The Cedar Creek Gold Mines and Water Co. is the principal concern doing business at Dutch Flat. It is an English corporation, having a capital of £200,000. The principal office is in London, where the President, George Batters, and the Secretary, W. J. Livingston, reside. Its business headquarters are at Dutch Flat, and the management of its extensive works are intrusted to T. B. Ludlum. This company is prosecuting its work with vigor, and employs a large force of hands. The old Placer county canal, after passing into its hands, has been improved and extended until the company now owns about 60 miles of ditches. The capacity of the main ditch is 6,000 inches of water, the greater portion of which is used by the company in operating its claims. Of these the principal are the Pacific, the Central, Jehoshaphat, half of the Gold Run, the Home Ticket, the Gem. Altogether, it owns 32 claims, comprising some 200 acres of mining ground, employs 150 men, and uses 3,800 inches of water, besides 1,450 inches twenty-four hour water to outside parties. It is also engaged in running a bedrock tunnel for the purpose of tapping the Dutch Flat channel, work on which has been progressing for some time with favorable results. The tunnel when completed will be 3,000 ft. in length and 8 ft. by 8 in size. It is now in 660 ft. and has reached the first shaft, from which washing began about the first of this month. In prospecting this important work eighteen men are employed. Three Burleigh drills are used, the air being compressed by water-power. The drill and machinery in use by the Cedar creek company cost $12,000, and while the work of driving a tunnel is not materially cheapened by their use, the saving of time outweighs every other consideration. A blast of 300 kegs of powder is now about ready to be fired in the Yankee Jim claim, which is being prepared for working. It is expected to open up a large bed of gravel for working. Besides the Cedar creek company, the South Yuba canal company is supplying water to the miners, its canal having a capacity of 3,000 inches. The water is taken from the south Yuba river, and is carried through about twenty-five miles of ditches. The following claims are being worked: North Star No. 2, owned by Lakemp & Voight. They employ ten men and use 500 inches of water. Their claim is paying well. The Red Bank company have sixty acres of gravel left, on which it is working five men and using 450 inches of water. The Summit claim runs seven men and 500 inches of water. The Somerset claim, owned by Staples & Bros., works eight men and uses 450 inches of water. Kidder employs five men and uses 350 inches of water. The general report is that more men are employed than ever before, and that the mines are paying well, and the prospects for the future are exceptionally brilliant.—*Argus.*

The Calistoga Quicksilver Mines.

In our last week's issue we gave a description of the quicksilver mines in our vicinity, commencing with the Kentuck and following the southwest arm of the belt, and ending at the Yellow Jacket. We shall in this issue commence at Pine Flat and follow the easterly arm of the belt. The first mine attracting our attention is the Georgia, owned by Thompson Brothers, of Pine Flat, and associates. Considerable developments have been made, and a large body of ore brought to view. The metal is exceedingly rich, and closely resembles that taken from the New Almaden. A tunnel has been run into the ledge, and the quantity of metal in eight would well warrant the erection of reduction works. The next mine, or rather mines, of value, are those known as the Bacon mines—a consolidation of locations which were bought recently by an English company, represented by Mr. Bacon, who visited England some eight months since, for the purpose of organizing the company and pushing the mine. A large body of men have been constantly at work on these mines since their purchase, and a fine body of metal has been developed. Mr. Bacon returned to England last week, taking with him quite a quantity of the ore. His visit is for the purpose of making arrangements for the erection of works for the reduction of the ore.

The next mine that attracts our attention is the American. This mine was formerly owned and worked by Mr. Perschbacker, and occupied a prominent position for a long time; but the unfortunate erection of furnaces, which failed to work satisfactorily, caused a cessation of operations at the mine, which passed into the hands of Cross & Co., of San Francisco, and after being held by them for some time, was recently sold to Mr. Wright, the present owner, who is expending a large amount of money on the mine. He has erected a large amount of retorts, and is using a stamp mill for the purpose of reducing the ore to a proper size to work in these retorts. The developments made at this mine, under Mr. Wright's direction, are very flattering, and the present indications at the mine warrant the assertion that the American bids fair to be a successful rival to its neighbor, the Great Western.

Lying between the American and Great Western we find the Pilot Knob, recently owned by our fellow-townsman, J. W. Norton, and associates. This mine has every appearance of being a direct continuation of the Great Western ledge. Several samples of rich ore have been sent to San Francisco. We next visit the El Madre. The stock in this mine is mostly held in San Francisco, and is readily changing hands at a fair price. The reputation of the mine is excellent. We next visit the Alice Cross, owned by B. S. Prickett and Charles Ridgley, of Knight's Landing, and Stuart and Elder, of San Francisco. A very long tunnel is being run under contract, to tap the ledge at a great depth. The croppings at this mine are very prominent, and it has been pronounced by experienced parties to be as good a prospect as any in the district.

We will now give a short description of the Redington mine, which lies some twenty miles northeasterly from the Great Western: This mine is producing more quicksilver than any mine in the United States, the yield last month aggregating nearly $100,000. The superintendent is Charles Livermore, who is at present working about 250 men. The owners are about erecting two more large furnaces of the Knox & Osborne pattern, having enough ore in sight to run the four furnaces uninterruptedly for a long time. There are 1,260 shares in the mine, and a dividend was declared last month of $20 a share. The stock is mostly owned by Mr. Livermore, of San Francisco, and Mr. Redington of the same place, and Goodman & Co., bankers, of Napa. We find also near Knoxville the Manhattan mine, owned by Messrs. King & Osborne. They have a furnace of their own patent, and are producing about 60 flasks a month, and have prospects of doubling the same before long.—*Calistoga Press.*

THE DEEPEST WELL IN THE WORLD.—At about 20 miles from Berlin is situated the village of Sperenberg, noted for the deepest well that has ever been sunk. Owing to the presence of gypsum in the locality, which is at a moderate distance from the capital, it occurred to the government authorities of the mines to obtain a supply of rock salt. With this end in view the sinking of a shaft or well 16 feet in diameter was commenced some five years ago, and at a depth of 280 feet the salt was reached. The boring was continued to the further depth of 960 feet, the diameter of the bore being reduced to about 13 inches. The operations were subsequently prosecuted by the aid of steam until a depth of 4,194 feet was attained. At this point the boring was discontinued, the borer being still in the salt deposits, which thus exhibit the enormous thickness of 2,907 feet.

Prospectus Compilation.

We have had occasion to review, in some of our recent numbers, the history of various companies, originally brought out under what were apparently promising circumstances, but which have ended in financial disappointment, and the ruin of many members of that confiding body, the British shareholder. But while we hardly feel inclined to bestow much sympathy upon that section of the British shareholder which allows itself to be tickled out of its money by seductive and high-promising prospectuses, we cannot too strongly condemn those who work behind the scenes, and are the means of leading so many into unfortunate speculations.

The art of prospectus compilation has attained, at the present day, a high state of development, and it appears to be guided by certain well-defined rules and regulations. It does not much matter whether the company, for which it is issued, is one undertaking public works, such as railways, docks, canals, etc., or for the purpose of carrying out industrial enterprises on the joint-stock principle, or even for the purchase and development of some patent invention, which promises to revolutionize all our preconceived notions; the general scope of the prospectus is ever the same, and the idea inculcated is that promoters and inventors are the most disinterested people in the world, and that it is a foolish thing for the over-cautious British shareholder to retain his money in investments, bringing in a miserable four or five per cent. interest, when he can so readily and safely obtain many times that amount, by simply signing his name to the "form of application" accompanying the prospectus, the demand for which is considerable judging from the large supply which comes to fill our waste-paper baskets.

Notwithstanding the diversity of objects treated by the prospectuses, there is a marked resemblance between them, both in style and mode of treatment. They have all a pleasing appearance, are printed upon the best of paper, and color is judiciously used, so that the special points may stand out prominently in variegated type to attract immediate attention; where diagrams or illustrative plans can be introduced they add much to the general effect. On the first page is placed in goodly array the names of the gentlemen forming the direction, those with handles being specially selected, and great care is taken in duly advertising the titles of the various other companies which have the honor of having them upon their boards. Next follows the body or descriptive part of the prospectus, and if written, as it should be, by a person of sanguine temperament having a lively imagination, and with sufficient tact to keep within the exact limits of truth, we have set before us, in a tempting and fascinating manner, all circumstances relevent and irrelevant, which may tend to persuade the British shareholders of the magnificence of the investment offered. It is necessary, of course, that such a person should have had considerable experience in this special art, so that whilst allowing full scope to his imagination he will always keep in mind the necessity of avoiding making positively inaccurate statements, as they have before this been the cause of much subsequent grief to the directors. Anything of a doubtful character is generally made to appear in the special letters or reports which accompany the prospectus.

The prospectus having been duly prepared and launched, it remains to be seen whether the public nibble at the bait. We presume there is always a certain safe average number of bites to a given circulation, to pay the printing expenses, otherwise the system of prospectuses would not be kept up.

Now what can we say to that very innocent section of the British shareholder who will so readily part with its money, to appear hereafter upon the scene in deep lamentation, because it has found out in the meanwhile that it is not all gold that glitters? We remark that in many cases the investors alone are to blame, for not having taken the precautions which would have saved this future trouble. For instance, it generally happens that when a prospectus is issued, there are already many companies in existence of a similar character, and that reliable information is to be obtained of their capital, earnings, etc; so that little else is required to be done, beyond instituting a comparison between them, to test the probable value or otherwise of the proposed scheme. Of course, all the poetry of the prospectus is to be discarded, and only such allowances are to be made for special circumstances as common sense will dictate. In manufacturing enterprises this is not quite so easy, as there may be contingencies affecting in a different manner undertakings of a like nature, and in the same district, but with railway companies, especially those for constructing works in foreign countries, the matter offers no difficulty, and the probable result can almost be reduced to positive figures.—*Engineering.*

A New Idea. — Mr. Wm. Pesohey says: In both wrought and cast iron a skin is formed upon the surface in the process of manufacture into the shape required. In wrought iron this skin will come off sooner or later in scales, even if the iron is painted. In cast iron it is thrown off in a granular rust. This skin is of no material value, and would be better removed as soon as manufactured, if it were not for the cost of doing so; when it is removed, and the iron painted with an oxide of iron paint, there will be no recurrence of scaling.

Pine Flat Mines.

A correspondent writes from Pine Flat to the Sonoma *Democrat*, under date of August 20th: Unusual activity prevails in this mining camp, partly owing to the fine showing that has lately been made in some of the mines, but mainly owing to the decision in the Caslamayomi grant case, which has encouraged many of the miners to go to work in earnest to develop their claims. At the Flag Staff they have made a very rich strike in the tunnel, which has tapped the ledge at a depth of two hundred feet. The length of the tunnel from the mouth to where they struck the metal is about two hundred and eighty feet. The owners are in high spirits, as the new strike makes it a very valuable mine. At the Sonoma they are turning out about forty or fifty flasks per month. The Rattlesnake is looking splendidly. They struck metal in their lower tunnel last week. They are putting up a twenty ton furnace, and have over three hundred thousand adobes made of an average weight of ten pounds, and have a large force of men engaged still making them at the rate of eight or ten thousand per day. At the Missouri they also made a rich strike last week. Pap Hopkins, the original "Hermit of the Geyser Peak," has been engaged there, and he developed a very fine body of ore in the bottom of the gulch, east of the retorts. They are also taking out splendid metal in the old workings above. The two retorts are turning out six to eight flasks regularly every week. The Missouri looks better than ever.

At the Lost Ledge they have opened out a very fine ledge of ore, and are turning out a large amount of quicksilver. The Kentuck is opening out splendidly—and, by the way, what an imposition is being worked upon the lessees of these mines. A toll house has been established half way between the Missouri and Kentuck, and they charge the Missouri and Kentuck folks one dollar for a six horse team going from the Missouri to the Kentuck. This is at the rate of fifty cents per mile. They also charge toll to the Missouri folks at the same rate for hauling from Little Sulphur up the hill to the mine, and the Missouri folks put the road in repair last spring, at a large expense to themselves. How long are these vampires to be permitted by our Board of Supervisors to charge such enormous tolls? Our mine owners ont in that vicinity have sufficient obstacles to overcome from foreign interference, and it seems that our own citizens, whose interest it should be to lend every assistance in their power toward the development of these important mining interests, should do so. Some of them, at least, are disposed to claim the pound of flesh, and more too.

At the Geyser mine a move is being made looking toward commencing active operations, and there is a well authenticated rumor that a furnace is to be erected.

Ascent of Mount Shasta—Remarkable Feat.—A party of tourists who lately ascended Mount Shasta performed a feat which has not often, if, indeed, ever been before accomplished. They made the trip from the camping-ground to the highest summit of the mountain, came back to the camping-ground, and went from thence down to Sisson's house, all in one day. The amount of climbing and fatigue involved in such a trip can only be appreciated by those who have ascended Shasta. The most remarkable feature of the matter was that four of the party were ladies, viz: Mrs. Churchill, of Yreka, Mrs. Cushing of Oakland, Miss Ellen Newhold, of this city, and Mrs. Sisson, wife of J. H. Sisson, the Shasta guide, and keeper of the house on the stage-road at the foot of the mountain. An unusually large number of tourists have made the trip to and ascended Mount Shasta this year. The view from the mountain is unsurpassed, and the region around it is one of the most thickly wooded, attractive, and beautiful in California. It is full of game and the rivers (the Upper Sacramento, the Pit and McClond) are full of fish.

A Good Education.—The late Edward Everett condensed into a single brief paragraph his estimation of what constituted a good education. Here it is: "To read the English language well, to write with dispatch a neat, legible hand, and be master of the first four rules of arithmetic, so as to dispose of at once, with accuracy, every question of figures which comes up in practice—I call this a good education. And if you add the ability to write pure, grammatical English, I regard it as an excellent education. These are the tools. You can do much with them, but you are hopelese without them. They are the foundation; and unless you begin with these, not with flashy attainments, a little geology, and all other ologies and osophies, are ostentatious rubbish."

A correspondent writes to the *Scientific American* and gives the following directions with reference to the proportions to be observed in constructing buildings for acoustic purposes: Let the whole structure be held in entire subserviency to the auditorium, regardless of needless ornamentation, and let the clear inside lines thereof be as follows: Make or take the whole length as one sum in feet, make the whole width one-half that sum, and the whole hight, to the center of the ceiling, one-half of the latter sum.

Street Cleansing in New York.—In ten years the annual expenditure for cleaning the streets of New York has increased from $13,500 to $1,000,000.

The survey of a narrow-gauge railroad route from Nevada city to Colfax has been completed, and the report of the engineer submitted. He makes the distance between the two points 22 and three-tenths miles. The cost of construction is estimated at $411,132.56. A resolution has been passed by the Board of Directors not to commence the work until $300,000 of the capital stock has been taken, and in the event that it is not all taken within a few weeks, the charter be thrown up. Only $70,000 remains to be taken to complete this amount.—*El Dorado Republican.*

In the two French colonies of Martinique and Guiana, there are more than 6,000 acres under cultnre with annato, the annual produce being 3,000,000 pounds. The production of annato now exceeds the demand, as no fresh uses have been found for this coloring substance.

The custom-house returns show that the quantity of opium imported into the country, now nearly 250,000 lbs annually, is ten times more than it was thirty years ago; and it is the opinion of physicians and druggists that not more than one third of the quantity is used for medical purposes.

In 1873, about 8,000 American mowers and reapers were sold in Europe; and it is estimated that, during the present year, no less than 12,000 mowers will be sold abroad, representing a value of $1,000,000 paid to American manufacturers of this class of machinery.

A national exhibition of textile plants, and machines employed in their manufacture, will be held in St. Petersburg this fall. The Russian Government seems disposed to give special encouragement to the cultivation of fibrous plants and the manufacture of textila fabrics.

A neat thing in hair-cutting in vogue among the Nagas, a tribe in British India, is described as follows: The operator inserts beneath the luxuriant locks of his customer a hatchet or knife, whereon he pounds with a wooden mallet until the edge shines through.

A recent writer on food says that a gent'e man of his acquaintance has for the last fifty years eaten daily two eggs at breakfast, making 730 per annum, or a total for the whole period of 36,500 eggs.

The stone quarry on Point San Pedro, leased by Mr. Jordan, is being worked by a force of 12 men.

Fires all over the country.

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Ayer's Hair Vigor, by long and extensive use, has proven that it stops the falling of the hair immediately, often renews the growth, and always surely restores its color, when faded or gray. It stimulates the nutritive organs to healthy activity, and preserves both the hair and its beauty. Thus brashy, weak or sickly hair becomes glossy, pliable and strengthened; lost hair regrows with lively expression; falling hair is checked and stabilished; thin hair thickens; and faded or gray hair resume their original color. Its operation is sure and harmless. It cures dandruff, heals all humors, and keeps the scalp cool, clean and soft—under which conditions, diseases of the scalp are impossible.

As a dressing for ladies' hair, the Vigor is praised for its grateful and agreeable perfume, and valued for the soft luster and richness of tone it imparts.

PREPARED BY

DR. J. C. AYER & CO., Lowell, Mass.,

PRACTICAL AND ANALYTICAL CHEMISTS.

☞ Sold by all Druggists and Dealers in Medicine.

CRANE & BRIGHAM, Wholesale Agents,

jy18-8a SAN FRANCISCO.

A MAMMOTH FREE PAPER.

—THE—

MECHANICS' FAIR

DAILY.

Having been awarded the publication of the Daily Newspaper in the Pavilion during the Fair of the Mechanics' Institute of the City of San Francisco, commencing August 18th, 1874, we would respectfully announce that no efforts will be spared to issue a

LIVE AND DESIRABLE SHEET.

Its immense circle of readers will include all adult visitors at the Fair, embracing during the exhibition a large proportion of the most intelligent, energetic and influential citizens throughout the Coast.

Advertisers will secure the best terms and space by handing in their orders early.

DEWEY & CO., Publishers.

Certificate of Partnership.

We certify that we constitute a partnership, transacting the business of Printing in this State; its principal place of business is San Francisco, California; its name is SPAULDING & BARTO. The full names and respective places of residence of all its members are signed hereto.

Dated San Francisco, Aug. 5th, 1874.

GEORGE SPAULDING,
HARRISON BARTO.

Indorsed. Filed Aug. 5th, 1874.

WM. HARNEY, County Clerk.
By W. Stevenson, D. C.

6v29-4t

The Motive Power at the Pavilion.

The engines now driving the machinery of the Fair are from the Union Iron Works, Messrs. H. J. Booth & Co., and evince a very important advance step in the production of a steam engine combining simplicity of construction, economic results, beauty of design, few number of pieces, and access ability of all parts. These engines appeal to the judgment of every one as being the machines needed for this coast. The cylinders are 12 "bore 24" stroke, having the steam chest and foundation cast in one piece; the steam ports are very short, being nearly at right angles to the face of valve. The valve has a large lap and quick stroke. The bed embodies the well tested and correct principle of central bracing, first introduced by Corliss, and in this case most admirably carried out. The pillow block has the most improved method of adjusting the quarter-brasses, which insures a complete support on the entire surface of the brass, while being adjustable in every direction. The foundation is cast to the pillow block, making a most complete and simple equivalent for the old, expensive and cumbersome bed. The crank, top of pillow block, steam chest, throttle valve, fly-wheel and governor, are all splendidly finished, and in harmony with the general design. The valve stem and eccentric rod connection are carried in a simple and mechanically designed guide, accessible and substantial. The cross-head has large gib surfaces, adjusted by set screws and within reach and in sight at all times. The cross-head pin is of steel, with an automatic oiler attached. The lower slide is supplied with oil from a stationary oiler under full control of the engineer, while the engine is in motion.

In fact, every part of the engine seems to have been designed with especial reference to the convenience of lubrication, adjustment and rep ir. The oilers used are the Dreyfus Glass oilers on the wearing, and the Seibert Eureka oiler on the cylinder. One engine is fitted with Watson's steam packing for the piston rod, and one with the old-style hemp packing. The governors are of the Lamott patent and Hendy's manufacture, embracing the automatic stop in case of breakage of belt or gear, and have separate adjustment for nice regulation of speed; they are well built and nickel plated. The cylinders are cased with black walnut held in place with silver plated screws. All the nuts are supplied with finished washers, something not usually done, though it adds much to the general appearance.

The engines are intended to be used for the Palace Hotel, now building, and we congratulate the owners on the wisdom of their selection. If the balance of the appurtenances of that hotel are made in keeping with the engine, the public can have no fault to find.

Miners and Mechanics.

Do mining men often think how much they are indebted to the artisans and mechanics? Without their assistance mines could never be worked to the depth they now are, and ore production would be necessarily limited for want of proper hoisting machinery and crushing apparatus. At the same time the artisans are very slightly affected by the success or failure of individual mines. Wild speculation, haste to be rich, incompetent and extravagant superintendence, fictitious companies, etc., have depressed the mining interests of our State from time to time; yet the inventive, practical mechanic and miner have been at work continually, experimenting and perfecting improved applications of motive power, new processes, new pumps, and all the different appliances needful about a mine. The foundrymen of this city have greatly aided the mining interests of the coast in their successful efforts to manufacture improved mining machinery, though the miners scarcely give them the proper credit for the manner in which they have simplified and strengthened mining appliances.

The chinch bugs are making serious inroads on the corn crop of Brown, Pike, and adjoining counties in Illinois, and there is no calculating the extent of damage that will be sustained to this cereal; as the insects are seemingly just beginning to make their appearance. It may be safely estimated, say a good many farmers, that at least one-half of the corn crop will be destroyed.

Chas. D. Gibbes, of this city, has been appointed United States Deputy Mineral Surveyor, by James T. Stratton, U. S. Surveyor-General for California. Mr. Gibbes is an old Californian, perfectly familiar with every part of the State, and well known as a most efficient and reliable surveyor. The appointment is an excellent one.

Negotiations are on foot for the sale of the Perrin mine, several miles below Grass Valley, on Wolf creek, and the O'Connor mine, belonging to an English company, situated near Union hill, Nevada county.

There is a large deposit of cobalt near the head of the Walker river, and it is being extensively worked. The ledge has been traced for a long distance, and ore is being taken out in five or six places.

Our Press in the Pavilion.

We venture the assertion that there are few more interesting pieces of machinery than the modern cylinder press. Look at ours at work. How rapidly and neatly it turns out our immense paper, and yet how quietly it performs its duty. We would say here that it is the peculiarity of the Potter Press to work without noise, jar or friction. The little "Nonpareil" jobber is an excellent mate for it in this respect. Both machines are built for strength and move smoothly and easily along in their duties, without the characteristic clatter and bang of other presses. Where there are crashing and slamming there are friction and wear, just as surely as smoke is an indication of fire. Reader, whether you are a printer or not, examine these representatives of modern excellence in printing presses. *One thousand* Potter Cylinders are in use in toe best offices of the Eastern States, without a known enemy. Some of the finest illustrated works of the land are printed on the Potter presses, and for the excellent and at the same time rapid execution of the general requirements of the job printer, the two-roller extra heavy machine is the favorite far and wide.

An experienced and conscientious printer says: "It is my conviction, after a careful investigation, and comparison with other cylinders that the Potter is the *best*, as I find all the best points of the prominent machines retained, its renowned bunter spring and lever alone places it far ahead of all others, in giving the bed that beautiful, easy movement at a high rate of speed with no tendency to jar, nor to work the 'quads' up in the form. The rollers can be put in or out in half a minute, and the distribution is very superior. The whole machine is solid, firm and strong, and the workmanship and finish unexcelled."

The large factory, at Norwich, Conn., is now employing about 90 hands and turning out ten machines a month. To bring these cylinders up to their present standard of excellence and perfection has taken many years, and a vast outlay of money. We are glad that these presses are to be introduced on this coast; and knowing that the agent, Mr. N. C. Hawks, Manager of the Pacific Type Foundry, is a practical printer of seventeen years experience, we have faith that he will *succeed* in proving their merits to all who are interested, and who will call at 532 Clay street. It certainly gives us an honest pleasure in adding our endorsement of the good qualities of the Potter press, and we will say in this connection of the new type foundry also, which we notice is rapidly approaching considerable magnitude and enjoying a good trade already.

The new hoisting works of the Sierra Nevada mine smooeded in two days, with a single tank, in clearing the shaft of 225 feet of water.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Aug. 25th, 1874

For Week Ending Aug. 11th, 1874.

Suspension Buckle. — Christopher J. Weldon, San José, Cal.

Trap for Sinks and Basins. — Chas. W. Garland, San Francisco, Cal.

Bracket for Dentists' Chairs.—Geo. W. Gray, Albany, Oregon.

Grain Separator.—John T. Hicklin, Olympia, W. T.

Door Spring. — John Steed and Charles Nash, San Francisco, Cal.

——The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

LEATHER.

Wednesday M., August 26, 1874.

Leather is in rather better request, but the demand is principally for imported goods.

City Tanned Leather, ₱ lb	24@28
Santa Cruz Leather, ₱ lb	25@28
Country Leather, ₱ lb	24@28
Stockton Leather, ₱ lb	25@28
Jodot, 5 Kil., per doz	$50 00@54 00
Jodot, 11 to 15 Kil., per doz	66 00@96 00
Jodot, second choice, 11 to 15 Kil. ₱ doz.	55 00@72 00
Cornelian, 12 to 16 Kil.	57 00@67 00
Cornelian Females, 12 to 16	60 00@64 00
Cornelian Females, 14 to 16 Kil.	66 00@74 00
Beaumerville, 15 Kil.	60 00@—
Simon, 15 Kil. ₱ doz	61 00@72 00
Simon, 20 Kil. ₱ doz	55 00@67 00
Simon, 24 Kil. ₱ doz	72 00@80 00
Robert Calf, 7 and 8 Kil.	35 00@40 00
French Kips, ₱ lb	1 00@1 15
California Kip, ₱ doz	40 00@—
French Sheep, all colors, ₱ doz	8 00@15 00
Eastern Calf for Backs, ₱ lb	1 00@1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@15 00
Sheep Roans for Linings, ₱ doz	5 50@10 50
California Russett Sheep Linings	1 75@4 50
Best Jodot Calf Boot Legs, ₱ pair	5 00@5 25
Good French Calf Boot Legs, ₱ pair	4 00@4 75
French Calf Boot Legs, ₱ pair	4 00@—
Harness Leather, ₱ lb	30@—
Fair Bridle Leather, ₱ doz	45 00@72 00
Skirting Leather, ₱ lb	34@37½
Welt Leather, ₱ doz	30 00@50 00
Buff Leather, ₱ foot	19@21
Wax Side Leather, ₱ foot	17@18
Eastern Wax Leather	—@—

METALS.

Wednesday M., August 26, 1874.

Quicksilver is firm at $1.45 ₱ lb. Trade in Iron is improving. Tin Plates have recovered somewhat.

American Pig Iron, ₱ ton	— — @ 40 00
Scotch Pig Iron, ₱ ton	35 00 @ 42 00
White Pig, ₱ ton	— — @ 44 00
Oregon Pig, ₱ ton	— — @ 45 00
Refined Bar, bad assortment, ₱ lb	— — @ — 3½
Refined Bar, good assortment, ₱ lb	— — @ — 4
Boiler, No. 1 to 4	— — @ — 5½
Plate, No. 5 to 8	— — @ — 5½
Sheet, No. 10 to 13	— — @ — 5½
Sheet, No. 14 to 20	— — @ — 5½
Sheet, No. 24 to 27	— 08 @ — 09
Horse Shoes, per keg	— 7 50 @ 8 00
Nail Rod	— 5½ @ — —
Norway Iron	— 8 @ — —
Rolled Iron	— 6 @ — —
Other Irons for Blacksmiths, Miners, etc.	— — @ — 4½
COPPER.—	
Braziers'	— 31 @ — 32
Copper Tin'd	— 45 @ — —
O. Nail's Pat	— 50 @ — —
Sheathing, ₱ lb	— — @ — 24
Sheathing, Yellow	— — @ — 25
Sheathing, Old Yellow	— — @ — 12½
Composition Nails	— 24 @ — —
Composition Bolts	— 24 @ — —
TIN PLATES.—	
Plates, Charcoal, IX ₱ box	— 12 00 @ 14 50
Plates, I O Charcoal	— 12 75 @ 14 50
Roofing Plates	— 11 50 @ 14 00
Banca Tin, Slabs, ₱ lb	— 31 @ — 33
STEEL.—English Cast, ₱ lb	— 20 @ — 25
Anderson & Woods' American Cast	— 10 @ — 17
Drill	— 18 @ — 22
Flat Bar	— 18 @ — 22
Plough Points	— 16 @ — 17
ZINC	— — @ — 11
Zinc, Sheet	— — @ — 11½
NAILS—Assorted sizes	— 5½ @ — 8
LEAD —	
Pig, ₱ lb	— 5½ @ — 6
Bar	— 6½ @ — 7
Sheet	— — @ — 9
Pipe	— — @ — 8½
QUICKSILVER, per lb	— — @ 1 45

GENERAL MERCHANDISE.

Wednesday M., August 26, 1874.

Bags and Bagging are considerably weaker. Last sales of English Standard Wheat Bags were at 13c. Coffee remains shaky. Spices generally have advanced. Hawaiian Molasses has been advanced. Other Syrups and Sugars are very firm. Tobaccos are high, and promise to go still higher.

BAGS.	
Eng. Stand. Wht.—13½@13¾	
Detrick's Machine	— —
Sewed, 22x36 E	—@13
do 22x36, do E W	—@13¼
do 20x40, do A	—@14
Flour Sacks ₱a. 10	—@ 2
" " ⅛ 6	—@ 7
Stand. Gunnies—	
double seam	—15 —@16
single seam	—13 —@13
Wool Sacks, 65	—@—
Barley Bags 24x36	—@15¼
do 22x40	—@15½
do 24x40	—@16¾
do 29x36	—@17
Oat Bags, 24x40	16 —@16½
do 28x36	— —@17
Hessian 40-in. gds	9½—@10
do 45	10½—@11
do 60	— —@—
CANNED GOODS.	
Assd'd Pie Fruits in 2½ lb cans	2 75 @ 3 00
do Table do	— @ 2 75
Jams & Jellies ₱ 2 lb	2 @ 2 25
Pickles ₱ gl	— @ 2 50
Sardines, qr box	80 @— —
do ½ boxes	2 20 @— —
COAL—Jobbing.	
Australian, ₱ ton	10 00 @— —
Coos Bay	— —@16 00
Bellingham Bay	— —@ 5 50
Seattle	— —@11—
Cumberland, cks	22 00 @23 00
do bulk	15 00 @20 00
Mt. Diablo	6 25 @8 50
Lehigh	— —@18 00
Liverpool	11 00 @11—
West Hartley	12 50 @— —
Scotch	8 50 @10 00
Scranton	15 00 @17 50
Vancouver's Isl	11 00 @ 4 50
Charcoal, ₱ bk	75 @— —
Coke, ₱ bbl	— @ 60
COFFEE.	
Sandwich Island	— @ 22
Central America'n	20 @ 22
Costa Rica ₱ lb	21 @ 22
Guatemala	18 @ 20½
Java	28 @ 30
Manilla	20 @ 2
Ground in cs	— @ 30
Chicory	10 @— —
FISH.	
Pac. Dry Cod, new	5 @ 6
cases	6 @— —
do boneless	11 @ 12
Eastern Cod	7 @ 8
Salmon in hhls. ₱ 00	@8 25
do ½ hhls	4 50 @4 75
do 2½ ₱ cans	— @2 00
do 1 ₱ cans	2 65 @2 75
do 1 lb cans	1 75 @— —
Do Col. R. ½ lb	— @— —
Pick. Cod, bbls.	22 00 @— —
do ½ bbls	11 00 @— —
Boneless Codfish	9 @ 10
Mack'l, No. 1, ₱ bbls	15 00 @— —
" Extra	— @9 00
" in kits	2 00 @2 50
" Extra mess, ₱ bbl	— @— —
" Extra mess, ½ bbl	— @12 00
Sm'k Herring, bx	50 @ 60
NAILS.	
Assorted size, lb	4½ @ 7
OILS.	
Pacific Glue Co.	
Neat Foot, No. 1	— @1 00
Pure	1 25 @— —
Castor Oil, No. 1	— @1 75
do do No. 2	— @1 60
Coccanut	45 @ 50
Olive Plagniol	5 00 @— —
do Possel	4 75 @— —
Palm	9 @— —
do Eagle	— @— —
Linseed, raw	— @1 02
do boiled	— @1 07
China nut in ca	— —@ 85
do bulk	75 @ 80
Sperm, crude	— @1 40
do bleached	— @2 20
Coast Whales	25 @ 40
Polar, refined	50 @ 55
Sperm	1 40 @1 50
Lard	1 00 @1 10
Coal, refined Pet	27½@ 40
Olephine	— @ 24
Devoe's Brill's	25 @ 28
Long Island	— @ 34
Eureka	27½@ 40
Devoe's Petro'm	26 @ 29
Barrel kerosene	20 @ 25
Olive	4 00 @8 50
Downer Kerose'e	35 @ 40
Gas Light Oil	— @ 34
PAINTS.	
Atlan. W. Lead	7½@ 12½
Whiting	— @ 2
Putty	4 @ 4½
Chalk	1½@ 2½
Paris White	2¾@—
Ochre	4 @ 5
Venetian Red	2½@ 5
Red Lead	— @ 11
Litharge	10 @ 11
Eng. Vermillion	2 00@2 10
RICE.	
China No. 1, ₱ lb	6½@ 6¾
do do	5½@ 5¾
Japan	5½@ 6
Siam Cleaned	7 @—
Patna	— @ 6¾
Hawaiian	— @ 7¾
Carolina	10 @ 10½
SALT.	
Oal. Bay, per ton	10 00@14 00
do Common	8 00@ 9 00
Carmen Island	11 00@13 00
Liverpool fine	20 00@23 00
do coarse	15 00@20 00
SOAP.	
Castile ₱ lb	10 @ 11
Local brands	7 @ 8
SPICES.	
Allspice, per lb	15 @ 16
Cloves	47½@ 50
Cassia	22½@ 25
Citron	— @ 30
Nutmegs	1 20 @1 25
Whole Pepper	20 @ 22
Pimento	— @ 15½
Ground Allspice	— —@ 20
do Cassia do	— —@1 50
do Cloves do	— —@1 70
do Mustard do	— —@1 25
do Ginger do	— —@1 00
do Pepper do	— —@1 00
do Mace do	— —@2 10
SUGAR, ETC.	
Oal. Cube per lb	11½ @—
Paris Pris. Lumps, bbls	—@ 11½
do in 50 lb bxs	— @ 12
do in 25 lb bxs	— @ 12½
Circle A crushed	— @ 11½
Powdered	— @ 11½
Granulated	— @ 11
Dry granulated	— @ 11½
Hawaiian	8 @ 10½
California Best	— @ 11½
Golden C	— @ 10½
do Ex. grade	— @ 9½
Oal. Syrup in bls	— @ 5½
do in ½ bls	— @ 55
do in kegs	— @ 60
Hawaiian Molasses	25 @ 27½
TEA.	
Oolong, Canton, lb	18 @ 25
do Amoy	25 @ 30
do Formosa	40 @ 80
Imperial Canton	25 @ 40
do Pingsney	45 @ 80
do Moyune	60 @1 00
Gunpowder, Oan	30 @ 42½
do Pingsney	50 @ 80
do Moyune	65 @1 25
Young Hy., Canton	28 @ 40
do Pingsney	40 @ 70
do Moyune	65 @ 85
Japan, ½ chests, bulk	30 @ 75
Japan, lacq'ered bxs, 4½ and 9 lbs	45 @ 67
Japan do, 2 lb bxs	45 @ 90
do pl'n bx, 4½ lb	25 @ 65
do ½ al lb paper	30 @ 55
TOBACCO—Jobbing.	
Bright Navys	50 @ 60
Dark do	45 @ 55
Dem. Twist	57 @ 62½
12 inch do	57 @ 62½
Light Pressed	65 @ 75
Hard do	65 @ 70
Conn. Wrap'r	40 @ 50
Penn. Wrapper	20 @ 30
Ohio do	7 @ 15
Virg'a Smok'g	60 @ 85
Fine cut chewing, bucks, ₱ lb	75 @ 90
Banner fine cut	— @ 90
Eureka Cake	75 @1 00
TURPENTINE.	
Eastern	60 @ 65

A COMPLIMENT.

Plainsburg, Merced Co., Cal., June 22, 1874.

Dewey & Co.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which you have displayed in procuring my patent.

Although you were entire strangers to me when I first communicated with you, I soon felt satisfied you were gentlemen of integrity, and shall always be happy to represent you as such. Very truly yours,

H. W. Rucker, M. D.

Thursday Noon our last forms go to press. Communications should be received a week in advance and advertisements as early in the week as possible.

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Examinations made of Assignments Recorded in Washington.

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BY GUIDO KUSTEL,

Mining Engineer and Metallurgist.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver. 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus.

It is a work of great merit, by an author whose reputation is unsurpassed in his speciality.

Price $2.50 coin, or $3 currency, postage free.

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequaled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Mill man, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. PRICE REDUCED TO $5.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final cast-ing of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, $5 in cloth; $6 in leather—coin.

BY OTHER AUTHORS.

The Quartz Operator's Hand-Book; by P. M. Randall. 1871. Revised and Enlarged Edition. Cloth bound, 175 pages. Price, $2.

Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked; with a Chapter on the Blow-Pipe Assay of Minerals. By Wm. M. Barstow, M.D.; 1867; cloth bound, 114 pages. Printed and sold by Dewey & Co. Price, $1; postage free. The best written work, and most complete work on the subject treated.

ANY OTHER BOOKS DESIRED will be furnished at the most reasonable rates by Dewey & Co., Mining and Scientific Press Office, S. F.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

L. P. McCarty—General Agent.

W. H. Rattenberry—California.

Chas. W. Otis—Contra Costa County.

Chas. T. Bell—Alameda, Santa Clara and Santa Cruz Counties.

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S. G. Crawford—Nevada, Sierra and Plumas Counties.

J. G. Kelley—For Washington Territory.

Campo, San Diego Co., Cal., July 3d, 1874.

Messrs. Dewey & Co.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. Gass.

Fourth Year of the Pacific Rural Press.

The publishers of this journal design making its weekly issues during its fourth year (1874) still more acceptable and valuable than those of the past.

A Farmer's Paper Always.

The RURAL PRESS—established Jan. 1870, has been thoroughly a farmer's paper—"first, last, and always." Its success in popularity and rapidly increasing circulation has exceeded that of any other weekly on the coast.

Neither Politics or Creeds.

We refer with satisfaction to the independent, chaste and useful character of our reading matter and the absence from our columns of questionable and demoralizing advertisements.

We shall strive to make it an ever welcome visitor to those who desire to constantly

Improve the Heart and Mind,

And shall give a larger space to our HOME CIRCLE department, which from the first has been a popular feature of the RURAL.

Our aim is to gather information from all reliable sources, in the varied forms in which it is to be obtained. Our work is to divest our gleanings of all superfluities; condense such information as is of most importance to our special class of readers—give it to these in the plainest and fewest words possible,—saving *their time by our labor.*

Our Leading Departments

Will be continued under the following heads:

The Home Circle,	The Horse,
Young Folk's Column,	The Swine Yard,
Short Stories,	Sericulture,
House and Farm,	The Vegetable Garden,
Useful Information,	The Flower Garden,
Domestic Economy,	The Vineyard,
Good Health,	The Orchard,
The Dairy,	Tropical Fruits,
The Apiary,	Small Fruits,
Poultry Notes,	The Cereals,
Horned Stock,	Pasturage, etc.,
Sheep and Wool,	Fertilizers,
Goats,	Miscellaneous.

Practical Farmers

Know how important it is that the above subjects should be treated from a local standpoint—that generally the farming tactics of the East will not do for this coast, that agriculture, in its infancy here, can derive greater benefits from an exchange of experience through the columns of the press than in older fields. Constantly observing and studying developments in the special field we represent, we can be expected to give truer information on agricultural subjects, than more general writers at home or abroad.

Our Traveling Correspondents

Will do much service by gathering a large amount of interesting information from various parts of the Coast, which, but for their research and practiced observation might never be placed on record or reach the eye of the reading public. Of our many

Local Correspondents

We have particular reason to be proud. No paper on this Coast—old or new—has ever been so highly favored with volunteer contributions. They are talented, reliable, independent and generous representatives of an intelligent and enterprising people, noble types of good humor, unselfishness and true progress.

Short Stories,

Original and selected, will hereafter appear in each number. Their selection, we trust, will be such as to render them popular and unobjectionable to all. In addition to a large number of

Fine Engravings,

Representing Choice Stock, Farm Products, Scenery, Remarkable Productions, Improvements in Farming Implements and Machinery, Works of Art and the Beautiful in Nature, we shall from time to time present the modest

Faces of Prominent Farmers

Who, as pioneers in the development of agriculture on this Coast, or as active laborers in the "Farmers' Cause," are worthy of the distinction they enjoy, and the favor with which they are looked upon by our many readers at home and abroad.

Engravings (costing thousands of dollars originally) are inserted in our columns during a single year. They afford instant and perpetual impressions often more perfect and real than words can convey.

Patrons of Husbandry.

We shall continue to give our weekly summary of matters connected with the interest and progress of this growing and important movement. We shall aim to give information as fresh as possible in this department. Its readers are aware that the RURAL has been in the lead in calling farmers to organize. We shall continue to work zealously with the Granges for the noble objects of the Order.

The present is an

Important Period

In the history of our Coast. The coming 12 months promise greater developments in its agricultural progress than has been experienced in any previous year. Agriculturists are alive to improvements in every direction, and those who would keep up with the spirit of the times should certainly read the RURAL PRESS.

The S. F. Market Reports

Will receive greater attention in the department of DOMESTIC PRODUCE than that of any other weekly journal. We shall spare no pains to render the reports as reliable and complete as possible. By the employment of our special reporter we hope to make this very important part of our paper one of its best and most satisfactory features.

Kind Words and Acts

Have done much to build up in this isolated and sparsely settled coast so large and complete an agricultural journal as the PACIFIC RURAL PRESS. We commence the new year with a regular circulation of

Over 5,000 Copies,

A far greater issue than that of any weekly on this Coast, independent of a daily publication. If our friends will continue to "help us help ourselves," we hope to reach a circulation of 8,000 this year, and do a correspondingly greater service of good. While we have the greatest advantages and can make by far the best weekly for

Agriculturists on This Side of the Continent.

We cannot expect one-half so large a circulation as journals in older and more populous districts. Consequently readers cannot rightly expect such a paper here at Eastern rates.

No Premiums But a Good Paper

Do we offer. A flashy chromo (or cheap map), with an ill suited paper, will hardly satisfy the farmers of this Coast, whose time is too precious for trifling. To many of you the benefit of a reliable and valuable paper should reach a hundred fold its cost, while to all a poor journal would be dear at any price.

Sample Copies Furnished Free

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Agents are Wanted

Who will do more or less active canvassing. To such we will furnish free samples and pay liberally for their services.

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They have proved to be the most do able and economical Saws in the World.

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SWEEPING DREDGE,
A NEW AND VALUABLE
CALIFORNIA INVENTION,

Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a basis of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $24,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask nothing for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

Address, JOHN A. BALL,
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CITY
Brass and Bell Founder,

Corner Natoma and Fremont Streets,
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Brass, Zinc and Anti-Friction or Babbet Meta
CASTINGS,
Church and Steamboat Bells.
TAVERN AND LAND BELLS, GONGS.
FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

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Manufacturers of Quartz and Amalgamating Machinery, Hoisting Machinery, Saw and Grist Mill Irons, House Fronts, Car Wheels, and Castings of every description made to order.
Steam Engines constantly on hand for sale. 9v28-1y

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(Established in 1860.)

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To Mining Secretaries.

An amendment to Section 236 of the California Code, taking effect July 1st, 1874, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.
June, 1874.

Mining and Other Companies.

Eagle Quicksilver Mining Company.—Location of work, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—Is hereby given, that at a meeting of the Board of Trustees of said company, held on the 22d day of July, 1874, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 6, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessment shall remain unpaid on Monday, the 21st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Saturday, the 26th day of September, 1874, for sale at public auction, and unless payment shall be made before will be sold on Monday, the 28th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office, Rooms 5 and 6, No. 302 Montgomery street, San Francisco. jy-25

El Dorado North Mining Company—Location of principal place of business, 215 Sansome street, room No. 2, San Francisco. Location of works, Philadelphia District, Belmont, Nye County, Nevada.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 4th day of August, 1874, an assessment (No. 1) of fifty cents per share was levied upon the capital stock of the company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 215 Sansome street, room 2, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the 15th day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on sixth (6th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

GEO. E. HOUGHTON, Secretary.
Office—No. 215 Sansome street, San Francisco, Cal.

NOTE—Since levying the above assessment, the office of the El Dorado North Mining Company has been removed to room No. 4, Hayward's Building, No. 419 California street, San Francisco, Cal., and said assessment is made payable to the undersigned, who has been duly appointed Secretary of said Company. FRANK SWIFT, Sec'y.
ag15

Germania Mining Company—Location of principal place of business, San Francisco, State of California. Location of works, Tintic District, Juab County, Utah Territory.

Notice is hereby given that at a meeting of the Directors, held on the fifth (5th) day of August, 1874, an assessment (No. 2) of one dollar per share was levied upon the capital stock of the company, payable immediately, to the secretary, at the office of the Company, 408 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the twelfth (12th) day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the second (2d) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. TRIPP, Secretary.

Office—No. 408 California street, room 16, San Francisco, Cal. ag15

Kincaid Flat Mining Company—Principal place of business, San Francisco, California. Location of works, Sonora, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 15th day of August, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 217 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 2 st day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 12th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

R. H. CORNELL, Secretary.
Office, 217 Sansome street, (up stairs.) San Francisco, California. ag22

Manhattan Marble Company of California. Location of principal place of business, San Francisco, California. Location of works, Oakland, Alameda County, State of California.

Notice is hereby given, that at a meeting of the Directors, held on the 26th day of August, 1874, an assessment (No. 5) of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary of the company, at his office, No. 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 29th day of September, 1874, shall be deemed delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 20th day of October, 1874, at 12 o'clock M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. A. B. CLASON, Secretary.

Office—No. 212 Sansome street, San Francisco, California. ag29

Plumbago Gold Mining Company—Certificate of incorporation dated and filed in the office of the County Clerk of the City and County of San Francisco, California, June 24, 1864. No. 2340. Mine and works at Plumbago Ledge, Sierra County, Cal.

TO ALL WHOM IT MAY CONCERN TO KNOW: The representatives of two-thirds (⅔) of the capital stock and stockholders of said corporation, having made and filed with the Board of Trustees, on the 4th day of August, 1874, their written assent that the place of business of said corporation should be changed from the City and County of San Francisco, to Minnesota, in Forest Township, Sierra County, Cal.

Notice is hereby given, that it is the intention of said corporation to remove the principal place of business from the City and County of San Francisco, to Minnesota, in Forest Township, in Sierra County, immediately after publication of this notice for the period of thirty days from its first insertion in the MINING AND SCIENTIFIC PRESS, a newspaper printed and published in the City and County of San Francisco, Cal. Done by order of the Board of Trustees. S. B. DAVIDSON,
Secretary Pro. Tem.
August 4, 1874. 6v28-1m

Providence Gold and Silver Mining Company. Location of principal place of business, San Francisco, State of California. Location of works, Lassen county, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 10th day of July, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
E O Brown, Trustee	128	47	$4 70
E O Brown, Trustee	151	50	5 00
B C Whiting, Trustee	159	100	10 00
B C Whiting, Trustee	160	100	10 00
B C Whiting, Trustee	161	100	10 00
B C Whiting, Trustee	162	100	10 00
B C Whiting, Trustee	163	100	10 00
B C Whiting, Trustee	164	250	25 00
B C Whiting, Trustee	165	250	25 00
B C Whiting, Trustee	166	132	13 20
A D Hatch, Trustee	118	200	20 00
Jas McLaughlin, Trustee	87	500	50 00
Harvey S Brown, Trustee	189	57	5 70
F P Howard	146	14	1 40
Henry Raymond, Trustee	150	114	11 40
Henry Raymond, Trustee	177	1000	100 00
Henry Raymond, Trustee	178	500	50 00
Henry Raymond, Trustee	179	198	19 80
Henry Raymond, Trustee	180	255	25 50
J H Kingsley	181	28	2 80
Cornelius Cole	168	100	10 00
Cornelius Cole	169	100	10 00
Cornelius Cole	170	83	8 30
John B Spring, Trustee	157	1000	100 00
John B Spring, Trustee	158	1000	100 00
D W Frary	171	100	10 00
Jas McLaughlin, Trustee	103	1000	100 00
Jas McLaughlin, Trustee	104	500	50 00
Jas McLaughlin, Trustee	105	250	25 00
Jas McLaughlin, Trustee	106	250	25 00
Jas McLaughlin, Trustee	107	100	10 00
Jas McLaughlin, Trustee	108	100	10 00
Jas McLaughlin, Trustee	109	50	5 00
Jas McLaughlin, Trustee	110	50	5 00
Jas McLaughlin, Trustee	111	40	4 00
Jas McLaughlin, Trustee	112	87	8 70
Jas McLaughlin, Trustee	142	25	2 50
Jas McLaughlin, Trustee	143	25	2 50
Jas McLaughlin, Trustee	144	25	2 50
Jas McLaughlin, Trustee	145	38	3 80
M L Morrison	114	25	2 50
S A Stevens	121	13	1 30
W J Miller, Trustee	129	12	1 20
W J Miller, Trustee	130	500	50 00
W J Miller, Trustee	131	500	50 00
W J Miller, Trustee	132	500	50 00
W J Miller, Trustee	134	100	10 00
W J Miller, Trustee	135	100	10 00
W J Miller, Trustee	136	100	10 00
W J Miller, Trustee	141	100	10 00
Solomon Heydenfelt	188	566	56 60
W H Knight, Trustee	190	57	5 70
Henry Raymond, Trustee	191	14000	1400 00
James Mee, Trustee	192	1000	100 00
T E Marks, Trustee	113	142	14 20
A D Bell	147	14	1 40
I N Stark	116	28	2 80
M C Blake	117	209	20 90
S A Raymond, Trustee	120	1415	141 50

And in accordance with law, and an order of the Board of Directors, made on the 19th day of July, 1874, so many shares of each parcel of such stock as may be necessary, will be sold at public auction, at the office of Middleton & Son, Auctioneers, 310 Montgomery street, San Francisco, on Monday, the 7th day of September, 1874, at the hour of 2 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

WM. H. KNIGHT, Secretary.
Office—331 Montgomery street, Room 18, San Francisco, Cal.

POSTPONEMENT.—The above sale is hereby postponed until the fourteenth day of September, 1874, at the same hour and place. By order of the Board of Trustees. WM. H. KNIGHT, Secretary.
ag29-2t

Saw Pit Flat Gravel Mining Company Consolidated.—Location of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Pinmas County, Cal.

Notice is hereby given, that at a meeting of the Directors, held on the 15th day of August, 1874, an assessment (No. 1) of five dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the 21st day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Thursday, the 15th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. W. CLARK, Secretary.

Office, 418 California street, San Francisco, California. ag22

Tuolumne Hydraulic Mining Company. Principal place of business, City and County of San Francisco, State of California. Location of works, Tuolumne county, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 19th day of August, 1874, an assessment of twelve and one-half (12½) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, room 14, 302 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 2d day of September, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the twelfth (12th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. I. T. MILLIKEN, Secretary.

Office, 302 Montgomery st., San Francisco, Cal. ag22

Virginia Consolidated Mining Company. Principal place of business, San Francisco, State of California. Location of works, Kearsarge Mining District, Nevada County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 21st day of July, 1874, an assessment of seven cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 7th day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 30th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. T. B. WINGARD, Secretary.

Office, No. 318 California street, San Francisco, Cal. Room No. 13. ag5

Machine Builders.

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Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
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LEWIS R. MEAD.....Secretary
24v17-tf

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And all kinds of Mining Machinery.
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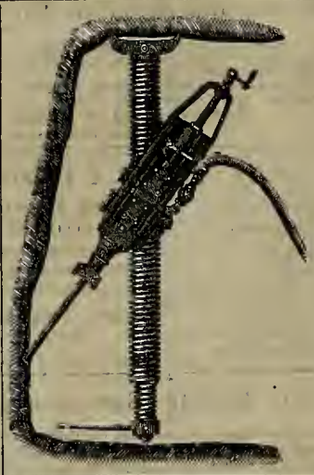

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10v28-6m

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DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	2½	3	3¾	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	5	6	6¾	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches	2	3	4	4½	5	5¾	7	8	9	10	10¾	12
Stroke of Pump, in inches	6	6	6	7	7	8	10	12	12	15	15	19
Capacity at ordinary Speed, per minute, in gallons	10	15	25	35	45	60	80	110	140	270	325	400
Maximum Capacity	45	60	100	135	180	240	320	440	560	675	900	1200
Boilers in horse power they will supply	25	40	80	120	150	225	350	425	600	...	...	...
Size of Steam Pipe, in inches	¾	¾	1	1¼	1¼	1¼	1¾	1¾	1¾	2	2	2¾
Size of Exhaust Pipe, in inches	1	1	1¼	1¼	1¼	1¼	2	2	2¾	3	3	3¾
Size of Suction Pipe, in inches	1	1¼	1¼	1¾	2	2	2¾	3	3	4	5	6
Size of Discharge Pipe, in inches	¾	1	1	1¼	1¼	1¼	2	2	2¾	3	3	4
Weight of Pump, in pounds	186	235	400	495	810	875	1180	1600	1612	2450	3875	4800
Length over all, in feet and inches	9-4	8-4	9-10	2-3	3-11	4-11	5-4	6-8	6-3	6-10	7-2	8
Height over all, in feet and inches	1-6	1-0	2-3	1-1	1-3	3-1	3-7	4-0	4-3	5-7	6-9	7-10
Width over all, in feet and inches	9	10	1-1	1-1	1-3	1-4	1-6	1-10	1-10	2-3	2-9	3-0
PRICE	$	$	$	$	$	$	$	$	$	$	$	$

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS. No. 4, 24-in. Stroke, $ ... No. 7, 30-in. Stroke, $
No. 5, 24-in. " " No. 8, 36-in. " $
No. 6, 30-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

Miners' Foundry and Machine Works,

CO-OPERATIVE,
First Street, bet. Howard and Folsom, San Francisco
Machinery and Castings of all kinds.

SHEET IRON PIPE.

THE
Risdon Iron and Locomotive Works
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Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.
Standard sizes of railroad Car Wheels, with special patterns for Mining Cars. These small wheels are made of the best Car Wheel Iron, properly chilled, and can be fitted up with the improved axle and box—introduced by this company, and guaranteed to outlast any other wheels made in this State.
☞ All kinds of Machinery made and repaired.
24v22-8m JOSEPH MOORE, Superintendent.

BLACK DIAMOND FILE WORKS.

TRADE MARK

G. & H. BARNETT,
Manufacturers of Files of every Description.
Nos. 39, 41 and 43 Richmond street,
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Sold by all the principal hardware stores on the Pacific Coast. 18v25.1y

California Assay Office—J. A. Mars &

Wm. Irelan, Jr., Chemists and Assayors, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

Machinery.

THE
AMERICAN TURBINE WATER WHEEL.

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.03; ½ 69.64; ¾ 78.78; ⅞ 82.58; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "These are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

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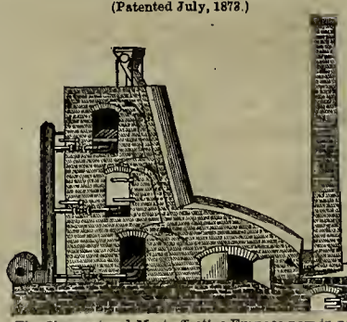
Sole Agents for the Pacific States and Territories. ap25-tf

EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1872.)



The Cheapest and Most effective Furnace now in use Parties desirous of building above furnace, or for any information on same, address,

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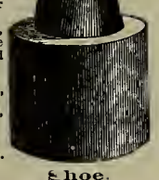
STEEL SHOES AND DIES
FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy.*

Die.



Shoe.

Will wear three times longer than any iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Rollers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.
All orders promptly filled.

MOREY & SPERRY,
88 Liberty street, N. Y.
Examination solicited. 9v28-1y

CROCKER'S PATENT
TRIP HAMMER QUARTZ BATTERY.

This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $500.

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THE SELDEN

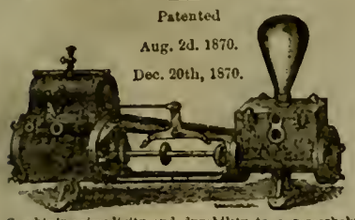
DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented

Aug. 2d. 1870.

Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

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Send for Price List and Circulars. Address,

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Water Wheel.
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BOILER MAKERS

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Heward st., between Fremont and Beale, San Francisco

THEODORE KALLENBERG.

MACHINIST,

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Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

STEAM ENGINES AND BOILERS

Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by

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MANUFACTURERS OF

HYDRAULIC PIPE

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Artesian Well Pipe.

Having the Latest Improved Machinery, we can make it an object to

Mining & Water Companies

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WATER WORK,

TO CONTRACT WITH US FOR

SHEET IRON PIPE.

ALL SIZES MADE AND ALL WORK GUARANTEED

OFFICE AT 112 BATTERY ST.,

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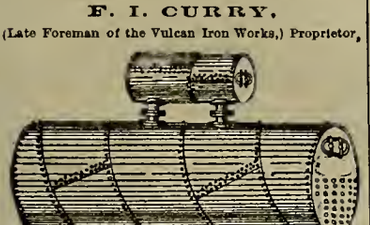
San Francisco Boiler Works,

123 and 125 Beale Street.....SAN FRANCISCO

F. I. CURRY,

(Late Foreman of the Vulcan Iron Works,) Proprietor,



High and Low Pressure Boilers of all Descriptions.

SOLE MANUFACTURERS OF THE CELEBRATED

SPIRAL BOILER.

SHEET IRON WORK of every description done at the Shortest Notice.

All kinds of JOBBING and REPAIRING promptly attended to. 17v25-3m

Glasgow Iron and Metal Importing Co.

Have always on hand a large Stock of Bar and Bundle Iron, Sheet and Plate Iron Boiler Flues, Gas and Water Pipe, Cast Steel, Plow and Shear Steel, Anvils, Cumberland Coal, Etc.

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Metallurgy and Ores.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

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Chemical Apparatus and Chemicals,

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Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

7v25-tf JOHN TAYLOR & CO.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverising and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the perticles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco

Nevada Metallurgical Works,

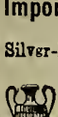
21 First street.....San Francisco.

Ores worked by any process.
Ores sampled.
Asseying in all its brauches.
Analysis of Ores, Minerals, Waters, etc.
Plans furnished for the most suitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

E. N. RIOTTE,
C. A. LUCKHARDT,
Mining Engineers and Metallurgists.

Important to Miners and Mill Men.

Silver-Plated Copper Amalgamating Plates, for Saving Gold.



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SAN FRANCISCO GOLD AND SILVER PLATING WORKS, 655 Mission street, San Francisco.

2v25-3m E. G. DENNISTON, Proprietor.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgic CHEMIST,

No. 611 Commercial Street.

(Opposite the U.S. Branch Mint

SAN FRANCISCO CAL. 7v21-3m

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc

For all Laboratory and Manufacturing Purposes

H. M RAYNOR,

25 Boud street, New York.

Platinum Scrap and Native Platinum purchased.

CHARLES F. KIRCHNER,

Sampler and Crusher of Ores,

NO. 11 DRUMM STREET,

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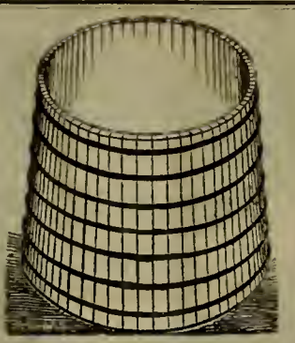
O. W. STRONG. W. L. STRONG.

STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.



WATER TANKS of any capacity, made entirely by machinery. Material the best in use; construction not excelled. Attention, dispatch, satisfaction. Cost less than elsewhere.

WELLS, RUSSELL & CO.,

Mechanics' Mills, Cor. Mission & Fremont Streets.

3v28-3m-sa

ARE YOU GOING TO PAINT?

THEN USE THE BEST.

THE AVERILL CHEMICAL PAINT

WILL LAST THREE TIMES AS LONG as the best lead and oil, without CHALKING; is of any desired color. It is prepared for immediate application, requiring no Oil, Thinner or Drier, and does not epoil by standing any length of time. It is equally as good for inside as outside work; over old work as well as new; in fact, where any paint can be used the AVERILL CHEMICAL PAINT will be found superior to any other. Any one can apply it who can use a brush, which truly makes it the FARMER'S FRIEND.

IT IS JUST THE PAINT FOR THE AGE.

IT IS SOLD BY THE GALLON ONLY.

One gallon covers 20 square yards 2 coats.

For further information send for sample card and price list.

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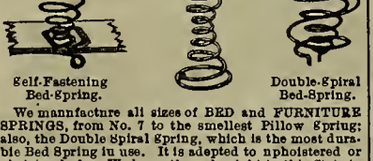
The California Chemical Paint Company.

TYLER BEACH, Pres't. M. C. JEWELL, Sec'y.

Office—Corner Fourth and Townsend streets, San Francisco. 16v7-eow-bp-3m



Self-Fastening Bed-Spring. Double-Spiral Bed-Spring.

We manufacture all sizes of BED and FURNITURE SPRINGS, from No. 7 to the smallest Pillow Spring; also, the Double Spiral Spring, which is the most durable Bed Spring in use. It is adapted to upholstered or skeleton beds. We have the sole right in this State to make the celebrated Obermann Self-Fastening Bed Spring. Any man can make his own spring bed with them. They are particularly adapted to Farmers' and Miners' use. Send for Circulars and Price List to

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Pioneer Screen Works,

John W. Quick, Manufacturer,

203 FREMONT ST., (near Howard) SAN FRANCISCO.

Screen Punching of all kinds and qualities for

QUARTZ AND FLOUR MILLS,

AT EASTERN RATES.

I would call special attention to my slot cut and punched screens, which re attracting much attention and giving universal satisfaction. I was the first manufacturer who introduced these Screens to the Millmen on this Coast. This is the only establishment on the Coast devoted entirely to the manufacture of Screens.

Mill Owners using battery Screens extensively can contract for large supplies at favorable rates.

☞ Orders solicited and promptly attended to.

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Diamond Drill Co.

The undersigned, owners of LESCHOT'S PATENT for DIAMOND POINTED DRILLS, now brought to the highest state of perfection, are prepared to fill orders for the IMPROVED PROSPECTING and TUNNELING DRILLS, with or without power, at short notice, and at reduced prices. Abundant testimony furnished of the great economy and successful working of numerous machines in operation in the quartz and gravel mines on this coast. Circulars forwarded, and full information given upon application.

A. J. SEVERANCE & CO.

Office, No. 315 California street, Rooms 15 and 17.

24v26-tf

California Machine Works,

119 BEALE STREET, SAN FRANCISCO.

BIRCH, ARGALL & CO.,

Builders of QUARTZ, SAW AND FLOUR MILLS

Keating's Sack Printing Presses,

THE ECONOMY HYDRAULIC HOIST FOR STONES,

And General Machinists. 25v28-3m

PURCHASERS please say advertised in Scientific Press.

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Anglo-Californian Bank.

LIMITED.

Successors to J. Seligman & Co.

London Office.....No. 3 Angel Court.

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Authorized Capital Stock, $6,000,000,

Subscribed, $3,000,000. Paid in, $1,500,000. Remainder subject to call.

DIRECTORS IN LONDON—Hon. Hugh McCulloch, Reuben D. Sassoon, William F. Schonfield, Isaac Seligman, Julius Bington.

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The Bank is now prepared to open accounts, receive deposits, make collections, buy and sell Exchange, and issue Letters of Credit available throughout the world, and to loan money on proper securities. 2v27-eowbp

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

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KOUNTZE BROTHERS, BANKERS,

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Allow interest at the rate of Four per cent. upon daily balances of Gold and Currency.

Receive consignments of Gold, Silver and Lead Bullion, and make Cash advances thereon.

Invite Correspondence from Bankers, Mining Companies, Merchants and Smelting Works.

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French Savings and Loan Society,

411 Bush street, above Kearny.....SAN FRANCISCO

4v27tf G. MAHE, Director.

Froiseth's New Sectional, Topographical and Mineral MAP OF UTAH.

SIZE, 40 BY 56 INCHES; SCALE, 8 MILES TO AN INCH.

Handsomely engraved on stone, colored in counties, and mounted on cloth, showing the Counties, Towns, Rivers, Lakes, Railroads, Mines and Mining Districts throughout the Territory, and all GOVERNMENT SURVEYS made to date. Price, mounted, $8: Pocket form, $5.

—ALSO—

New Mining Map of Utah,

Showing the bounderies of the principal mining districts, some 30 in number, adjacent to Salt Lake City. Price, pocket form, $2.50.

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Froiseth's New Map of Little Cottonwood Mining District and Vicinity,

Showing the location of some 400 mines and tunnel sites, together with the mines surveyed for U. S. Patent. Price $3. For sale and mailed to any part of the globe, on receipt of price, by A. L. BANCROFT & CO., A. ROMAN & CO., and LECOUNT BROS. & MANSUR, San Francisco. 10v25-tf

The Phelps' Manufacturing Co.,

(Late S. F. Screw Bolt Works.)

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13, 15 and 17 Drumm Street, San Francisco. 4v24ly

FRENCH MUTUAL PROVIDENT SAVINGS AND LOAN SOCIETY.

TWENTY-NINTH SEMI-ANNUAL DIVIDEND.—A dividend of nine per cent. per annum, net (9 per cent.), upon the operations of the French Savings and Loan Society for the six months ending June 30th, 1874, has, in conformity with the report of the Committee of Verification appointed by the members of the Society, been declared by the Board of Administration, at the semi-annual meeting held on the 15th instant. This dividend will be payable on and after the 17th instant, at the office of the Society, 411 Bush street. GUSTAVE MAHE,

ag16-4t Director of French Savings Bank.

San Francisco Cordage Company.

Established 1856.

We have just added a large amount of new machinery of the latest and most improved kind, and are again prepared to fill orders for Rope of any special lengths and sizes. Constantly on hand a large stock of Manila Rope, all sizes: Tarred Manila Rope; Hay Rope; Whale Line, etc., etc.

TUBBS & CO.,

de20 611 and 613 Front street, San Francisco.

NONPAREIL OIL.

140 Degree Fire Test, for Family Use.

OWNERS OF MILLS AND MANUFACTORIES, your attention is particularly called to this beautiful and safe ILLUMINATING OIL. Its use is urgently recommended by the New York Fire Commissioners and Insurance Companies. For sale to the trade in lots to suit. A. HAYWARD, 224 California St.

19v28-3m

Buy Real Estate while at Low Rates.

NINE WATER-FRONT LOTS, CHEAP,

On Gift Map 4,

Forming about half of a block fronting on the broad ship channel of Islais Creek; will be sold so low as to make it an inducement to the buyer. Inquire for the owner, Room ——, No. 224 Sansome st., S. F. bptf

THE KNOX & OSBORN QUICKSILVER FURNACE.

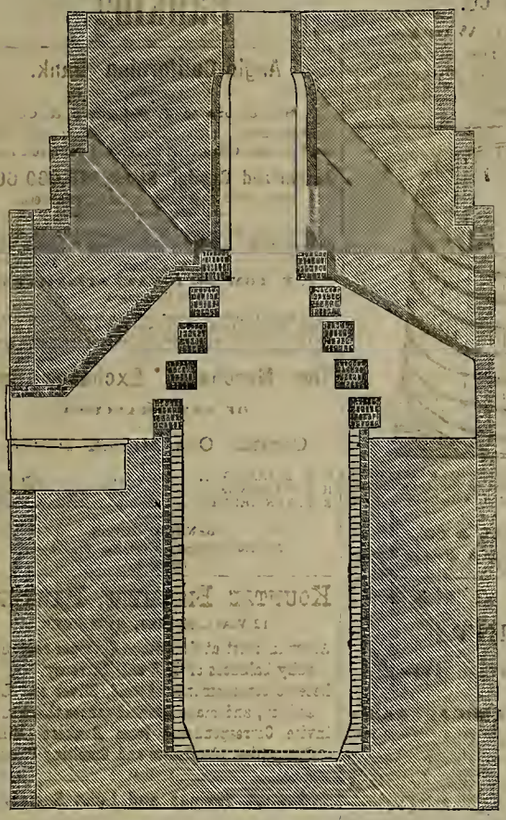


Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches. 16v28-eow-3m-16p

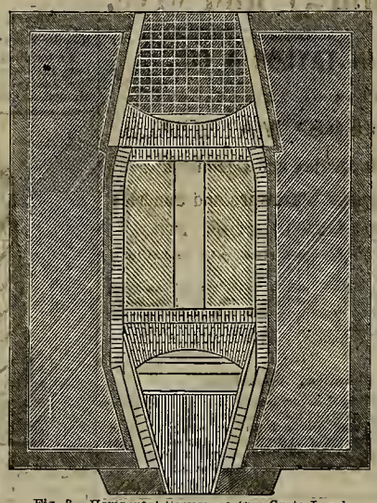


Fig. 3.—Horizontal Section at Fire-Grate Level.

THIS FURNACE REDUCES CINNABAR, AND

WORKS CLOSER TO AN ASSAY

And at LESS COST per ton than any other furnace. It will work continuously Twelve to Twenty-four months without stopping.

No Man Has Ever Been Salivated

Or otherwise affected by the mercury about the furnace, either in operating it or making repairs. For full particulars, plans, etc., apply at

19 AND 21 FIRST STREET, SAN FRANCISCO,

TO KNOX & OSBORN.

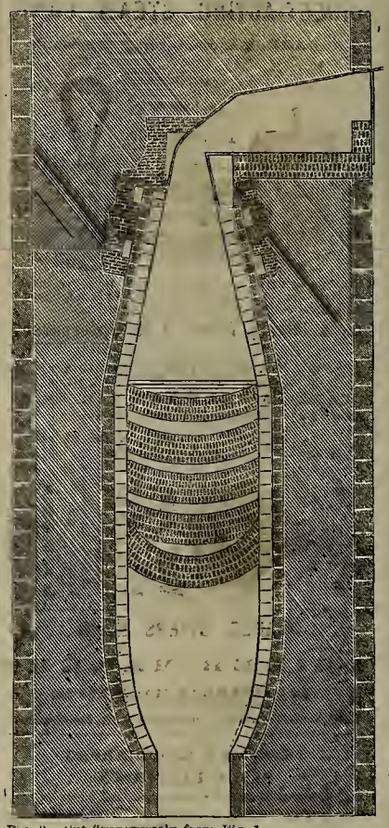
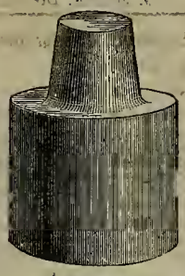


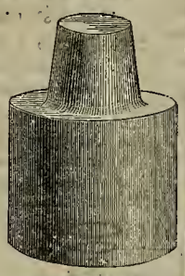
Fig. 2.—Cut Transversely from Fig. 1.

CAST STEEL SHOE & DIE CO.,

Room 1, Academy Building,

SAN FRANCISCO.

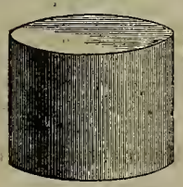


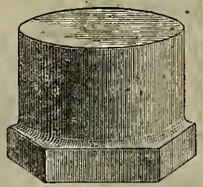


Cast Steel Shoes & Dies for Quartz Mills.

[PATENTED MAY 26TH, 1874.]

An improvement greatly needed, being stronger, more durable and economical than iron.





We guarantee the STEEL SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent cheaper. Price, 20 cents per pound, shipped from San Francisco. It takes 40 days to fill orders from the manufactory East.

Address all orders, with dimensions, to

CAST STEEL SHOE & DIE CO.,

Room 1, Academy Building, San Francisco.

1v29-3m

GIANT POWDER.

Patented May 26, 1868.

THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,

For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.

GIANT POWDER, NO. 2,

For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.

☞ The only Blasting Powder used in Europe and the Eastern States.

BANDMANN, NIELSEN & CO.,

v22-3m16p General Agents, No. 210 Front Street.

Cazin's Combination Ore-Sizer and Concentrator—One Plunger System.

[Covered by Letters Patent of July 2d, 1872, and recent applications.]

Containing a sizing apparatus, (revolving screen) delivering four sizes of ore to four rows of sieves, each row independent of the other, and each having 5 sieves, each row concentrating according to specific gravity the special size automatically fed unto it, resulting in the simultaneous continual delivery of separated materials, working 2d and 3d-class ores into 1st-class ores of perfect cleanness. It thoroughly separates native gold or copper from quartz or any other lode matter;—galena and silver sulphurets from pyrites, haryta and quartz; and pyrites from quartz.

Added to a battery of stamps this machine constitutes a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 12 or 15 tons per 24 hours.

For particulars apply to,

F. CAZIN, M. & C. E.

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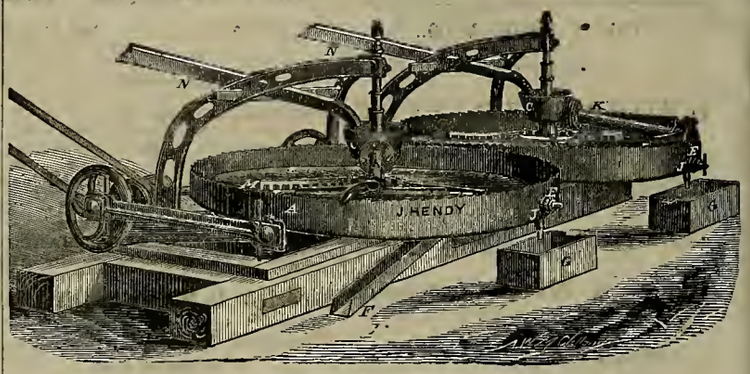

Can be seen at the Manufactory, No. 32 Fremont Street, San Francisco.

SAN FRANCISCO, April 27, 1874.

JOSHUA HENDY, Esq.—*Dear Sir:*—As a practical miner and millman, I take pleasure in recommending the use of your Concentrators in all mills where gold or silver ores are reduced. No mills should be without them, for the following reasons:

1st. They are good sizers (no perfect concentration in pulverized ores can be effected without first sizing).

2d. The best Concentrator I have ever known—(the concentrated stuff only containing 5 per cent. of sand).

3d. They are good amalgamators, light (feathery) particles of amalgam and particles of coated gold by attrition are brightened, and from their specific gravity and the action of the pan, fall to the bottom and adhere.

4th. They require but little power and attention to run them, and with ordinary care will last for years.

I have been familiar with the workings of your Concentrators for four years past; have run them myself in the North Star Mine, Grass Valley; am familiar with their practical workings on the Empire Mine, Grass Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this testimonial. For further information you are at liberty to refer to,

Yours respectfully,

JAS. H. CROSSMAN, M. E.

409 California street, or Cosmopolitan Hotel.

SAN FRANCISCO, February 10, 1874.

OFFICE SUPERINTENDENT OF KEYSTONE CON. M. CO., AMADOR, AMADOR COUNTY.

MR. J. HENDY—*Dear Sir:*—In answer to your inquiries as to your Concentrators furnished our company last July, I would say that I am more than pleased with them; and the saving to the company has been over $3,500 per month more than with the blankets and buddles formerly in use.

O. C. HEWITT, Supt.

OFFICE SUMNER MINE, KERNVILLE, April 27, 1874.

J. HENDY, Esq.—*Dear Sir:* Having four of your Concentrators in use at our Mills for four or five months, which for saving Amalgam and for concentrating Sulphurets, are a success, beyond a doubt, I feel it a duty due you and those interested in Quartz Mills, to recommend them.

As further evidence of their worth, I now order TWELVE more of your Machines for our new Mill, now in course of erection.

E. R. BURKE, Superintendent.

For description send for Circular.

JOSHUA HENDY, San Francisco.

Office and Works, 32 Fremont street. 9v28-1m-tf

THE PACIFIC REDUCTION WORKS.

GUIDO KUSTEL - - - Superintendent.

WILL PURCHASE GOLD AND SILVER BEARING ORES, CUPERIFEROUS SILVER ORES, GOLD SULHHURETS, ETC., AT THE HIGHEST RATES, OR WORK THE SAME FOR ACCOUNT OF OWNERS.

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MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, SEPTEMBER 5, 1874.

VOLUME XXIX Number 10.

Machinery for Generating and Applying Power.

In continuing our general review of the Fair, we naturally pass from Raw Products to the means by which such products are modified and made more useful for man than it is possible for them to be while in their natural condition. To accomplish this work, *power* is required. The sources of power available to the wants of man are—animal exertion, wind-power, water-power and the motive power of heat. The machines and engines by which these powers are made available will form the subject of our present article.

Although, by common consent, we enumerate *four* sources of power which may be adapted to the uses of commerce and manufacture, there are in fact but two—heat and animal exertion; for both wind and water-power, as well as steam, are due to heat, which, in the first case, produces local expansion of the air, which causes wind; and in the second effects vaporization, which replenishes our falls of water—just as in the third but under different circumstances, it provides the engineer with steam.

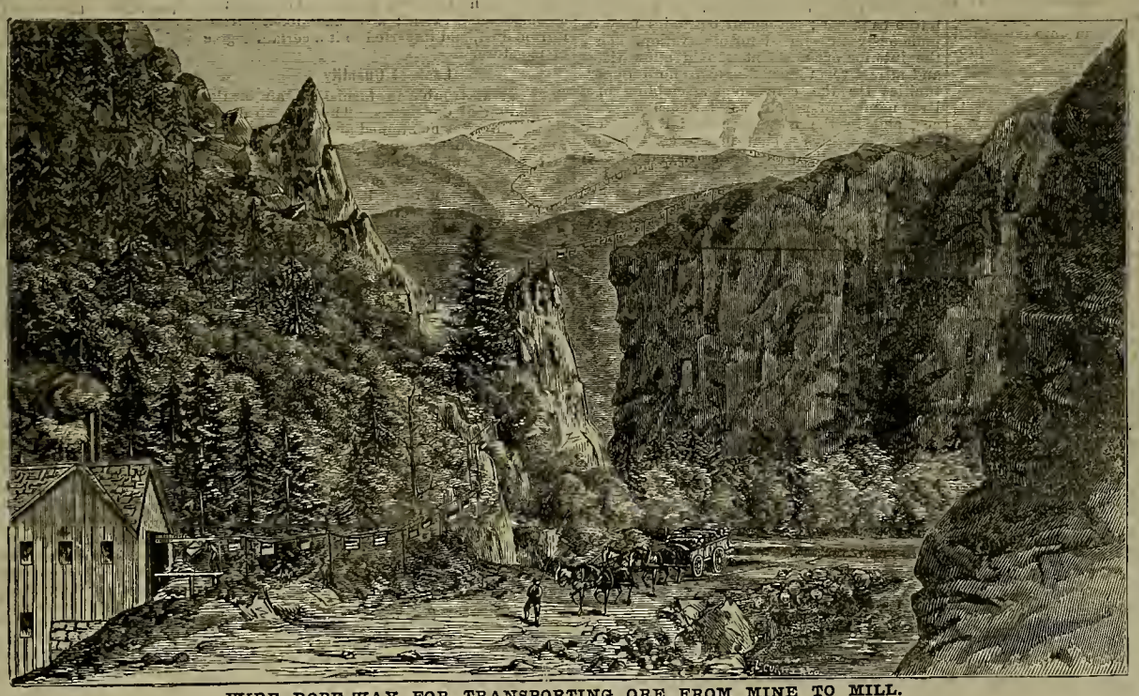
The Steam Engine,

As the recipient and disburser of the power of heat, and the means most generally in use for the application of power, demands our attention as the most important prime mover. It is also more perfectly exemplified in this Exhibition than any other of this class of machines. We have here two first-class engines, probably as perfect in their make, for service, as any which can be found. We have also several smaller ones, of various powers and forms of construction, calculated for the different kinds of work to which this universal power-dispenser is applied.

The history of the steam engine, from the early and rude contrivances by which the employment of steam was first made practicable, down through the great variety of forms through which it has passed, in the course of the infinite variety of purposes to which it has been applied, forms the most interesting chapter in the whole history of the world's progress in industry and art; but we have no time nor space here to dwell upon it. Our business now is with the present and practical.

The economy of the engine depends upon the cost of the generation of steam, and that, in turn, depends mainly upon the construction and mechanical arrangement of the boilers where it is generated. Different kinds of fuel require different modes of construction for the furnace. A ready, full and perfect combustion of the fuel, even to the smoke and volatile gases, is an essential requisite to an economical employment of steam power; and there has been almost as much study expended to secure the proper construction of furnaces and boilers as has been devoted to the improvement of the engine.

Go with us to the little unpretentious shed just outside the north door which opens out from the machinery department, and let us examine the source of that quiet yet giant power which puts in motion all the scores of machines, large and small, which go to make up the sum of the machinery which is now or may yet be put in operation in that department of the Exhibition. A few shovelsful of coal and an armful or two from that pile of carpenter's chips, now and then thrown into the open doors of that glowing furnace, generate heat which is taken up by the water in that huge boiler and conveyed thence, in the form of steam, through that great arterial pipe which you see running from the boiler into the Pavilion; where, branching off in various directions, it furnishes the motive power, not only for the two large engines which drive the main line of shafting, and the huge rock-drilling machine which stands by its side, but also for numerous smaller engines located in different parts of the building, even as far as to the threshing machine which stands near the Market street entrance. That heap of carpenter's rubbish and those few shovelsful of fine coal, which your cook would reject as worthless, are thus converted, as if by magic, into a power which has printed the paper which you are reading, and which will saw your wood, grind your wheat, weave your cloth, sew your garments, plane your boards, plow your soil, and in fact do almost anything which man can perform, except to think or talk. All this is accomplished by steam which has been produced by the combustion of the heaps of rubbish which a few moments since you saw in front of the boiler furnace. But our introductory remarks have extended to a greater length than we had intended, and we must defer any particular examination of the engines until the next issue.



WIRE ROPE-WAY FOR TRANSPORTING ORE FROM MINE TO MILL.

Chromatee.—A party of Vallejoites are about to organize a company, with a capital of 500,000, for the purpose of manufacturing chromates. They have already secured an immense amount of chrome iron, from which to manufacture the various salts of chromium that are demanded by the market. The projectors of the enterprise have made arrangements to have a superintendent and a force of workmen sent out from the factories in Glasgow, Scotland. They have plenty of material to work on, but it remains to be seen whether they can break up the powerful monopoly already in the business.

The silver excitement at St. Helena is on the increase. Parties, principally from Calistoga, were out all of Tuesday night and the night before, making locations.

A well defined and rich ledge of silver ore has been discovered in Pope valley, about 20 miles northeast of Vallejo.

Shasta County Mines.—Mr. R. F. Hallock, of Shasta county, speaks very encouragingly of the quartz prospects in his county at present. The Washington mine, at French Gulch, will commence operations again shortly. They have a 15-stamp mill with pans and machinery complete. Mr. Lewin, the superintendent, says he has taken, altogether, almost three-quarters of a million from the mine. They have some 1,500 tons of sulphurets, the lowest assay of which gives $66.14 per ton. About 40 tons of concentrated sulphurets assay $200 per ton. Several mines at Whisky-town are working with arrastras. One of them has been working this way on $20-rock for a year. There is some little excitement in the county, at present, about prospecting for coal. There have been several late discoveries of argentiferous galena. Mr. Hallock showed us assay certificates of ore from the New World mine, in Cow Creek district, six miles north of the Peck mine, which mine is now being opened. Some of the ore contained $28.46 in silver, and 52½ per cent. lead.

San Juan.—Some one who appears to write as if he was posted, says of Animas district, San Juan: There are but very few of the mines that have been developed sufficiently to profit their owners: but there are hundreds on which the annual assessment, as it is called, has been worked out. The chief occupation of the miners thus far this season has been in working out these legal assessments, and only until quite recently have they been able to get reliable assays. Some of the assays reported from there would astonish even a Utah miner sharp, leading the uninitiated to suppose that the ore was about 75 per cent. silver, etc. The correspondent alluded to above is very sanguine, and says: In every instance which has come to my knowledge the ores are improving as the miners go down on their veins. Even a slight excavation in some instances gives surprising results.

The largest bridge necessary to be built on the San Luis Obispo railroad is now completed. It is 50 feet high and 1,000 feet long, and capable of bearing, with safety, a 40-ton engine.

Work was recommenced at the coal mines of the Pancake company on Monday last. The shaft at present is at the depth of 317 feet, and is now in three feet of good coal.

Endless Wire Rope-way.

At the upper end of the Mechanics' Fair pavilion is placed one of Hallidie's patent wire rope-ways for transporting ores from the mine to the mill. We have before described this apparatus in detail, and give this week an illustration showing the general arrangement of the rope-way, where it is erected in a mountainous country. Some improvements have recently been made in the buckets, etc. The buckets are now arranged so that the bottom is opened by suitable contrivances at the dumps by the mill, and on the load being discharged it closes automatically. Several of these ropeways are now in use on this coast and are giving satisfaction.

One can readily see the many advantages this method possesses in mountainous regions, from the fact that it requires neither expensive machinery nor roads; that it can be run at all seasons of the year, even when there is a great depth of snow on the ground; that it can be cheaply constructed in the worst possible country; and that where there is sufficient grade not only does it run itself by gravitation, but produces a motive power at both ends of the line. Running at 200 feet per minute, the cars are carried down on one side of the posts and up the other, 240 per hour, each delivering 100 pounds of ore or 12 tons per hour, and they can be run day and night continuously. The total cost of laying down the endless way is from $6,000 to $12,000 per mile, and the cost of carrying the ore is about 12 cents per ton per mile.

No Quicksilver in Nevada.—The Virginia *Enterprise* is surprised that they have found no quicksilver yet in Nevada. It says: While the people of many sections of California are running crazy over quicksilver mines, the only way in which our people are slopping over from their legitimate business of silver mining is in the direction of stone coal; and even on this they are not very wild. We of Nevada have, on a few occasions, tried to become excited about quicksilver, but we never could find anything to serve as a starter. Lumps of red jasper are sometimes brought to our assayers by prospectors, who are almost ready to think that they have got hold of the world in the right place; but no genuine cinnabar has yet been found in the State. This is rather strange, as we have a little of almost every other metal and mineral.

Extensive preparations are now being made at the Pinto mill, which has lately passed into the hands of the British mining company. The machinery is being put in thorough repair, and wood and coal are delivered in large quantities. A large amount of ore is also being brought to the mill from the mines in Newark and other districts.

Several nuggets, averaging in value from $1.50 to $14, have been found at the newly discovered gold mines on Dry Gulch, near Connor Creek, Oregon.

The experiment of making paper barrels is being tried at the Vallejo barrel factory.

Raw Produots at the Mechanics' Fair.

The Managers of the Ninth Industrial Fair have very properly placed raw products first in their list of classification. A knowledge of raw products sbould always be the first considera- tior with every reading and thiuking person, since it is an essential prerequisite for the at- tainment of every material good. Every pur- suit, whether for the necessity, convenience or luxnry of man, has its beginning and end in the procurement and workiug or modification of raw products. Raw materials are usually found in particular localities, and generally iu great abundance, and at small expense of labor or skill. It is their adaptation to the wants and conveniences of man that calls out ingen- uity and demands skilled labor, and it is this which brings honor, and power, and wealth to a nation. Still, he who provides the raw ma- terial is just as essential, in the great hive of industry, as he whose more defty handiwork fits it to our needs.

The position of California, with its great commercial center at the gate of the Pacific ocean, is a most important and anomalous one in the industry of the world, whether in the original field of raw products, or in the more advanced one devoted to their multifarious modifications. First brought prominently be- fore the world by the extraordinary richness of her mountains in mines of gold and silver, she has since reached an equal prominence by the wonderful adaptability of her valley soils to the production of the golden grain, aud other fruits of the earth, which go to feed aud nour- ish man and beast. The raw products of Califor- nia, both miaeral and agricultural, are each in their way effectiug giant strides in the advance- ment and extension, not only of our own coun- try, but of the world at large. Cousidering the importance of this class of products, and the abundance with which nature is handiug them out with the least possible amount of toil, it is much to be regretted that so little attention has been paid to introducing them into the grand industrial display now in such successful pro- gress in our midst.

Mineral Products.

First in the order of arrangement under this head are placed minerals, including ores, rocks, earths, salts, coals, petroleum, unwrought met- als, etc. Mr. H. G. Hank's display of min- erals is the only thing worthy of especial men- tion in this direction, and this is really fine— indeed, it is a prominent feature in the Pavil- ion, and has been set up at great expense and in the very best style and taste. It is a very complete and methodical cabinets, embracing not only the ordinary minerals found in first- class cabinets, but a wide range of those more rare and curious, embracing a large num- ber of valuable specimens of gold and silver. It is just the collection needed by such an institution as the Academy of Sciences, or the State University, and just such an one as every person should have access to in order to be- come in auy degree familiarized with the sub- ject of mineralogy. It is the result of many years of labor and the most careful attention of the best practical mineralogist on the Pacific coast. The exhibition is a credit both to the owner and the Institute.

Aside from this, however, snd a very credi- ble exhibition of salt, by the Carmen Island salt works, and a show of coal in bulk, from the Renton Coal Co., located at Seattle, Washiagton Territory, we find nothiog in the mineral line except the sample exhibits of the enterprising proprietors of the San Francisco *Journal of Commerce*, who have done what they could to keep up the reputation of the State by displaying, in samples, chrome iron ore from Del Norte county, pig iron of various qualities from Oregon, mangaaese from Red Rock, etc.

Vegetable Products.

In regard to vegetable products, which are even more abundant and, with the exception of iron and coal, far more important than mioer- als, we find a very small display. Had it not been for the publishers of the *Journal of Com- merce* this great industry would have been almost entirely ignored. These gentlemen finding, just as the exhibition was about to open, that no space had been taken for vegeta- ble products, outside of the horticultural de- partment, hastily gathered together samples of cereal and other products with which they are enabled to make a very creditable exhibition. They have in their collection about 50 varieties of wheat; 20 of oats; 14 of barley: several of corn, beans, peas, etc. There are shown sam- ples of different grades of cereals from Cali- fornia, Oregon, Australia and the Mississippi valley, placed in contrast with cereals from the various parts of Europe. Not less than 100 samples are shown from the great wheat centers of Southeru Russia, Huagary, etc.

Flour of various brands is also shown, and samples of dried fruits, hops, etc. The latter exhibit is quite interesting, as showing the in- creased vigor of growth manifested by the hop plant iu this State over auything met with else- where. Experts tell us that a similar superi- ority is observable in the intrinsic value of the hop, for all the uses to which it is applied.

Mr. Horace D. Dunn makes a fine show of woods from Japan, which were forwarded by the last steamer, with a view of bringing them to the attention of cabinet makers, carriage makers, etc. These woods can be laid down here muoh oheaper than they can be obtained from the Eastern States. They consist of thirty va- rieties; are from the Island of Yezo, of which Hakodadi is the port of entry.

Mr. Henry F. Stivers makes a very fine sam- ple show of California woods iu the western galleries.

The only show of raw fibers consists of a fine display of California wool, California cotton shown in contrast with that from the Marquesas Islands, exhibited by the JOURNAL OF COMMERCE; and a small lot of jute, showu by the S. F. Cordage Company, and another by the Pacific Jute Manufacturing Company, of Oakland.

The horticultural exhibit will be noticed in another connection.

The Centennial Buildings.

The following facts concerning the forth- coming Centennial Exhibition are of special interest to those visiting our own Industrial Exhibition.

The estimates vary from $2,871,500 for the temporary industrial palace aloue, built en- tirely of combustible materials, and without any permanent memorial hall, up to $10,050,- 000, which includes a permauent memorial hall, built of iron aud brick, with heating ap- paratus, organ, etc., complete. The Building Committee is of the opinion that it is best to have separate buildings for the Exhibition, and recommends the erection of the following structures: The Art Gallery, covering one and a half acres; the Grand Pavilion or main hall, covering thirty-six acres; the machinery hall, covering ten acres; the agricultural hall, cover- ing five acres; the conservatory and, from time to time, smaller buildings as they are needed. The committee reports that the Graud Pavilion, which is a temporary construction, must cover a minimum of thirty acres of ground, and be capable of extension, if required, as the work progresses. That it must he rectangular in plan and without curved corridors, and that no galleries must be constructed for exhibition purposes proper; but small balconies may be judiciously introduced for observation. That the interior arrangement should allow vistas and attractive promenades, and sfford oppor- tunities for the convenient assembling of a large number of people, as at Sydenham Pal- ace, and in the most successful English ex- hibition buildings. That in the construction the reduplication of parts should be an essential feature; that iron and brick should be the principal parts of the structure, in order to afford a reasonable protection against fire.

The plan of the mammoth building is rec- tangular, being 2,040 feet long by 680 feet wide, with greater width at the center and eads up to 952 feet. The governing dimension on the plan is a square or pavilion measuring 136 feet on each side. The main parallelogram forming the building is therefore fifteen of these pavilions long, and five pavilions wide, an area equal to 31.84 acres.

These particulars will give a faiat idea of the vastness of the magnficent structures. The Mechanics' Pavilion here, in San Francisco, covers but four and a half acres, aud yet we look upon it as something colossal. It would barely stop a hole in the big Centennial shanty.

THE CORNUCOPIA DISTRICT MINES.—A. D. Meacham, of Cornucopia district, arrived here this morning. He speaks very encouragiugly of the miues in this district. He has great faith in them, and he comes here for the pur- pose of making arrangements for a mill. He desires a mill of ten stamps, for which a spring in the immediate vicinity of the mines will af- ford an ample supply of water. Wood is about sixteeu miles distaut, aud will cost about $13 per cord. The principal miues in the place are the Leopard, Black Diamond, Chloride, Carrie, Morning Stsr and Constitution. The Chloride, Black Diamond, Leopard and Con- stitution companies are at present hauling ores to Winnemucca for reduction. The ores pay as follows at the Winnemucca mills: Chloride, $600 and over per ton; Black Diamond, $526; Leopard, $317; Constitution, $193. There are now on the dumps of the several miues named about 1,500 tons of ore, with more than as much more in sight. The Carrie company have as yet had no ore reduced. Their assays run from $80 to $100, thongh they have of late had ore assaying over $300 per ton. The pop- ulation of the town of Cornucopia is about 100, 75 of whom are voters. There are but three women in the town. One of these is Mrs. Carl York, who formerly resided in this city. Mr. Meacham is of the opinion that the population of the place would be donbled or trebled by the erection of a mill.—*Virginia Enterprise.*

NON-POISONOUS FLY PAPER.—Pnt one pound quassia wood in five pounds water, and let it stand over night in a warm place. The decoc- tion is then boiled down to about two pounds. The wood is afterward put in two pounds fresh water, and boiled down to one pound. The two decoctions are mixed, one-half to three- fourthe pound of sugar added, and paper passed through it, drained and hung on lines to dry. Ordinary unsized blotting paper is usually employed, and may have something printed upon it before saturation with the quas- sia solution.—*Jour. of Chem.*

A LAW iu Austria prohibits apothecaries from the manufacture of artificial mineral waters, and forbids to name any artificial product after any spring iu imitation of which it may have been made.

Ventilating and Cooling Mines.

A great number of machiaes of varions kinds have been invented for cooliag mines, and at the same time cooliag and purifying the air used. Even in surface ventilation—that is, the ventiiation of large and crowded buildings—it has been thought worth while to cool the air used. Thus we learn that about a ton of ice is used every night to cool the air that is pnmped into the English House of Commons. The air is forced through water and ice; and, being fil- tered, is freed of dust, and rendered perfectly pure. In a number of papers we have of late observed a laudatory account of a piston ma- chine,

A Sort of Wooden Churn,

For the ventilation and cooling of hot aud deep mines, which it is thought should effectually do the required work and at once settle the whole question of ventilating and cooliug the lower levels of even the deepest of our mines. This apparatus, as described, is simply au elongated box, inside of which a large piston works, tak- ing in and forcing out air at both its up and down strokes. The bottom of the box is filled with water; the air on entering circulates abont the water and is moved dowu on it in snch a way as to cool the air before it passes ont into the mine. The box is of wood, as is the piston, and no lubrication is reqnired. The smallest machine, it is said, delivers with a six-foot stroke 3,732,480 cnbic inches of cool, condensed air into the interior of the mine in one minute.

A Spray Box.

Now, au apparatus similar to this, though an improvement on it, has been tried in some of our mines, but failed to do the required work. The apparatus used here for cooling the air was less complicated than that described above. It was simply a square wooden box, extending up a hundred feet or so from the bottom of the mine, into the upper end of which the air pipe from the blower on the surface is entered. At the top of this box was injected a small stream of water, which falling through the air the whole length of the box could not but cool it to a cousiderable extent; also, undoubtedly freed it from dust, and imparted to it a certain degree of moisture.

Lack of Quantity

Is the great trouble in furnishing air for the ventilation of our mines. There is no donbt that the devices mentioued above—particularly the latter—cousiderably improve the quality of the air furnished, but it cannot be expected that by simply cooling, moistening and pnrify- ing a small stream of air it can be made to suf- fice to ventilate a section of a mine where it previously proved inadeqnate. What is wanted is, in the first place, the largest possible vol- ume of air.

Force Pumps and Blowers.

Force pumps of all kinds have been tried on the Comstock for pnmping air into the mines, but they have all been abandoned. No machine has yet been found which surpasses the Root blower for this nss. The larger the pipe is, leading from the blower down into the mine, the less is the resistance to be overcome by the blower in sendiag air down to the lower levels.

Larger Air Pipes Required.

With a small pipe the air backs npon the blower and there is a loss of power. The pipe should he so large that there is no longer any perceptible back pressnre—so large that all the air blown into the pipe finds an abnndance of room in which to advance without encounter- ing the resistance of its own elacticity. There should be no more compression in the pipe than is necessary to urge the air to its destina- tion. This is the true plan of getting all the work out of a blower that there is in it. Our mining companies have steadily been increas- ing the size of the air pipes, but they are not yet large enough; they should be at least three feet in diameter.

Blowing in or Sucking Out.

It is a question in many minds whether we have gone the right way about the ventilation of our mines; whether instead of forcing fresh air dowu into the lower levels we shonld not pump the foul and heated air out, when pnre air would rush down to fill the vacuum thus created. In the mines of Germany they prac- tice this plan of pumping out the foul air. Here, it is not likely that it would work as well as the plau of pumping in fresh air. In pumping out, as well as in pumping in, there would be a main pump running down to the lowest level of the mine, from which would he extended branch pipes leading to all the princi- pal chambers and drifts where work was being done. We will now take the case of a drift in which men are at work. By our present plan of blowing in tresh air there is always more or less good air at the face of the drift about the end of the pipe, but in case of the pnmping- ont plan the air immediately about the end of the pipe would be sucked into it and the only air that would reach the men wonld be that coming from behind, flowing for a long dis- tauce in contact with the heated rock forming the walls of the tunuel or drift. In this country we work so fast that the rock does not have time to cool behiud us. This is why we must ventilate by a plan the reverso of that practiced in the Old World.

About Cooling the Air.

When we have forced into a mine all the air we can get into it by the best apparatns kuown to us it is then that we may think of the little refining touches of straining and cooling it. It is of little use to cool the air on the surface as it wonld be abont as hot as the air ascending the main shaft by the time it had reached the lower levels. About as good a plan of cooling the air below as we can think of would be to have the main pipe discharge into a wooden box or receiver, about eight feet square and ten feet in hight, in the top of which, upon a sort of lattice-work, was kept a qnantity of ice under a closely-fitting lid. From this air-chest the distributing pipes might radiate in all directions. The ice in the top of the chest with the shower of water dripping from it as it melted, would both cool and moisten the air. The bottom of the chest being lined with zinc, there would be contained in it a constaat snpply of ice water for use in the mine. Bnt the first thing is to get a proper volume of air into a mine; the cooling and moistening our miners can probably dispense with—not being quite so fastidions as the members of the House of Commons.—*Terri- torial Enterprise.*

Gravel Mining in Calaveras County.

None of the interests of this section, saye the *Chronicle*, are in a more flourishing condition than gravel miniag. Work is being bnsily prosecuted in the various hydraulio and tnnnel claims, with, we are glad to say, the best of results. Indeed, more gold will he taken out of this portion of the county the present sea- son, as the result of gravel mining operations, than during any previons year for a decade past. Great progrese has been made, latterly, especially in hydranlio mining. In fact, so rapid has been advancement in that respect that Calaveras now rivals the northern counties in the magnitude of that species of operations. And the limit of progression in that direction is not yet reached, by any means. New loca- tions are constantly being made, and the mines are of such a permanent character that their yield will increase annually.

Alexander & Co,, owners of the "old Bob Paul claim," are getting along well with their new tunnel. It is in a distance of 275 feet, and it is expected that pay gravel will be struck in a few days. The tunnel is an incline, follow- ing the pitch of the bed-rock. It is probable that washing will be resumed within a couple of weeks.

Duryea, of the Chili Gnlch hydraulic, is run- ning tunnels for the purpose of pntting in blasts. He has an immense bank of pay grav- el, but it is so hard that it is difficult to pipe. When shattered by blasting, however, it wash- es readily. The claim is one of the most ex- tensive in the connty and is well handled.

Veith & Co. are pushing things in their hy- dranlic in Tunnel ridge. They employ a large number of men and use a great quantity of water. This mine is systematically worked and yields an average of abont $3,000 per month.

Moser, proprietor of the Spring Gulch sluic- ing claim, is not driving ahead with his usnal vim at present, beiag employed in putting his mine in shape for the fall campaign. Active operations will be resnmed shortly.

Cook & Co, are washing away Sport hill as fast as water and mnscle, energetically applied, can do it. They are, in the fullest sense of the term, "drivers." Work is constantly prosecu- ted with the utmost vigor, and we are glad to know that their industry is well rewarded. Without interrnption of washing they are run- ning a tuunel iu which to lay their slnices in order to give them a better grade. The work is progressing rapidly.

Emerson, the Happy valley hydranlicer, is still engaged laying down flume. Hie line of slnices will be about three-fourths of a mile in length when completed. Emerson intends to make things howl when he gets a "good ready."

Drnmm & Co. are working the Lone Star claim, in Happy valley, steadily. Good prog- ress is being made, and the prospects are flatter- ing that the mine will prove a very remnnerative one.

Evans & McCann, engaged in running a tnn- nel into Tnnnel ridge, have not got throngh the ledge yet. They have abont 30 feet to run. The rock is as hard as flint, but the boys will "get away with it."

Brackett & Co. and other miners along the ridge are working away indnstriously with fair prospects.

HYDROPHOBIA.—The fact is that canine mad- ness, technically *rabies*, is more prevalent in winter than in summer, in cold countries than in warm. Readers of Dr. Kane and other Arctic explorers will remember the freqnency of the disease among sledge dogs in the depths of Arctic winter. On the other hand, in the West Indies, where the climate is hot and dogs are abundant, the malady is rare. The Sonth- ern States and the conntries of Southern En- rope are notably exempt from it, while it is very common in Northern Enrope, in Canada, and throughout our Northern States. Statistics show also that more animals go mad in Jannary, February and March than during any other season, the fewest cases occnrring in summer time. It is also a mistake to snppose that hy- drophobia always follows the bite of a mad animal, or is necesarily caused by snch a bite. Between 1863 and 1868, there were 320 persons bitten by rapid animals in France, and hydro- phobia ensued in only 129 cases, less than half. According to Faber's statistics, out of 143 persons bitten by rapid animals in Wur- temberg, only 28 had hydrophobia. Having inoonlated a large number of animals with the saliva of fabid speoimens, he succeeded in communicating the disease in hut 23 per cent. of the animals operated on, 77 in the hundred escaping.—*Scientific American.*

SCIENTIFIC PROGRESS.

Photo-Mechanical Engraving.

Tha attention o! experts, both iu this conntry and abroad, has of late been largely taken np with perfecting the methods for producing or copying engravings by a combinstion of photographio with mechanical means. For a long time, it seemed that the arts of photolithography and photo-plate printing were the limits beyond which it was impossiblo to pass with any snbstantial practical results.

Qnite recently, however, pnblio atteution has been attracted to the performance of a process styled by its operators, "Photo-Engraving," which beyond question effeotnally solves the problem of the cheap, rapid and faithful production or copying of engravings, to a degree which promises to fully realize all the demands which can be made upon it. Of the precise nature of the details of this process, we are not able to communicate more than to state that its efficiency dependa mainly npon the peculiar photo-chomical propertiee possessed by gelatin, and various guma, when treated with bi-chromate of potassa.

It is possible to produce with its aid metal plates in relief of any engraving, whether in linea or dots, (and of conrae of any original pen design). This plate may be either an eleotrotype or atereotype, as may he wished, and this may of conrse be printed in the ordinary typographioal press. This plate may either be enlarged or roduced in size, as may be wished.

In this resides the great advsntage of photoengraving, or the photo-mechanical production of relief metal blocks, over photo-lithography and allied processes, bnt its advantage for reproducing line or dot engravings, or original pen sketches, are especially manifest for the almost innnmerable forms of newspapers and catalogue advertising; for book and other illustrations. Iu short whenever a line engraving is needed, whether it be an original or a copy, it is possible to have the same prodnced with exqnisite fidelity, snd, it is said, more cheaply than by any other process yet devised, and far more so than by the neual aystem of wood engraving.—*Trade Journal.*

STEEL.—Blistered steel will resist a far higher degree of heat than highly carbonized cest steel, and good shear steel will endure a white flame heat without injury; also a welding heat, if subsequently bammered. Although iron will hear a higher degree of heat than steel, yet steel will bear a far greater amount of hardship nnder the hammer than iron; that is, if the steel is cantionsly heated. Good cast steel, which is suitable for the best kind of cutting tools which have to endnre a great amount of hard work, will not bear a white heat without falling to pieces; it will hsrdly austain a bright red heat without crumbling under the bammer, but at a middling or oberry red heat it will bear drawing under the hammer to a point as fine aa a needle. Interior steel, whether at a high or low heat, will not take such a fine point without splittiug; and steel which will not take a fine point will not receive a fine, firm edge, however skilfully the hardening aud temperiug may be performed.—*Iron Age.*

OXIDIZING POWER OF CHARCOAL. — Hofman statea that when a freshly-prepared solntion of lenk-auiline is dissolved in alcohol, the solution is colorless and remains so for a long time. If, however, a small qnantity of .finely divided animal charcoal, euch as is daily employed for decoloriziug solutions, be thrown into the solution and then boiled for a few minutes and filtered, it will be found that the solution has acqnired a deep osrmine-red color. The oxygen condensed in the pores of the charcoal has converted a considerable quantity of lenk-aniline into rose-aniliue.

LITHOGRAPHED NEWE.—One of the most singular applicatione of lithography is that adopted in France by the Havas Intelligence Agency. This company, established in Parie, supplies the provincial papers with newe and original matter of various kinda. Inetead of being printed on elips by an ordinary prees, this matter is lithographed on a large sheet on one side only, so that it cau he cut up. The varietiee of handwritiug which are reproduced on these slips are said to be curious in the extreme.

CURIOUS PROPERTY OF TELLURIUM.—The salte of tellurium have the property of imparting to the perepiration a most offensive odor. It ie eaid that Dr. Buuseu, who experimeuted on his own pereon, wae compelled to absent himeelf from eociety for four weeks on this account. It is suppoaed that tellurium will never be used extensively as a medicine.

A NEW proceee for heliographic engraving is giveu in *L'Annee Scientifique.* A photographic proof is applied to a sheet of zinc, when the silver, transferred from the paper to the plate, prodnces a metallic layer which enables the zinc to be attacked by very dilnte aoids.

WIND INDICATORS.—Iu a communication to the *Academie des Sciences,* M. Tany objects to vanes as iudicatora of the wind, aince they indicate a directiou when there ie no wind, and they do not indicate the force of the wind. He would aubetitute a flag anspeuded by a cord from a metallic riug pulleyed on a vertical rod.

ACTION OF EARTH AND OTHER SUBSTANCES ON ORGANIC MATTER.—At a recent meeting of the Chemical Society, a paper on the action of earth on organic nitrogen, by E. C. Stanford, waa read, in which the anthor gave details of his experience on mixtures of earth and decomposing animal matter. From these it appears that the earth is but an indifferent drier, the mixture contiuuously loeing nitrogen, which ie evolved as ammonia principally; the earth also does not act as an oxidizer, and no nitrification takes place. Dr. Frankland stated that when decomposition was in the etate of pntrefaction, ammonia was always produced from the nitrogenous matter, bnt much nitrogen also escapee iu the elemental form. The action of charcoel is very different; seaweed charcoal mixed with excrementitious matters and allowed to dry is found to retaiu almoet the whole of the nitrogen. These facts are of interest to sewage economiste and the advocatos of the dry-earth system.

A TERRIBLE TORPEDO.—The *Borsen Zeitung* says that the German Admiralty has decided 10 adopt a new kind of torpedo, which cau be moved about while under water from the shore. The weapon consists of a long, hollow cylinder, containing, besides the fulminating powder, a sufficient quantity of air to eneble it to float. It is moved by means of electric cnrrents passing through wires which connect it with the land, and by an air-propelling apparatus also fixed on the shore. The speed of this torpedo can be raised so as to exceed that of the swiftest ships. A detonating apparatus is attached to it in front, which explodes on contact with any solid body. A nnmber of torpedo boats are also to he built for the purpose of pursning hostile ehips aud attacking them unobserved. These boats will he propelled by a screw moved by hydraulic power, and will be steered under the water by means of a compass. They are to be capable of performing four days' joarney at sea.

SENSIBLE.—A very oommon mistake, says a contemporary, with writers on scientific and mechanical topics ior popular perusal, is the indulgence in technical terms and algebraic formnlas to an unnecessary extent. Such writings often fall fer ahort of comprehension by the readers to whom they are addressed. It does not need that the acientific writer ahould "stoop to conquer," or simplify his lucubrations to childish degree, but good plain English, which persists in calling a spade a spade, ahould he used in all cases; leaving mere jsrgon of nomenclatnre to the society meeting, or the scientific quarterly. It is no disparagement to working mechanics that they do not generally understand these things; siuce it is eometimes a matter of doubt whether the writers do themselves.

A POWER SUPPLYING COMPANY.—The Rochester (N. Y.) Hydraulic Co. carries on no manufacture, bnt rents its buildings to various msnufacturers, supplying the power to them from the water flowing in the river beside the shops. A short time ago the rock was cut so as to make a deep well, aud two of the largest water wheels, yielding over 1,000 horse power, were placed therein. It is the intention of the owners to add another wheel, which will swell the power attained to over 1,500 horse power. —*Commercial Bulletin.*

PALM PAPER.—Mr. James P. Herron, of Washington, D. C., has iuvented a process of making paper from varieties of the palm. Tue material is cut or torn in pieces of suitable size, then cooked in a close digester, with thorough agitation and under steam pressure, iu a weak solution of alkali, naptha, benzine, or soap; then it is completely ground, while steam passes freely through the grinder and intermingles with the stock, reducing, bleaching, and finally washing it.

COLORIMETRIC TEST FOR AURIFEROUS QUARTZ. The quartz, after being well ground and calcined, is treated with a bath of iodine or bromine water, and allowed to digest in it for eome time. A piece of filter paper is then soaked in the solution, dried and burned to ashes in a muffle. If gold is present the ash ie purple. One dwt. of gold to the ton may thns he detected.—*La Naturaleza.*

BARYTA GLASS.—Experiments made by Dr. Benrath for determining whether carbonate of baryta may be employed in the manufacture of glass indicate that this eubstance may replace the lime but cannot take the place of potash and eoda.

"A KNOWLEDGE of science attained by mere reading, though infinitely better than ignorance, is knowledge of a very different kiud from that which arisea from contact with fact." —*Huxley's Physiology.*

ALUMINUM has been coldered by first applying a layer of copper with the battery, and then epplying the solder to the copper. It will not bear much tensile strain, becauee the copper does not adhere very firmly to the aluminum.

THE analyses of fertilizers, for the purpose of the control of the trade in these articles, are becoming year by year more common, and their necessity better understood.

ARAGO saye that "he who, outeide of the range of pure mathematics, uttere the word *impossible,* is wanting in prudence."

MECHANICAL PROGRESS.

BALLOON STEERING APPARATUS.—Bowlder's steering apparatus consists of a screw propeller like that of a ship, of metal, bnt made as light ae poesible, and is to be fixed to the car horizontally, and made to turn at the rate of about 14 revolutiona per second, hy meana of some simple mschincry worked by a single handwinch in the car. A similar screw, fixed vertically, aud worked hy the same gear, is designed for rsising and depressing the balloon without any expenditure of gas or ballast, and a disc-shaped rndder of canvas to steady the balloon completes tha apparatus. Mr. Coxwell, the well-known aeronant, nnneh prefers the small screw propellers, which are but three feet in diameter, to those proposed by a French aeronaut, which are to he 16 feet high, and are therefore regarded as unmanageable and dangerous to the balloon, especially in the descent. The screws will probably he made somewhat larger if the first trial is in the least degree eucoessful; but it is considered preferable to increese their power, if necessary, by multiplying the speed of revolution hy the use of some other motive power thau manual force, either electricity or atmospheric pressure, or even the steam-engine—an agent which has hitherto been discarded on account of ita necessary weight and the risk attending it.

HYDRAULIC GUNNERY.—It may safely be affirmed that with our present heaviest guns of 35 tons weight, the limit of aize whioh can be efficiently worked by hand power has already beeu reached, if not exceeded, and that in view of the fact that gnns of more thau donble that weight are uow being actuslly made, and that still larger guus are in prospect, the time hes come for the abandonment of mannal labor and the substitntion of an insnimate and unlimited power like that of ateam, acting either directly or through the medium of water nnder pressure. Tue heat and elasticity of steem, and the difficnlty of couveying it from place to place, render it unsuitabla for direct application to the working of guns; but in the hydraulic system so anccessfully and so variously developed by Sir William Armstong for commercisl purposes, steam is made available as a central source of power by employing a steam-engine to pump water into pipes which transmit it at high pressure to the various points of application of the force where it acts in hydraulic presses to produce the different movements required. The power derived from the steam-engine is thus tranamitted with great ease to numerous and distant points, where it is turned on or off with mnch the same facility as a jet of gas.—*Iron.*

WHITWORTH STEEL.—Some idea of the solidity of compressed castinge of Whitworth metal may be gleaned from the fact that, five minutes after the application of pressure—about twenty tons to the square inch—a column of fluid steel becomes shorter by 12.5 per cent., or 1¼ inches to the foot. Sir Joseph Whitworth, as a writer in *Iron* states, holds the proportion that for certain pnrposes a metal must be used haviug a certain tensile strength and a certain percentage of ductility. Heuce the metal cast at the Whitworth works is classified according to its possession of these qualities, and arranged for convenience in four groups, distinguished by colors, red, blue, browu and yellow, and by numbers, No. 1 of each grond represeuting the most ductile metal, and No. 3 the least so. Various samples of Whitworth steel tested gave from 36 to 72 tons tensile strength, and from 33.3 to 14 per cent. elongation. There is shown a singular relation between the tenaile strength and ductility of the metsl, the oue generally increasing as the other decreases, a circumstance which, it is suggested, may possibly deserve investigation.

THE POLYSPHERIC SHIP.—Thia is the name of a novel vessel, recently invented in England by Mr. Charlea M. Barnes. The bottom ie flat and fitted with three inclined planes with square ende, the effect being aa though three teeth of a gigantic saw were moved through the water with the sloping portiou of the teeth first. The iuventor has tested the device by meens of amall modele impelled by rockets. A seven pound model was driven, by a three pound three ounce rocket, a dietance of 105 yarde in three seconds, or at the rate of 63 knote per hour. The motion ie said to resemble eliding over ice. There is scarcely any water dieturbance, and the decks were apparently motionlesa. Wheu drawn slowly over the water, the vessels offered more resistauce than models of the ordinary shape; bnt when the equilibrium, between the horizontal preaeure of the inclinee forward and the pressnre of the water in the contrary direction, ia destroyed, the model at once rises in the water and passes over the mass of hitherto obstructing fluid.

LONG SERVICE OF CAR WHEELS.—The Port Jervis (N. Y.) *Gazette* of recent date saye: At the Erie car shop in this place a record is kept of the wheels removed from cars. To-day four wheele were removed from a freight car which were made, respectively, in the following years: December 24th, 1853, two November 30th, 1853, May 31st, 1854. These wheele have been running over 20 yeare, have doubtlese worn out several care, and are fit atill, apparently, for aa mnch more wear. Allowing 20 daye in each year for etanding still, and 10 miles an hour while running, they have run 1,697,400 miles.

The Stevens Battery.

This famous war vessel, which has grown venerable without yet heing weaned, is said by a Jersey City paper to have cost some $2,000,000, and her completion will probably cost another half million. Her length ia 400 feet on the deck, or 300 feet at the water line. The breadth of beam is 45 feet at the hnll proper, and 54 feet above the armor plating. The depth of bold is 24½ feet from deck to keel. The inteution is that the vessel shall draw 22 feet of water. Her total weight when in sea-going trim will be abont 6,000 tons. She has eight boilers, and will burn eight tons of coal per hour. She has four engines, arranged in pairs, each pair driving one screw. The eteam cylinders are six feet in diameter, with a pieton-stroke of three feet nine inches. Her average speed will he from 14½ to 16½ knots per hour. The screws are of the twin pattern, 18 feet in diameter, with a pitch of 27 feet. The weight of the engines and boilers, taken together, will be about 1,000 tons. The side armor of the ship is ten inches thick, and her turrets will be one and a half feet. Her guns will weigh 100 tons each. She is built in seven water-tight compartments, with a donble hull, and with bows cellular in strnctnre. They are in fact so constructed that 35 feet of them might be carried awsy without any material injnry to the vessel. It has been eatimated that, acting as a ram, the Stevens battery would strike a blow of sufficient force to raise a vessel of her own siza ten feet in the air. According to these calculatious, the force of the blow would be equal to that of aix shots from the heaviest gnns known, fired simnltaneonsly on the same apot.

ANOTHER INCENTIVE TO HONESTY.—An electrical recorder has been invented in England which is nsed to record tha number of passengers in an omnibus or atreet car. This ingenious instrnment is fixed in some oonvenient part of the vehicle; all the seats are in conuection therewith, and every paasenger by sitting down makes contact and records his presence. The record is a strip of paper on which four pens make a series of lines and marks. The first line connts the minntes spent on the jonrney; the second line marka the speed and the stoppages; the third line counts the number of iuside psssengers within each miunte of the time line, and the fonrth line doea the same for the ontside passengera. All thie goes on, so to speak, of itself; the passengers are unconscious of it; the conductor cauuot hinder it, and ao at the eud of each journey the inspector tesrs off the strip of paper, and finds thereon an exaot account of the number of fares he ought to receive. The applications of this instrument are obviously manifold, bnt in the msnner described it is likely to be of most utility and snpersede all other contrivances for the purpose.

A NEW SUBMARINE VESSEL.—A French indnstrial journsl describes a submarine vessel which was invented in Psris during the siege, but not then brought into use. It is oblong in shape, both ends being cylinders in which pistons cau be moved ont and in, thus vsrying the volnme of air, and making the vessel rise and sink ss may be desired. To prevent the sea water interfering with the action of the pistons, the iuternal surface of the cylinder is protected by an arrangement like the bellows of an accordeon. The vessel hes glass windows at different parts, and tools of various kinds can be protruded through caontchono sheaths which preveut entrance of water. There are two screws, one vertical, the other horizontal, driveu by compressed air, or by the hand; the latter being used in case of a slight vertical or longitudidal inclination. There is, in addition, puenmatic apparatus for expulsion of vitiated, and supply of fresh air. This machine hss made a very favorable impression on engiueers and others competent to form an opinion of its merits.

A KNOWING ENGINE.—The Corliss pnmping engine for the Providence water worke is a marvel of automatic self-regulation. The problem of dispeusing with a eecoud reservoir or etand-pipe for high service, the Corliss Co. has solved by the construction of a uniqne "tahle engine," capable of pumping 5,000,000 gallone of water per diem, or more, if needed. That is to say, if every outlot from the supply pipes distributed over the high aervice of the city were closed so entirely that uo water whatever escaped, the pumping apparatns remains perfectly at rest, but the instaut any appreciahle outflow occurs, the machinery, with no human eye interveuing, proceeds to supply the waste. It hae been kuown to be over five and a half miuutes in making a aingle revolution, moving regularly all thie time, however, and capable of increasing thie rate almost immediately to more than 30 revolutions a minute—and all that of its own accord.

THE ingenuity of the French is ehown in the mechanical ainging birde of M. Bontems and the marvelloue watches of M. Haae. Some of these watches wind up by the mere process of opening and shutting the onter case. One watch givee the day of the week and the date, besides the phases of the moon, striking the honrs and quarters, and marking time to the aixth of a aecoud. Another watch strikes hours, quarters aud miuutes.

A FRENCH inventor hae constructed a petroleum lamp with ten emall wicks instead of one large one. Theae are arranged in a circle, and attached to a frame movable by a aingle rack.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Sept. 2, 1874.

NAME OF COMPANY.	FEET IN MINE.	SHARES IN MINE.	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo						
Alpha Con	300	6000	15c	13c	1/4	
Alta	3600					
American Flat		30000	7 1/2T	6 3/4TH		
Bacon M. & M	65	24000				
Baltimore Con		54000	2T	1P		1/2
Belcher	1040	104000	71 1/2T	68 1/2TH	1 3/4	
Best & Belcher	224	22400	3.8	29 1/2TH	4	
Bowere	20	5000				
Bnckeye		16000	2 3/4T	1 1/2F		
Bullion	2560	25000	9T	7 3/4TH	1	
Caledonia	5000	20000	24T	19 1/2W	3 1/2	
California			40S	37 1/2W	1	
Chollar-Potoei	2800	28000	65W	53TH	9 1/2	
Confidence	130	24960	14F	12 1/2T		3/8
Con.Gold Hill Quartz	345	30000	4F	3 3/4F		
Con. Virginia	1160	100000	84F	82W	1/2	
Conk & Geyer	1600	24000				
Crown Point	600	100000	75TH	86T		3
Daney	2000	24000	1 1/2S	1 1/4W		
Dardanelle	1200	24000	13W	12S	1/2	
Dayton			6T	5 1/4F		
Eclipse	70	25000	7 1/4S	6 1/2T		
Empire M. & M	75	50000	9F	7 3/4T		1/8
Exchequer	400	8000	75e	68TH	5	
Fairmount						
Flowery	3000	12000				
Franklin			2W	2W		
Globe		20000	1 3/4M	1 3/4W		1/4
Gould & Curry	1220	30000	24S	20 1/4W	2 3/8	
Hale & Norcross	400	16000	47 1/2M	41T	3 1/2	
Imperial	184	100000	8 1/2F	7 3/4T		1/2
Indus						
Insurance	2000	30000				
Jacob Little						
Julia	2000	30000	2 1/2S	2W		1/2
Justice	3000	21000	12S	10W	3/4	
Kentuck	95	30000	16F	14 1/2T		
Knickerbocker	1200	24000	6 1/2S	5W	7/8	
Koseuth			1W	7/8S		
Lady Bryan			1S	7/8W		
McMeane	3600	36000				
Mint	1600	50000	1/2T	1/2T		
Nevada	3000	40000	1 1/4TH	1 1/4TH		
New York Con	3600	36000	4 1/2S	3W	7/8	
Occidental	800	10000	2 3/4T	2 1/2W		
Ophir	1400	16800	24 1/4T	20 1/4TH	4 1/2	
Overman	1200	37400	51 1/2e	39W	10 1/2	
Phil. Sheridan	1200	24000				
Picton	2000	30000	90es	85S		
Rock Island		24000	4 3/4T	3 1/2W		
Savage	800	16000	6T	5 1/2W	5 1/2	
Seg. Belcher	160	6400	112F	92W	18	
Seg. Caledonia		10000				
Seg. Rock Island			7/8W	3/4F		
Senator		24000	4 3/4M	4F		
Sierra Nevada		100000	7/8W	7/8W	3/8	
Silver Hill		54000	8 3/8S	8T	3/8	
South Comstock						
South Overman		24000	3 1/4W	3 1/4W		
Succor M. & M	1600	22800	1 7/8S	1 1/2W	1/2	
Sutro		24000	1 3/8T	1M		
Trench	20	5040				
Tyler	2200	32000	65cT	60cT		
Union Con	803	20000	18 3/4T	14 1/2TH	4 1/2	
Utah		20000	5T	3 1/2W		
Woodville	1400	28000	8 1/2TH	6 1/2M	2 1/2	
Yellow Jacket	1200	24000	81S	76 1/2T	1	
NEVADA.						
Adams Hill		50000				
Alps	800	30000				
Amador Tunnel						
American Flag M. & M		30000	2 1/2T	2F	3/8	
Arkansas	300	30000				
Belmont			9 1/4T	8M	1/2	
Bowery		30000				
Chapman M. & M		30000				
Charter Oak	1000	30000				
Chief of the Hill		30000	20cT	20cT		
Chief East Extension		36000				
Columbus M. & M	10000	50000				
Condor		25000				
El Dorado South			2 1/4F	1 1/4TH		1/4
Eureka Con		60000	11 1/4W	10 3/4F		1/4
Excelsior		12000				
Harper		30000				
Hayes						
Hermes	1000	30000				
Home Ticket						
Hnhn & Hunt	3600	30000	1/2T	1/2T		
Ingomar	1000	40000				
Ivanhoe		30000				
Jackson		50000				
Josephine						
Juniata Con	5000	50000				
K. K. Con						
Kentucky	1000	30000				
Kinston	800	30000				
Lehigh	1000	30000				
Lillian Hall	1000	15000				
Louise	2400	30000				
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24023	60000	6W	5 3/4S		1/4
Mocking-Bird	1200	30000				
Monitor-Belmont			2 1/4F	2S		
Murphy	2000	60000				
Newark	800	32000	65cW	55S	2 1/2c	
Pacific Tunnel						
Page & Panaca	2400	40000	1 1/4TH	1T		
Peavine	1000	30000				
Phoenix		50000				
Pioche	1000	20000	8M	5 1/4TH	3	
Pioche West Ex		35000				
Pioche-Phoenix		40000				
Portland						
Raymond & Ely	6000	30000	12 1/4M	10S	2	
Rye Patch			2 1/4F	1 1/2TH	1	
Silver Peak		30000				
Silver West Con						
Standard M. & M						
Star Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mount		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole	200	30000	1 3/4W	7/8TH		
Watson						
Yellowstone						
CALIFORNIA.						
Alpine	1200	12000				
Bellevne	8000	20000	3/8TH	3/4T		1/8
Calaveras	3200	20000				
Cedeberg		24000				
Chariot Mill			10 1/2TH	9 1/2M		1/2
Jon. Amador						
Cottonwood Creek		20000				
Dunderberg M. & M						
El Dorado						
Eureka	1650	20000				
Gillie		24000				
Independent	1800	25000	1 1/2S	1 1/4S		
Keystone		10000				
Mt. Jefferson	1500	25000				
Oakville						
St. Lawrence M. & M						
St. Patrick	1800	20000				
Tecumseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000	1 1/2M	1 1/4F		1/8
Golden Chariot	750	30000	7 3/4TH	7W		1/2
Ida Elimore	1300	10000	2 3/4TH	2T		
Mahogany	720	10000	6TH	5W		3/4
Red Jacket						
South Chariot	660	20000	14T	9 1/2TH		3 1/2
War Eagle	1000	10000	1 3/8T	1 1/4M		1/8
WHITE PINE.						
General Lee	1000	20000				
Mammoth	1800	36000	15cW	7/8TH		
Nnonday	1000	20000				
Orig. Hidden Treas.	800	21333				
Silver Wave						
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Alnine Gold M & M Co	Amador Co Cal	7	1 00	Aug 10	Sept 14	Oct 5	J F Lightner	438 California et
American Flag M & M Co	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney	320 California st
Bellevne M Co	Placer Co Cal	1	50	Aug 18	Sept 21	Oct 15	D F Verdenal	409 California et
Belmont M Co	Nye Co Nevada	3	1 00	Jnly 17	Aug 22	Sept 12	C H Bogart	402 Montgomery et
Best & Belcher M Co	Washoe	9	50	July 13	Aug 17	Sept 12	W Willie	419 California et
Buckeye G & S M Co	Washoe	11	50	July 21	Aug 28	Sept 16	C A Sankey	331 Montgomery et
Caledonia S M Co	Washoe	8	3 00	July 15	Aug 22	Sept 11	R Wegener	414 California et
Chief East Extension M Co	Ely District	3	10	July 7	Aug 12	Sept 9	R Wegener	414 California st
Chief of the Hill M Co	Ely District	5	25	Aug 11	Sept 11	Oct 1	C S Neal	419 California st
Condor S M Co	Ely District	3	25	July 17	Aug 25	Sept 15	Geo T Grimes	240 Montgomery st
Daney G & S M Co	Washoe	10	75	Aug 6	Sept 8	Sept 30	G R Spinney	320 California st
El Dorado North M Co	Belmont Nevada	1	50	Aug 4	Sept 15	Oct 6	G E Houghton	218 Sansome et
El Dorado South Cone M Co	Nevada	4	1 00	Aug 7	Sept 14	Oct 1	W Willie	419 California et
Empire M Co	Idaho	7		Aug 26	Sept 30	Oct 24	Wm Willis	419 California et
Empire Mill & M Co	Washoe	15	50	Aug 13	Sept 17	Oct 8	G R Spinney	320 California et
Europa M Co	Washoe	2	25	July 14	Aug 18	Sept 10	F G J Margeteon	418 California et
Eureka M & Smelting Co	Eureka Nev	8	25	July 14	Aug 18	Sept 7	T P Beach	424 Montgomery st
Gould & Curry S M Co	Washoe	23	2 00	Sept 1	Oct 6	Oct 27	A K Durbrow	438 California st
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 19	W Willis	419 California st
Indus G & S M Co	Waenoe		10	July 30	Aug 31	Sept 17	D Wilder	Merchants' Ex
Josephine Cons S M Co	Nye Co Nevada	1	15	July 20	Aug 22	Sept 12	C H Bogart	402 Montgomery at
Julia S & S M Co	Washoe	19	1 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	C B Higgine	402 Montgomery st
Mammoth S M Co	White Pine		10	July 13	Aug 17	Sept 15	D A Jennings	401 California st
Mint G & S M Co	Washoe		10	Aug 24	Oct 2	Oct 28	D A Jennings	401 California et
Monitor-Belmont M Co	Nevada		50	July 7	Aug 13	Sept 7	W W Hopkine	411½ California st
Newark S M Co	Ely District	8	1 00	Aug 18	Sept 23	Oct 15	J W Clark	418 California st
New York Cons M Co	Washoe	10	50	Aug 26	Oct 1	Oct 19	H C Kihbe	419 California et
Nortb Bloomfield Gravel M Co	Cal	33	1 00	Aug 11	Sept 15	Oct 5	Thos Derby	320 Sansome st
Page & Panaca S M Co	Ely District	7	50	Aug 4	Sept 8	Sept 28	H P Bush	Merchants' Ex
Pioche M & S M Co	Ely District Nevada	1	1 00	Aug 29	Sept 7	Oct 2	D E Elliot	419 California et
Portland S M Co	Ely District	5	25	Aug 21	Sept 28	Oct 22	B J Gray	438 California et
Raymond & Ely M Co	Ely District	1	3 00	Aug 17	Sept 23	Oct 16	T W Colhurn	418 California et
Rock Island M Co	Washoe	4	1 00	July 17	Aug 21	Sept 9	J W Clark	418 California st
Rye Patch Cons M & M Co	Nevada	3	50	July 21	Aug 24	Sept 19	D F Verdenal	409 California et
Savage M Co	Washoe	15	10 00	Sept 1	Oct 5	Oct 23	E S Holmes	419 California st
Sierra Nevada S M Co	Washoe	39	1 00	Aug 5	Sept 8	Sept 29	R Wegener	414 California st
South Chariot M Co	Idaho	10	1 00	Sept 2	Oct 3	Oct 26	Frank Swift	419 California et
South Comstock M Co	Washoe	1	50	Aug 18	Sept 22	Oct 12	J M Buffington	Merchants' Ex
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Succor M & M Co	Washoe	9	1 00	Aug 18	Sept 22	Oct 14	W H Watson	302 Montgomery st
Sutro M Co	Wasboe		50	Aug 14	Sept 18	Oct 12	G W R King	434 California et
Tyler M Co	Washoe	6	25	Aug 15	Sept 18	Oct 8	C D Squire	539 California et
War Eagle M Co	Idaho	7	1 00	Aug 21	Sept 26	Oct 17	L Kaplan	Merchants' Ex
Washington & Creole M Co	Ely District	12		July 21	Aug 24	Sept 16	F D Hoag	Merchants' Ex
Yellow Jacket S M Co	Washoe	18	5 00	Aug 11	Sept 15	Oct 16	G W Hopkine	Gold Hill Nev

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

California Cons M Co	Cal	1		Aug 26	Sept 29	Oct 19	B J Gray	438 California et
Consolidated Reformn	Lower Cal	1	50	Sept 1	Oct 5	Oct 28	A D Carpenter	605 Clay st
Cupel & Tiger S M Co	Arizona	2	50	Aug 12	Sept 14	Oct 2	C J Eaton	Express Bldg
Edith Qnicksilver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart	113 Liedesdorff et
Germania M Co	Utah	2	1 00	Aug 5	Sept 12	Oct 2	J W Tripp	408 California st
Gold Run M Co	Nevada Co Cal	7	25	July 7	Sept 15	Oct 7	C C Palmer	Cor Market & Spear sts
Greenhorn G M Co	Cal	4	70	Aug 10	Sept 15	Oct 6	J F Lightner	438 Montgomery et
Jamee Point Gravel M Co	Cal	2	10	Aug 12	Sept 15	Oct 3	D C Ferrie	223 Montgomery et
Kosenth M Co	Waeboe	2	25	Aug 25	Sept 25	Oct 14	B F Stone	419 California et
Mosquito Hydraulic Quartz M Co	Cal	2	15	Aug 31	Sept 15	Oct 3	C S Healy	Merchants' Ex
New York Con	Washoe	1	50	Aug 28	Oct 1	Oct 19	H C Kihbe	419 California st
North Fork M Co	Plnmas Co Cal	4	1 50	July 24	Aug 24	Sept 15	A Martin	520 Washington st
Onelda M Co	Amador Co Cal	8	75	July 28	Aug 31	Sept 19	L Kanlan	Merchants' Ex
Prnesian G & S M Co	Nevada	2	50	Sept 1	Oct 5	Oct 26	R H Brown	402 Montgomery st
Red Jacket S M Co	Idaho	2	1 00	Sept 2	Oct 9	Oct 31	W Willis	419 California st
Sanderson G M Co	Cal	12	30	Aug 12	Sept 8	Sept 26	W Stuart	113 Leidesdorff et
Silver West Cons M Co	Eureka Nev	2	10	Aug 19	Oct 6	Oct 31	F R Sunker	606 Montgomery et
Starr King S M Co	Nevada	7	25	Aug 6	Sept 11	Sept 30	L Kaplan	Merchants' Ex
Stanislans River M Co	Cal	3	15	July 20	Aug 19	Sept 5	W Stuart	113 Leidesdorff et
Table Mt Alpha M Co	Cal	5	25	Aug 10	Sept 29	Oct 20	T F Cronise	425 California et
Tecumseh G S & C Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California et
Umpire Tunnel & M Co	Utah	3	5	June 29	Sept 2	Sept 21	P A Eakine	230 Kearny et
Ward Ellis S M Co	Robinson District	2	10	Aug 21	Sept 28	Oct 19	J M Buffington	Merchants' Ex
Wonder G M Co	Cal	2	10	July 28	Aug 18	Sept 7	David Buck	331 Montgomery st
Wyoming G M Co	Nevada	3	25	July 23	Aug 31	Sept 18	W J Gunn	410 Montgomery et

MEETINGS TO BE HELD.

Nams of Co.	Location.	Secrstary.	Offics in S. F.	Meeting.	Date.
Beach & Paxton M Co		E Landers	507 Montgomery st	Annual	Sept 5
Beet & Belcher M Co	Washoe	Called by Trustees	419 California st	Special	Sept 24
Crown Point Ravine M Co	Washoe	J M Buffington	Merchants' Ex	Annual	Sept 7
Gold Run M Co	Cal	C C Palmer	Cor Market & Spear sts	Annual	Sept 7
Little Panoche Quicksilver M Co	Cal	Geo R Spinney	320 California st	Annual	Sept 7
Oakland Quicksilver M Co	Cal	F P Reynolde	111½ Liedesdorff st	Annual	Sept 7
Succor M & M Co	Washoe	W H Watson	302 Montgomery st	Annual	Sept 7
Yarborough M Co	Kern Co Cal	Edward Barry	415 Montgomery st	Annual	Sept 14
Woodville G & S M Co	Washoe	Called by Trustees	401 California st	Special	Sept 23

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secrstary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kihbe,	419 California st.	3 00	Aug 10
Cedarberg G. M. Co.	California.	D. M. Bokee.	420 Montgomery st.	50	Feb. 9
Chariot M & M Co	Cal	Frank Swift	419 California et	40	Aug 10
Con. Amador M. Co.	Cal.	F. B. Latham.	402 Montgomery et.	50	April 8
Conecilidated Virginia M Co	Washoe	D T Bacley	401 California st	3 00	July 11
Cosala M Co	Mexico	C Hohwiesner	310 Battery st	Annual	Sept 21
Crown Point M Co	Washoe	C E Elliott	414 California et	3 00	July 11
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 00	Jan. 25
El Dorado Water & Deep Gravel M Co		H Elias	416 Montgomery st	Annual	Sept 8
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M & Smelting Co	Nevada	T P Beach	424 Montgomery st	Annual	Sept 29
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California et	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Monitor-Belmont M. Co.	Nevada.	B. B. Minor.	411½ California st.	50	Dec 5
Phenix G M Co		Charles E. Elliott	419 California st	50	June 30
Providence G. & S. M. Co.		J. M. Buffington.	Merchants' Ex.	1 00	Nov. 12
Silver Column M Co	Arizona	C S Healy	Merchants' Ex	Special	Sept 15
Tecumseh M G S & C M Co		F J Hermann	418 California st	Special	Sept 15
Victoria & Imperial T & M Co	Utah	W H Watson	302 Montgomery st	Annual	Sept 10

Mining Stocks.

Mining stocks generslly are much higher tbsn reported last week. The msrket rose steadily until Tuesday morning, when higbest prices were realized. Discoursging reports from Imperisl-Empire somewbat weakened the market, snd in tbe afternoon quotations fell considerably. Siuce tbeu stocks have recovered their tone, althongh figures are not quite as high as at the beginning of the week. Seg. Belcher, Chollar and Exchequer led the msrket. Crown Point and Belcher are held less firmly. Reports from nearly all the different mines on the line of the Comstock are more favorsble than they have been for a long while. Strikes are reported in a numher of the mines, and work is being prosecuted vigorously, as the number of the newsssessments would indicate.

The Pioche stocks were generally weak, witb the exception of Pioche, which moved slightly. There has been much speculation in Belmout. California stocks are still very dull.

As far as the condition of affairs in the Comstock is concerned the following from the *Enterprise* is of interest: That we are to hsve a rise in stocks at no very distant day seems very probahle, as not a few very important developments have been made of late snd others seem to be on the eve of heing made. The situation along the whole line of the lead is most promising, and in several mines the indications sre snch tbat we should not be surprised to hear almost any day of very rich snd important developments beiug made. The ore bodies discovered in the Ophir snd Empire mines have not only held their own, but are dsily improving in richness aud expsnding in size, showing that there exist in these mines permsnent deposits of psying ores. The greatest sctivity prevails amoug our prospecting compsnies and all are firmly of the opinion that sooner or later they will meet with tbe reward of their perseversnce, as the Ophir and Empire companies have done. The Gold Hill *News* says of the strike in the Woodville: The recent rich ore strike in the Woodville is significant and important, not only from its beiug so much richer thsn any beretofore found in tbe mine, but from its peculiar character, it being black sulphuret silver ore in white quartz, very much resemhling the rich ore of the Crown Point or Belcher. Such ore found in that part of Gold cañou is highly encoursging to the other well known and valuahle mines in that vicinity.

On account of the extreme hest in the mines of the Comstock, the men are supplied with ice-water, the consumption of which is enormous, the Belcher miue using 6,500 pounds of ice daily, the Consolidated Virginia 7,000 and other mines in proportion.

In the vicinity of Hamiltou, Park county, Colorado, placer miniug is heing carried on successfully and profitsbly, aud withiu a year or two it is probable that mining! affairs will he as aotive as they were in 1861.

New Incorporations.

The following compsnies have filed certificates of incorporation in the County Clerk's Office, Ssn Francisco:

Alameda Coal Mining Co.—August 28. Location: Alameda and Contra Costa counties. Directors: H. P. Coon, C. H. Burton, C. C. Webb, J. S. Hntchinson and E. B. Perrin. Capital stock, $500,000.

Booth Gold Mining Co.—Aug. 28. Location: Orleans mine, near Auburn, Placer county. Directors: D. A. Booth, G. A. Miller, E. B. Dorsey, Richard Chenery and Robert M. Graves. Capital stock, $4,000,000.

Star Mining Co.—Aug. 28. Location: Cherry creek mining district, White Pine county, Nevada. Directors: E. R. Burke, Charles E. Elliott, Lewis Goodwin, C. W. Heeney and J. D. Fry. Capital stock, $3,000.

The Gray Planet Mining Co.—Aug. 3. Location: Mariposa county, Cal. Directors: A. S. Peterson, J. W. Tripp, D. Friedenrich, E. S. Brown and T. Mayer. Capital stock, $1,000,000, in 20,000 shares.

Ellmore Hill Hydraulic Mining Co.—Sept. 2. Location: Placer county. Directors: S. Hemenway, Robt. Sherwood, George D. Roberts, William Sherman and B. B. Minor. Capital stock, $6,000,000.

Hemlock silver mining company, Surprise Valley mill and water compmy, Wyoming silver mining company, Little Chief silver mining comnany, Stewart's Wonder silver mining company and Challenge silver mining company were incorporated on the 2d inst. The purpose for which these corporations are formed is to do general mining business in Panamint mining district, Inyo county. Directors: A. Pritchard, J. D. Fry, B. Peart, Henry A. Jones and Samuel A. Raymond. The capital stock ranges from $1,000,000 to $6,000,000.

The following named companies have filed certificates of incorporation in the office of the Secretary of State at Sacramento:

San Lorenzo Flume and Transportation Co.—Aug. 26. Object: To construct and operate a flume from the headwaters of the San Lorenzo creek to the ocean beach, at or near Santa Cruz, for the transportation of lumber, etc. Place of business, San Jose. Directors: John H. Dibble, E. J. Cox, Chas. Silent, W. J. Colahan, Jas. H. Morgan, David Williams and C. J. Harrison, all of Santa Clara county. Capital stock, $500,000, in 5,000 shares.

Golden Sulphuret Mining Co.—Aug. 26. Location: Sonora, Tuolumne county. Directors: D. M. Kenfield, Jos. Bray, Wm. D. Davies, John Barry and Martin C. Ducbow. Capital stock, $450,000 in shares of $100 each.

Meetings and Elections.

Senator Silver Mining Co.—August 26. Trustees: J. E. de la Montagnie, Robert Sherwood, W. F. Myers, J. C. Hanscom and Seth Pinkbam. At a subsequent meeting of the Trustees J. E. De la Montagnie was re-elected President and Henry Boyle, Secretary.

Meadow Valley Mining Co.—Aug. 27. Trustees: Robert F. Morrow, Augustus J. Bowie, Jr., J. D. Fry, J. H. Dobinson, George W. Beaver, Richard Wegener, Oliver Eldridge; President, George W. Beaver; Vice-President, J. D. Fry; General Superintendent, D. M. Tyrrell; Secretary, T. W. Colburn; banking house, the Bank of California; Company's Counsel, Harry I. Thornton, Pioche, Nevada, and San Francisco, California. During the year, 5,224¾ tons of ore bsve been extracted from the mine. The total receipts of tbe company for the year amounted to $900,171.66.

Stickeen.—About $150,000 came down to Victoria from the Stickesn mines last week, so they must be doing some work there in spite of ths cold westber. Mining on Deass creek is csrried on vigorously; tbe mines, so fsr, on whioh dsms bave bssn erected, are yielding very handsome results. The Three to One company returns from thres to four ounces a day to each man. The present estimats of the mining population of Casslar is generally thought to be about 1,000 men, and to supply the wants of tbis number in provisions, tools, nails, and other necessaries, as well as the luxuries, such as liquors, etc., there are only 190 psck animals to convey such goods from the head of navigstion on the Stickeen river to the sest of the mining operations—a distsnce of about 90 miles.

Arizona Mining.—The *Miner* feels jubilant over the mining prospects of tbe Territory, and says: We might iudulge in gushing language sbout the immeuss numhsr of rich mines of gold, silver and copper, scattered all over Arizons; but think it best, st this late dsy, to let our yield of tbe precious metals speak for the Territory snd its mines, in which connection all thst is necessary for us to stste is that tbe little work now heing done, is setting free onnce after ounce of gold and silver, which go to San Francisco, New York and elsewhere, will have a telling effect upon the doubters who profess to believe thst Arizons is a worthless region, fit only for thieving Indisns snd Indian sgents.

The Busro-Burro Mines.—Nearly a year ago L. L. Tresdwell ohtsined the indictment of George D. Roberts ou a charge of misdemeanor, alleging that in 1870, Roberts, hy false represeutstions, induced him to purchsse a heavy interest in the Burro-Burro mine in New Mexico, owned by Roberts, thus defrsuding him of $50,000. The case has been repeatedly continued at the request of Mr. Tresdwell, on tbe ground thst he could not procure the atteudance of his witueses. The case came to trial this week, however, and the judge disposed of the whole matter hy directing the jury to return a verdict for the defendant, which they did, and the verdict wss so recorded.

The new pump of the Sierra Nevada company bas beeu started up and is running successfully. The first 50 strokes, says the *Enterprise*, on a five-foot stroke, brought the water up to the drain tunnel—a distance of 265 feet. Thns it will be seen, that, although the stroke was but five feet, tbe water was raised more than that distsnce at each stroke—tbe gain in 50 strokes being 15 feet—showing that from the very start perfection wss achieved.

The furnaoe of the Tyho Consolidated company is now in successful operstion. The company intends to commence the shipment of bullion. As soon as the furnsce has heeu thoroughly tested two more will be erected by the same company.

The smelting operations at tbe Mattison furnaces sre likely to prove a success.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALAMEDA COUNTY.

LIVERMORE COAL MINE.—Cor. *Enterprise*, Aug. 29: We have samples of coal that will compare favorably with any found on the coast, from a depth of 140 ft. The main ledge or bed has not yet been struck, but under the management of the present superintendent we expect to reach it in a short distance further. The timbering of the main shaft is made with the heaviest pine, and the other necessary material used is of the best class. About the last of September the company will ship a cargo of this coal to market on trial. It now has the general appearance of the Cumberland coal, and from local tests it is equally as good.

ALPINE COUNTY.

BETTER TIMES.—*Chronicle*, Aug. 29: A much better feeling regarding the future of our county now exists among our people, particularly among those interested in mining operations, consequent on the successful working of the Silver Glance ores by McGlew's process—the Eagle roasting furnace, now in successful operation at the M. & N. W. mill. Our ores, as a general thing, are very rich and rebellious, and until the introduction of the McGlew furnace the attempts made to reduce them have proved unsatisfactory. These failures have had a depressing influence on the general business of the county, but the success of this new process has caused a decided change in our feelings, and we look for better times as our treasure hills give forth their wealth.

SILVER GLANCE.—This mine never looked so well as now, ore having this week been taken from the bottom of the shaft that will average $150 per ton, and assayed $200 and upwards. The ledge is three feet wide and widening.

AMADOR COUNTY.

BUTTE CITY.—Cor. *Ledger*, Aug. 29: The Butte Mountain gravel claim, at Butte City, has a tunnel 225 ft. in length, fully penetrating the rim, and now the sinking of a shaft closely adjoining the bedrock, which is nearly perpendicular, in order to fathom the basin, is under fair headway, and has at the present reached the depth of 32 ft. The substance through which the shaft is being sunk is a very hard cement, and blasting is the only available means by which the work can be accomplished, hence the shaft attains depth slowly.

CALAVERAS COUNTY.

WEST POINT DISTRICT.—Sinking has commenced at the Mina Rica. In probably 20 feet deeper the shaft will be inclined with the vein which will facilitate progress. Recent developments in the Zacatero are quite gratifying. Three bodies of first-class ore are now being opened; their extent is so far unknown, but a larger quantity of fine ore has been already uncovered than previous workings indicated. The mill is steadily running on better ore than ever taken out of the mine. An unassorted lot of ore from the new discovery of Brigge & Co. paid at the rate of $60 per ton. A large body of ore has been discovered in the mine of McNoughton & Co., near Licking Fork. The vein is 6 ft. thick, estimated to average $10 per ton. A force of men are at work in the Lone Star. To judge by the returns from custom mills the yield of ore apparently increases, on the average, as the mines reach lower depths.

GWIN MINE.—Everything is progressing favorably. The mills are kept going without cessation and developments in the mine are eminently satisfactory. The ledge has been struck in the 900-foot level at a distance of 135 ft. from the shaft. That is fully 100 ft. less than it was found necessary to run in some of the upper levels, and is a most encouraging assurance that the pay chute increases in extent as a greater depth is reached. The rock, where first uncovered in the level, is low grade, but the ledge is wide and the character of the ore is improving as work progresses.

KRIM & Co., the well known Moaqnito gulch quartz miners, had a lot of rock crushed in Garland's mill lately, that yielded an average of $15 per ton.

COLUSA COUNTY.

QUICKSILVER.—*Sun*, Aug. 29: On Tuesday last the Abbott mining company commenced to lay brick on their new furnace, and it will be completed in about four weeks. As soon as Mr. Dowling, the superintendent of the work on the Abbott furnace, gets through with it he will commence one on the Buckeye so that in about two months each of these mines will have a furnace in full blast. On Sunday last the Elgin company ran out with a retort 57 pounds of quicksilver from 355 pounds of ore—the first run from a new tunnel.

DEL NORTE COUNTY.

BLACK SAND.—*Courier*, Aug. 29: The party who are connected with the mining enterprise at Stone Lagoon have abandoned the plan of pumping up sand from the bottom of the lake, as that on the shore is rich enough for working, and there is a large body of it. Henry Orman, at the Lower Gold Bluffs, is putting through immense quantities of very rich sand at that claim. Willis Pinnell, who came up this week, says that much of the sand was not black, but absolutely yellow with the auriferous metal.

EL DORADO COUNTY.

ANOTHER MINE TO BE OPENED.—*Republican*, Aug. 29: Capt. Woodworth has bonded the Young Harmon mine, and is now busily engaged in putting up a steam mill and hoisting works on the same.

THERE is a force of about 1,200 men now engaged at work on the El Dorado Water Co.'s canal, several miles of which has already been completed, and much of it is in an advanced state. The canal is four feet deep, four feet wide on the bottom, and 12 feet across the top. The work is being done in a thorough manner, and really looks too nice to be used to run water through.

NORTH-SIDE MINES.—Cor. *Mountain Democrat*, Aug. 29: The Sliger is now in fine condition for working, a tunnel having been run in to the ledge, which drains the water from the mine and they are extracting some of the best ore I ever saw. The Cederberg have their new hoisting works in place and working well, and the mine is in fine condition for profitable operations. The Taylor mine is in charge of W. T. Gibbe. I went down to the 400 ft. station, where I found a ledge nine feet in thickness at the station, and in the south drift on that level, 45 feet from the station, the ledge is fully six feet thick, showing high grade ore. The north drift on the same level is in 70 feet, with a large and well defined ledge, liberally flecked with free gold sticking out of the solid rock. It has never been my fortune to see a mine which excels this in richness of ore, of which there is enough in sight to run a 20-stamp mill for at least two years, the levels having been run a distance of 115 ft. from the 400-ft. station, with a ledge averaging fully six feet in thickness and every prospect of continuing as large for hundreds of feet further. The Rosekrane mine is at present lying idle. The Julia lies one mile south of the Rosekrans, on the road to Garden valley. Here I found a force working on a new discovery, supposed to be on the same ledge as the Taylor. Here a shaft has been run to a depth of 23 ft., the ledge having increased at that depth from 10 inches on the surface to four ft. at the bottom of the shaft. The gold is fine, but is generally diffused throughout the rock. The Mansfield mine is located between Garden Valley and the St. Lawrence. There are two ledges, both opened by a tunnel, and the whole appears to be in splendid condition for working. A large proportion of the rock is partially decomposed and shows gold plentifully by pan prospect. The St. Lawrence was not in operation, the ledge having been lost at the 800-ft. level, but it was struck again in running the north drift, and cut into to a depth of about 18 inches, the ore showing gold freely.

INYO COUNTY.

BENTON.—Cor. *Independent*, Aug. 29: Albert Mack has shut down his mill for the present, but intends to start up soon, either on a quality of ore that requires roasting, or on free ore if it can be obtained at his mine. Mr. Wetherill's mine in Hutch's cañon is looking better than it ever has, and considering his facilities for milling (a four-stamp mill), he is doing a splendid business. He runs out between $1,000 and $1,200 every 24 hours. Other mines in this vicinity are looking up, and prospectors are almost daily bringing in good specimens from new discoveries, principally in Hutch's cañon and Yellow Jacket districts.

PIUTE DISTRICT.—The Golden Era is a 20-ft. ledge of free gold, cropping out for a length of 1,500 ft. The Golden Chariot is 8 ft. wide, free gold, the ore ranging from $50 to $300 per ton; has a water power sufficient for 20 stamps. The Sage Hen is a 4-ft. ledge of free gold. The silver ledges are: The Belle Stanley, 20 ft. wide, assaying from $55 to $200 per ton. The Stonewall Jackson is another 4-ft. ledge, very rich, assaying from $600 to $800 per ton. The Juniata is a little larger, average assays giving $69 in silver and $18 in gold. The Susquehanna is another 20-ft. ledge, running from $25 to $200. William Penn, 3 ft. wide, assaying from $300 to $500. The Babe, quite a large ledge, assays still better, running from $250 to $1,000, as also does the Columbia. The new arrastra is running constantly, and is doing well on free gold ore.

LOS ANGELES COUNTY.

OIL.—*Herald*, Aug. 23: Our oil companies are at work with commendable zeal. They are boring on one claim, and are down nearly 200 ft., with a prospect of a flowing well at a depth of 300 ft. The oil has been tested, and all of it can be made into the best quality of illuminating fluid, and some of it is very good lubricating oil in its crude state. Carreras and Childs have just returned from Lyon's station, and they have determined to use the present refining buildioge to refine oil on the Carreras process, as it can be changed at a very small loss to the company. That there is a very large supply of petroleum in the San Fernando district is known to all oil experts who have seen and examined.

MENDOCINO COUNTY.

MORE MINES.—*Democrat*, Aug. 29: Jess Dodson, recently over from Point Arena, tells us there's much excitement thereabout because of recent discoveries of silver and gold on the ranch of William Shoemake, near Manchester, and also on that of George Davis. Some ore has been sent to San Francisco and assayed, and it is reported as yielding a value of from as low as $10 up to as high as $470 to the ton. We hear of another strike of silver but a short distance from Ukiah, in which Wertenberg and the Burgere are interested. They report a big showing, and have set to work to tunnel and prospect.

MONTEREY COUNTY.

LIME.—Cor. San José *Mercury*, Aug. 31: There is an abundance of lime, rich in in quality, and similar to that at Santa Cruz, on the Gabilan range of mountains, 18 miles from Salinas city, Messrs Brand & Barbour—Brand of Salinas city, and Barbour of San José—burn lime there. There are two lime-kilns, called the upper and the lower, and 1,400 barrels are burned an shipped per month, the demand always being greater than the supply, which they hope soon to remedy. The price usually paid for the lime is $2.50 per barrel.

QUICKSILVER.—Stayton & Co.'s mine, about 18 miles from Hollister, is turning out splendidly,

NAPA COUNTY.

ARGENTIFEROUS.—A party prospecting in the hills and mountains around Popa valley report the discovery of a well-defined ledge of rich silver-bearing ore in that neighborhood. In view of the silver developments on Mt. St. Helena, only a few miles distant on the same range of mountains, it is not improbable that an extension of the quartz lead of the Calistoga gold and silver mining company has been struck.

STEAM UP.—On Saturday last steam was gotten up for the first time in the mill of the Calistoga silver mining company. Quartz crushing will not commence for several days. In the meantime a constant stream of visitors is attracted to the mine.

NEVADA COUNTY.

THE OMAHA.—*Tidings*, Aug. 24: The Omaha mine is improving as work progresses. A run of 24 loads made this week through the Larrimer mill gave a return of about $28 per load.

GOOD BELOW.—The Idaho shaft, now going down for its 900-ft. level, is encountering splendid ore; as good or better than at any point above. Truly, the Idaho, with its five or six years' supply of good milling ore in sight, and more coming, may be said to be a great mine.

NORTH STAR.—It is said that the Superintendent has orders to shut down the works, and that the machinery is being taken out of the lower levels, as fast as they can be pumped out for that purpose.

REES' mine, out at Randolph Hill, is developing finely. Ten men are working two shifts, and the new shaft or inclined is down fifty feet. They have to contend with considerable water, but are realizing much good pay grit, several thousand dollars' worth lying on the dump, taken out in sinking. The ledge becomes firmer and less decomposed as depth is attained.

EUREKA.—Last week's run of ten stamps produced 500 ounces of amalgam, worth about $4,000. The ground in the bottom of the shaft not only continues favorable for sinking, but is said by the workmen to present encouraging symptoms of good pay in the ledge. We learn also that promising rock is found in new ground owned by the company, west of the original location.

GRAVEL.—On the Omega ridge, the largest enterprise at work now in the Omega company, and from all reports they will make the grandest clean-up this season they ever made, though it is said they took out $70,000 two years ago. There are several very valuable gravel mines on this ridge. The one next best known is the Blue Tent mine, five miles above Nevada City. An English company now own this property, and they seem to have the energy and enterprise necessary to its proper development.

STRIKE. — *Transcript*, Aug. 29: We learn that parties have struck an undeveloped ledge on Deer creek, that yields, by mill process, $75 to the ton. The rock was taken out of a shaft.

LOWELL HILL.—*Transcript*, Sept. 1: Times are very lively about here. Every one is busy, and there are no idlers. The mines are all running, and the pay is good. They are getting in their winter's wood and timbers for use in the mines.

NORTH BLOOMFIELD. —*Union*, Aug. 30: This company is pushing forward its immense works with all energy. About 1,000 men are busy at work on the company's ditch. The ditch will convey water from Jackson's ranch, by Bloomfield, all the way down to French Corral. The tunnel, through which the gravel belonging to the company is to be worked, will be completed and in use by the first of December next.

PLACER COUNTY.

Some coal is said to have been found near Auburn, and in close proximity with the noted iron mountain, which only needs cheap fuel to make it profitable. The vein is not found yet, but the float coal is said to be good, and the deposit it is hoped will soon be traced up.

SIERRA COUNTY.

MINING ITEMS—*Mountain Messenger*, Aug. 29: Lorenz Neesler & Co., have tapped the ledge in their tunnel above the Keystone mine. The rock shows well in gold. It is reported that a body of rich ore has been struck on the west drift in the Keystone mine. The Oak ranch mining company are putting in a lot of pipe for the purpose of supplying the workmen in their tunnel with pure air. Good pay has been struck in Boardwell tunnel at Laporte.

EAST FORK.—Ernst Kruse, superintendent and principal owner in the East Fork quartz mine, has decided to erect a large arastra on his claim. He has out in the neighborhood of 200 tons of good rock.

MAJOR WM. DOWNIE has sent us a splendid specimen of silver and copper ore, taken from a ledge within eighteen miles of Downieville.

A COMPANY has been organized for the purpose of prospecting for a gravel bed at Red Dog, a mile and a half northwest of Downieville.

SISKIYOU COUNTY.

IRON MINE SOLD.—*Union*, Aug. 29: Potter has sold his iron mine on McCloud river to an English company for $200,000—the first payment to be made in four months and the balance in eight. It is further stated that the company purchasing intend to commence work on the mine at once, and that before a year there will be a town there larger than Reading.

TRINITY COUNTY.

MINING OPERATIONS. — *Journal*, Aug. 29: From the Cinnabar district, above Trinity Center, we hear that good results are being obtained in the several claims. Mr. Lytle is getting out 100 pounds every day. Other parties are preparing for retorts and expect soon to begin producing quicksilver. The Weaver creek M. M. & F. Co. are getting good pay in the creek at the head of their flume. Last Saturday they took out $750 for that one day's work. All the miners in the Weaver basin are done cleaning up, except Mr. I Woodbury, and he will finish in a few days. The Weaverville D. & H. M. Co. has completed the reservoir, and now everything is in splendid condition for winter, until which time nothing can be done.

GOLD IN THE STREET.—Cleary and Hanlon scraped the surface from the street, in front of Griffin's banking house, and rocked out about an ounce and a half of gold dust, Thursday afternoon.

GOOD PAY.—In running a drain from the cellar under Lang's store, last week, four wheel-barrows of dirt, off the bedrock, were washed in a rocker, and yielded twelve dollars

TULARE COUNTY.

MINERAL KING.—*Times*, Aug. 29: We were shown some specimens this week from a new discovery made by Meadows & Co., in Mineral King district, which are entirely different from anything yet discovered. It is a brittle, dark looking ore. There has been no assay yet made, but experienced miners think it to be very rich in silver. The lode is 14 ft. thick of solid ore. Mr. Meadows also informs us that they have sunk down several ft. on the Maginnis lode, and find the ore to be 6 ft. thick, and assays show $89 of silver to the ton, a marked improvement on the first discovery.

TUOLUMNE COUNTY.

A RICH CLAIM.—*Independent*, Aug. 29: Anthony Lovell, of French Gulch, west of Columbia, has struck the old Fox gravel lead on his land recently patented. It pays him with light work at the rate of $6 per day; and when worked with energy and system, as he is now making preparations to do it, will pay twice as much to the man. Lovell has only to strip 9 ft. to find the gravel, which has already developed into a large deposit. The lead was lost here in early days, being extensively worked a few hundred yards further south by means of shafts and drifts.

Nevada.

WASHOE DISTRICT.

BELCHER.—Gold Hill *News*, Aug. 27: Daily yield, 550 tons. The mine is looking splendidly throughout. The ore breaste on the 1,300, 1,200 and 1,000-ft. levels are all yielding richly, and there is a decided increase in the percentage of gold in the ore extracted, largely increasing the returns from the mill. At the present rate of yield the proceeds of the mine for the present month will amount to nearly, if not quite, $1,000,000. The mills are all running up to their full crushing capacity, and everything is looking flattering for a good fall run.

SIERRA NEVADA.—The new machinery is all working with the utmost perfection, and when the pumps are once in full working condition everything will be in complete readiness for the prosecution of a series of prospecting operations, such as has never yet been undertaken on that portion of the Comstock. Daily yield, 60 tons of ore, keeping the mill steadily running.

CONSOLIDATED VIRGINIA.—A constantly improving appearance is noticed in the ore stopes on the 1,300 and 1,400-ft. levels. Daily yield 300 tons of ore. Work on the new mill is making steady and favorable progress.

HALE & NORCROSS.—The depth of the main incline below the 2,000-ft. level is now 95 feet. The timbering completed to that point. The daily yield of ore is 80 tons.

CROWN POINT.—Daily yield, 500 tons. The ore breasts throughout the entire mine are looking well and yielding finely. The mills are all running up to their full capacity, and the prospects are very favorable for the payment of the usual monthly dividend the first of next month.

WOONVILLE.—The ore development in the north drift on the 200-ft. level still continues to not only hold out, but shows a steady improvement in the quality of the ore.

SUTRO TUNNEL.—At present four Burleigh drills are in operation in the header. Progress for the last week, 68 feet, with a delay of sixteen hours, owing to the leakage of the tank supplying the water for drilling purposes.

OPHIR.—The north winze from cross-cut No. 2, on the 1,300-ft. level, is in fine ore, which has shown a steady improvement in the quality for the past four days, average assays running as high as $400 per ton. The ore in the south up-raise on the 1,465-ft. level, is of a very rich quality The new raise in the east drift on the 1,465-ft. level, has also struck splendid ore. Both the north and south ore stopes on this level have opened into exceedingly rich sulphuret ore, in much of which the free gold is plainly visible. These bodies of ore are not only rich, but promise a wide extent. The

[Continued on Page 156].

Steam Engines on Exhibition.

There are fifteen steam engines shown iu the Pavilion, varying in cepecity from a mere toy or model, which might be placed on a ledy's work-etand, to those of thirty-horse power. Each of theee engines ie of a representetive character, presenting points of novelty and interest which might be made the subject of special and instrnctive mention. Each has been constructed for some special cless of work, and hence differs essentielly from ell the others. To commence with the peir of right and left hand engines which are employed to drive the chief portion of the machinery at the Pavilion, we heve here two machines which preeent the latest advance steps in the production of steam engines, combining simplicity of construction, economic results, fewness of pieces eud ready accessibility for the engineer to all parts of the engine. These engines are exhibited by the Union Iron Works, and are of twelve inches hore, with twenty-fonr-inch stroke. We have alreedy made quite full mention of these in our issue of August 29:h, to which we refer for further particulars in thie connection.

Another pair of fixed engines of good workmanship, aud simple and economical arrangement, for the specialty for which they are designed, may be seeu a short distance to the right of the ones just described. These engines are placed upon a broad, heavy bed-plate with their cylinders at a slight inclination, in order to do their work most directly and with greetest economy of spece. They are simple in construction, plain and substantiel, as they should be for the work for which they ere intended—hoieting from mines. These engines are exhibited more eepecially for the purpose of showing a very important improvement in connection with hoisting epperatus, known es "Eppelsheimer's compound clutch gear." This gear worke with a double bend, and is arranged so that if it is desired to hoist, the engineer hes merely to deprese or bear upon the lever, while to lower he has nothing more to do thau to eese up. The device is exceedingly simple, end under the most ready command of the engineer. It mey be eeen in actual operation, hoisting a heavy weight, which is swung upon the outside of the Pavilion. Theee engines, as a matter of oonvenience as well es curiosity, are worked by compressed air, taken from the compressed air reservoir connected with the Burleigh drill. The engines are each seven-inch cylinders and about six-horsepower. The device is a Califoruia invention aud quite a novelty in its way. They were mede at the Risdou Iron Works.

In the immediate vicinity of these hoisting engines may be seen an engine working the air pumps connected with the Burleigh drill. A steam engine, like a human being, requires a large amount of air for inhelation, while it sends forth a nearly correspondiug emount of vitiated air, uufit to sustein either life or combustion. Hence the difficulty of operating such an engine in a mine or tunnel. In order to meet this difficulty the engine ie often employed, ae in this instance, to compress air, which, when compressed, is simply the pent up force representing the heat which hes been applied to the hoiler, end which may now be conveyed iu tubes for any reasonable distance, to the point where it is needed for expenditure in work. Of this we shall speak more fully when we come to describe the operation of the drill. We allude to the fact at thie time merely to instance the fecility with which the steem engine mey be employed to do indirectly, whet it cannot conveniently be mede to perform directly.

Passing on toward the Merket etreet end of the Pavilion we come to two "donkey engines," as they are celled, exhibited by Messrs. Hawkins & Centrell, 210 Beele street. Two sizes are shown, the smaller of which wes the engine employed during the first days of the exhibition for runniug the power press upon which the MECHANICS' FAIR DAILY is printed. These gentlemen make a specialty of building this class of portable engines, which are lsrgely nsed for various purposes in all parts of the State, as they are employed for loading and unloading ships; for pumping and hoisting in the mines, and in general for all purposes for which portable engines mey be employed. They are mede of all sizes end either upright or horizontal. The two on exhibition are upright, and are good specimens of workmanship —subetentiel, but not showy.

Near the further end of the mechinery department our attention is arrested by a heavy hammeriug, which, on examination, proves to be a small steam hemmer, put in operation by an engine exhibited by Treedwell & Co., the well-known Market street firm. This cless of engines, while they are found useful in every locality, are well celculated by their light weight for employment in places difficult of access, es for saw mills, for drilling, for mining work, etc. In this engine the usual heavy iron bed-plate is dispensed with, and a large stick of timber substituted, such as cen reedily he found and prepared upon the ground. The engine is simple in construction, capable of doing heevy work, and but little liable to get out of order—all of which are of great advantege for the purposes uamed. We here see how the steam engine is mede to do our hammering and forging, when required for such work. We shall have occasion to speak more particularly in another connection of this hammer, which we believe is a California invention and mannfacture.

Well Out of the Way.

By verbal order of Lient-Col. Stewart, Cept. Weeden, of the Engineer Corps, made an exsminetion of the ship Petrician, which has been lying on the bar at the entrance of the harbor for some time peet. Having made the requisite exemiuation, Capt. Weeden found that a spar was stending perpendicularly from the wreck, its top being bnt a foot or two under the surface of the water. Also, that a knee from the bow of the wreck protruded ebove the bottom. The remainder of the hnlk has been covered by the sends, so there was very little obstruction to navigation therefrom.. Upon e second examinetion, Capt. Weeden decided to remove the remaining obstructions. He left with the necessary apparatus last week, hut wes compelled to return on acconnt of the high sea then running on the bar. He went again to the wreck, in order to remove the knee and sper with giant powder. To this end he ordered a three-inch rubber hose eight feet long to be filled with No. 1 giant powder. Thie piece of hose conteined twenty-eeven pounds of the powder. He took elso a specially prepared snbmarine fuse, and for the purpose of making sure work, filled several tin tnbes with giant powder.

Mr. Charles Lougee, the well-known diver, hed before examined the wreck and on close examination he found that the spar wes the bowsprit, sixteen inches in diameter at the bottom, which had been broken off and was kept in its erect position by the bob-stay chein. Captain Weeden nnited the two ends of the hoee containing the powder and cut two smell holes in the rubber, in which he inserted the fuse, primed with Giant powder ceps. The holes in the hose were bound np with tar and oiled silk to make it water-tight. Two fuees were nsed so as to prevent a misfire. The circular piece of hose wss then slipped over the spar and the diver, Lougee, pushed it close down to the deck of the ship, whero it was festeued.

The fuse wes lighted, and Capt. Weeden retired to a safe distance with his men. The result of the explosion wes that a large piece of the spar was thrown a hight of forty feet, and on the diver descending it was ascertained that the knee and epar hed been totally demolished, and there wes nothing of the wreck visible above the sandy hottom. Cept. Weeden hes recommended to his snperior officer thst the buoy merking the wreck be now removed, ss the obstacle ie entirely gone. There are some five fathoms of water over the wreck, although the Coest Survey Charts only call for four fethoms.

Rich Silver Ore.

An unexpected and very important change has teken plece in the lowest workings of the Silver Leke mine, situated eoutheast of Daytou, in the direction of Welker River. The vein upon and neer the surfece contained very rich ergentiferous galena. It has been opened by meens of two tnnnels end for some time pest ore has been shipped from it for emelting. The first lot wes shipped to the smelting furnece of an English nompany at Trnckee and was found to pay well; now now they are shipping it to a new furnece at Secramento at the rate of two car loeds per dey. John B. Winters, a principel owner in the mine, yesterdey returned from a visit to it and brings in some specimens of ore just found in the deepest workings from the lower tunnel which show the commencement of a moet importent and wonderful cheuge. Native silver is coming in and is to be seen covering the ore in hright and beautiful sceles. These flakes of silver ere to be seen not only upon the galena hut are also in spots of brown, decomposed meterial resembling iron rust. The galena upon which the flakes of silver appeer is not the bright cubical galena found in the upper portions of the vein, but is a hleck, messive ore in which the distinctive crystallizetion of galene is not contained. It looks more like a fine-greined black sulphuret ore than anything else. The miners (who are only conversant with the gelena ores of this State we presume) are very much astonished at seeing this native silver coming in, end declare that the like wes never before seen. The like may never have been seen in the mines of Nevade, but among the mines of Mexico some of those richest in netive silver produced argentiferous galena on the surfece. From the first we have had a good opinion of this Silver Lake mine, end now we are inclined to believe that there is likely to be made in it some starling discoveries in the wey of native silver; for be it known that they are as yet down but about 200 feet—*Enterprise, Aug.* 26.

WOOD.—Timher is becoming scerce in the vicinity of this city and Grass Valley. Wood hes to be hauled in most oases distances of five miles and over. Still the price is not much higher than ever it wes. Gond wood of different kinde can he purchased from four and a helf to six dollars per cord. Woodmen are busily engaged now hauling to femilies for their winter supply. When the storms come, a good supply of dry wood is a good thing to heve.—*Transcript.*

THE new air shaft of the Belcher will be completed to the 850-foot level in about two weeks. It will be continued to the lowest level of the mine without delay. Being of great size, it will operate ae a chimney to carry to the surface an immense volume of heated air.

The Judd and Crosby Reduction Works.

The *Colorado Miner* saye: The Judd & Crosby works at the upper end of town will be, when completed, probably one of the most conveniently arranged mills in the Territory. It is rapidly being fitted up for work, and before many days the mechanics will give place to the millmen. The building is so situated that advantage can be taken of gravity in the necessary moving of ore, and to systematically explain ite working, let us follow e ton iu its passage through the mill. Entering upon the first or highest floor, which is on a level with the road, the ore is dumped through e trep door into the bin beneath the floor. The team can then pass through the mill to a pletform upon which they can turn.

The hin into which the ore has been dumped opens on the crusher floor about three feet above the level of the stamps. In front of the hin door and hack of the "driet" is the Dodge crusher, to which the ore is fed, and from which it is spread upon the iron plate covering the flue where the ore is dried before passing into the hettery. After being entirely deprived of moisture the contents of the drier fall down to the stamp floor, where they pass through the battery end into a conveyor, when crushed sufficiently fine to pass through a 40 or 50-mesh screen. The stamp capacity of the mill is about 15 tons per day, or a ton to a stemp, there being three betteries of five stamps each. The conveyor carries the "raw pulp" to a floor a little above the level of the top of the furnace, where it falls into a hopper and automatic weigher. From tho weigher the pulp is emptied into a car which cerries it to the hopper, through which it enters the furnace, the mouth of the hopper heing on a level with the lower part of the car.

The furnace is a combiuation reverberatory with Stewart's patent arch. It compriees seven hearths and they ere arranged as follows: The upper or calcining furnace conteins two hearths with a three-inch fall between the two. The last hearth is connected with an inclined flue leading to the middle heerth of the lower reverberetories. On eech side of the last mentioned hearths are two others with a three-inch fall between them also.

The pulp emptied on the first hearth of the upper furnece is gradnelly moved along the npper hearths, and reeching the flue drops down to the lower middle hearth, moving always toward the fire. From the middle hearth the ore is drawn alternately to the right and left on to the chloridizing heerths, where the ore is salted, chloridized and the cherge drawn on to the cooling floor.

From here the "roasted pulp" is conveyed to the pan room, which is ou e still lower level. The pens in use are the combination amalgamators and cepable of holding ebout one and a half tons each, or a total of six tons for the four pans. The amelgam obtained still continuing the downward course goes to the strainer floor and then to the retort room. The retort bullion is then cerried to the melting room, ueerly on the same level as the retort floor, and there cest into ingots, asseyed, merked and shipped.

The peculier edventage of this mill is that except in one ceee everything moves downward, and that is in the carrying of the ore from the battery to the furnace, where an elevator is used. In every case where menual lebor can be dispensed with, either by snbstituting mechanical means or teking advantage of gravity, it ie done.

RICH ORE IN THE OPHIR.—We yesterday morning mede mention of a piece of black snlphuret ore from the 1,465-foot level of the Ophir having been ehown us in which free gold was visible. Yesterday an abundence of such ore was found iu the ore body on the same level. So much free gold hes mede its appearance that a piece of ore two iuches squere cenuot be picked np that does not contain some perticles, end many specimens were teken out thet were literally spangled with gold. Assays taken across the whole face of the ore-body yeterday went at the rete of from $250 to $450 per ton. An assay of one piece of ore was made which showed gold and silver at the rate of $1,400 per ton. In pounding this up in the mortar the greater pert of the gold it conteined was flattened out so thet it would not go through the sieve. Had this been put in the assey, the yield wonld have been at the rate of $5,000 or $6,000 per ton Some yeers ego the finding of a body of ore like this would have heen heralded as a "rich strike," hut nowadays we seldom hear of a "strike," no matter whet may be found. Such a find is now spoken of by mining men as being a "good development."—*Enterprise.*

THE yield from the quartz mines, at least so far as Lewis and Clerk counties, Montaue, ere concerned, is much in edvence of last year, and bids feir to constantly increese. There have been but two or three small mills running in this vicinity, but there have been many hundred tons of ore shipped to New Jersey and Swansea for reduction. This hes given quite an impetus to the Holders of silver mines to develop them, and the coming winter will witness hundreds of men engaged in taking out ores for shipment.—*Helena Independent.*

THE Idaho *World* is informed thet a hunter near the Golden Era miue, on Summit flat, accidentally discovered a quartz vein lately, which was only two inches wide on top, hut very rich in gold. The vein has now been suuk to the depth of about 14 feet, and the rook is literally woven together with threads and wires of gold.

Mining Prospects in Arizona.

For nearly a year the mountains in various directions from Tncon have been scoured by prospectors for gold, silver and copper, and with gradually improved success, until now the developments are abeolutely exciting. It ie not our habit to overrate anything about mining operations; in fect we heve been so ceutious in this respect as to often incur the censure of onr locel patrons. We have always hed feith that work would show wonderfully rich mining property in this section, and the labor and perseverence of our people have verified our faith.

Monday of this week, George Hoeg returned from a proepecting trip in the mounteine about six miles northwest of the noted Oro Blenco mines ebout seventy miles south of Tuscon. He discovered a very rich gold ledge twelve feet in width, in a favorable locelity for wood, water end grass. He prospected both sides end the center of the vein with good prospects at all points. The ledge shows well for a distance of 1,000 yards. He brought in a couple of hundred pounds of ore, the most of which hes been tested by Dr. J. C. Handy, and Mr. Hoeg informs us that every piece teeted exhibited splendid prospecte iu free gold, and it contains some silver. We exemined a veriety of semples of the ore now in Mr. Hoag's office, and they neerly all show gold to the naked eye. There are three veins within the 500 feet claimed in width, all of which contain free gold. This is evidently a most valuable diecovery for the cleimant and this community.

On Tuesday, the most exciting reports were brought from the Young America oopper mine in Silver mountain district, abont 45 miles west of Tucson. Our readers will remember frequent notices of work on thie miue during the past year, aud the pure copper that was found in ebnndance. The workmen are now down 40 feet, et which point the copper has turned into silver, worth from $1 to $3 per pound. The width of the ledge is unknown, as the shaft shows good ore on all sides. Samplee of the ore, es now coming from the sheft, were brought to town on Tnesdey, end may he seen in C. O. Brown's cebinet, at Congress hell. E. A. Pearce sent some to Detroit, Michigan, to E. B. Ward and esecciates, who are taking great interest in Arizona mining property. The Young America mine is the property of Tully, Ochoa & Co.; Charles O. Brown, E. M. Pearce, end probebly others have some interest. Other mines now being developed in the vicinity of the Yonng Americe, are nowlyielding silver ore worth from hundreds to thousends of dollars per ton.

Charles O. Brown and assooiates sterted a wagon load of provisions, tools end quicksilver to the Oro Blenco minee, on Wednesdey, and followed them on Thureday. Mr. Brown has immediate eupervision of the works, end he now goes out hetter than ever prepered to accomplish work. He has no doubt of bringing in 100 ounces of gold in a few days efter he gets out end puts things in motion.

With the large increase of stock end the undoubted brilliant mining prospects in view, the most despondent man ought to look on the future of thie country with essnred hopes of prosperity. Rich mines enough are known to exist and are being operated in a smell way, to ensure, with proper machinery, an annuel product of gold and silver in Pima county of at leest $20,000,000. And prospecting ie going on with increased vigor, and by our own citizens, too.—*Arizona Citizen.*

RAYMONN & ELY.—Yesterday we visited the Raymond & Ely works and found thet preperations were being pushed forword with mnch vigor, for the reception and placing of the pumping mechinery. Fonr gangs of men ere engaged in enlerging the pump shaft, end they are makiug good progress. Three hnndred and fifty feet of the sheft has been enlarged and is newly timbered. The timhering is being executed hy R. P. Audrews, who is a most competent hend at that business. The work of preparing the timbers ie not slight, and keeps four good cerpenters busily engeged in getting them out. Considerable mechanicel skill hes been shown in plenning and building a trues 58 feet in length, intended to support the roof over the engines. It is the work of Mr. Lindsey. The operations are making as rapid progress es possible, consistant with good workmanship, end under the intelligent and careful supervision of Capt. Dey, superintendent, and T. J. Andrews, foremen, will be bronght to a speedy and successful conclusion. From the mine no ore whatever is being raised.—*Record, Aug.* 23*d.*

NOT FALLEN OUT.—We are of the opinion thet the bottoms of our mines have not yet fallen out. The developmenta appear to tend the other wey. A day or two siuce, in the Megnet mine, on the 800-foot level, a large body of ore was encountered thet seems to he as large in quentity es it is remuneretive in quelity. From all appearances it would appear that this deposit is very extensive and effords additionel evidence thet ell that the owners of our mines have to do is to keep at work, end in the end their patience will he rewerded and their outley returned many fold. Abroed there have been a good mauy crocodile tears shed respecting the decedence of the Pioche miues, but ere many months expire we believe we will he able to tell a different tale.—*Pioche Record.*

THE Consolideted Virginia mining company have introduced a new patent three-decker safety cage, made by John A. Holden, head blacksmith at the mine. It is constructed in a strong and substantial manner. Each cage bears the weight of about three and a helf tons.

Useful Information.

New Method of Making Mortar.

So very marked is the mortar used in modern buildings as poor, compared with that long ago used, that various attempts have been made to ascertain the "secret," if secret it was, of the composition of the old builders in mortar-making. One "secret" which the old builders possessed, we may quietly here impart to those of the present day, that is, that to make good mortar, good lime and plenty of it must be used; the old builders did not use a composition nearly all sand, and that sand not fit often to be used, and then call it mortar, as do the builders of the day oftentimes. When we examine almost any piece of modern work, we find that the mortar hardens very slowly, and even when hardened as much as it will harden, it crumbles away, loses cohesiveness, so much so that in many cases it is quite an easy matter to detach the stones or bricks from one another, and from the mortar. The very opposite characteristics are found in ancient work, and on examination it has been seen that the mortar has in great part been converted into silicates, entering into close union with the particles of quartz. It is to these silicates that mortar owes its firmness, and it is to the slowness with which silicates form in modern mortar, and small proportion of these present in it, that this owes its poverty. A method of setting free the silicious earth, and promoting the rapid formation of silicates, has been discovered by a Professor Artus, and which yields a mortar resembling in its characteristics those of the ancient kinds. The great recommendation the process possesses, is its simplicity. Lime is in the first instance well slacked, and mixed carefully with finely sifted sand; to the mass is added a quantity of unslacked lime to the extent of one-fourth of the sand in the first instance mixed with the slacked lime; mix the whole thoroughly, the mass heats and the mortar may be at once used. When the mortar is not wanted for immediate use, the first process only is carried out, namely mixing the sand with the fine slacked lime; when wanted for use the unslacked lime has to be added. A very strong mortar is said to be the result.—*Builder.*

Skeletonizing Leaves.—There are several ways of doing this. That by maceration is long, tedious and disagreeable, and quite out of date. The following are the methods now in use: Lay the green leaves and seed vessels on small sheets of tin, and cover lightly with thin lace or muslin, place in a vessel of cold water, put over the fire and boil slowly for several hours. Uncover one by one, wash out the cellular tissue with a camel's hair brush, then bleach, wire and mount in the usual way. Or put into a basin equal quantities of soft soap and rain water, put in the leaves and let it stand on the stove till the mixture boils. Remove the leaves to a pan of clear, soft water, wash them quickly and carefully from the soap, float out on a piece of glass, and remove the tissue with a brush, rinse in clear water. Or take three ounces of carbonate of soda, one and a half of quicklime previously slaked, and one quart of water. Boil 10 minutes and draw off the clear solution. Return this to the fire, wash the leaves, and boil briskly one hour or till the tissure is easily removed. To bleach the leaves, mix a drachm of chlorate of lime with a pint of water and a little acetic acid or strong vinegar. Steep the leaves in this about 10 minutes, simmer, rinse well and place in books to press. Or procure Labarrague's solution of chloride of soda, and use a teaspoonful to a quart of water. Put the leaves in, and in two or three days they will be perfectly white. —*N. Y. Tribune.*

Cheap Ice Houses.—At a meeting of the Elmira Farmers' Club, some time since, W. A. Armstrong said that a cheap ice house could be made out of a simple, well-roofed enclosure, without hollow walls or pits, or other costly apparatus. He leaves six inches of space next the sides all around, into which he rams clean sawdust closely, and covers the ice when packed with a foot of the dust. The ice is cut into large blocks and made to fit at the joints as closely as convenient, but where edges are jagged he fills in with pounded ice or sawdust—the latter being the cheapest. Drainage is important, but if the house stands on porous soil, or is so elevated that the water will run off readily, it answers every purpose. He had kept ice several years in such a building, nine feet square and the same in hight, the sides being only of inch boards. When the ice is taken out, be careful to keep all cavities covered with sawdust or it will waste away rapidly. In answer to a question as to the cost of a house 14 feet square, he said that $50 would pay for it and the sawdust; and built of cheap lumber it might cost only $25. In packing, spent tan or cut straw would answer nearly as well as sawdost.

Wire Fence.—The grassy angles between the walks in the dooryard can be kept free from intrusive footsteps by a low fence of telegraph wire painted green. Cut the wire in lengths of six or seven feet, and put each end in the ground, forming a semicircle. Midway between the two extremities of the first semicircle place one end of another length, and continue this simple fence as far as necessity requires. It should be about two feet and a half high.

Making Matches.

For those who care to experiment in making home-made matches, the following hints from the *Scientific American* may prove serviceable: The preparation is different according as they are phemical or lucifer matches. For chemical matches, put 40 grains of phosphorus in a wide-mouthed bottle. Add enough oil of turpentine to cover the phosphorus; then mix in 10 grains of flour of sulphur. Put the bottle in hot water until the phosphorus is entirely dissolved; stop the mouth of the bottle with a cork, and well shake the whole until it has become cold; afterwards pour off the supernatant oil of turpentine. Into the mixture of phosphorus which remains in the bottle, dip the extremities of the matches; and after some time, when they have become dried, drop them into the following mixture: Dissolve 30 grains gum arabic in a small quantity of water; add to it 20 grains of chlorate of potash, and mix them intimately together; then add 10 grains of soot previously mixed with a few drops of spirits of wine. In about 20 hours, the matches will be perfectly dry, when they will ignite on rubbing them over a rough surface. For lucifer matches, use one-third of phosphorus, and the remainder of gum arabic water and coloring matter like minium or Prussian blue. Mix in a water bath and muller carefully. The dipping is performed in the following manner: The melted composition is spread upon a board covered with cloth or leather, and the workman alternately dips the two ends of the matches, that are fixed in a frame. The fumes are very poisonous.

The Philosophy of Rain.

To understand the philosophy of this beautiful and often sublime phenomenon, so often witnessed and so very essential to the existence of plants and animals, a few facts derived from observation and a long train of experiments must be remembered:

1. Were the atmosphere here, everywhere, and at all times, of a uniform temperature, we should never have rain, hail or snow. The water absorbed by it in evaporation, from the sea and the earth's surface, would descend in an imperceptible vapor, or cease to be absorbed by the air when it was once fully saturated.

2. The absorbing power of the atmosphere, and consequently its capacity to retain humidity, is proportionately greater in warm than in cold air. The air near the surface of the earth is warmer than it is in the regions of the clouds. The higher we ascend from the earth, the colder do we find the atmosphere. Hence the perpetual snow on very high mountains in the hottest climate.

Now, when, from continued evaporation, the air is highly saturated with vapor, though it be invisible and the sky cloudless, if its temperature is suddenly reduced by cold currents descending from above, or rushing from a higher to a lower latitude, its capacity to retain moisture is diminished, clouds are formed, and rain is the result. It condenses, it cools, and like a sponge filled with water and compressed, pours out the water which its diminished capacity cannot hold.—*Ex.*

New Method of Preserving Wood.—A new method of preserving wood from decay has been recommended by Hatzfeld. It seems that, in 1830, specimens of oak were dug up in Rouen, which had been buried since the year 1150. This wood was quite sound, but had acquired a black color like ebony, and an astonishing hardness. Hatzfeld ascribed its preservation to the joint action of the tannin in the wood and the oxides of iron in the soil. Accordingly he now proposes to preserve wood artificially by means of tannin and the pyrolignite of iron, a combination which would in some measure bring about the same changes noticed in the specimens from Rouen. Hatzfeld impregnates the wood to be preserved, first with tannin, and subsequently with the pyrolignite solution. The latter substance has long been used alone as a preservative of the best character, and it is doubtful whether the addition of the tannin, as proposed by Hatzfeld, will prove of sufficient advantage to warrant the extra expense.

A Home-Made Barometer.—What is known as Bishinet's barascope is a simple and convenient instrument for foretelling a storm by change of atmospheric pressure. To construct it, take any bottle, and pour colored water into it to one-fourth its depth, insert in it a glass tube, from three to four feet long and passing air-tight through the stopper, which must also be air-tight. Let a paper index, divided according to any scale of division, say into inches and fractions of an inch, be glued to the glass tube. Blow into the glass tube, so as to cause the water to rise in it a few inches, say ten inches, and the instrument is constructed. The bottle must be placed in another vessel, and protected by sawdust, or some other material, from the influence of change in the atmosphere. This very sensible instrument records faithfully any changes in the density of the external air, and the approach of a storm will be indicated by a sudden rise of the water in the glass tube.

Gun-Cotton.—A loose yarn of gun-cotton, if gently set on fire by a spark, smoulders slowly away, but burns rapidly if lit by a flame. A charge of cotton in blasting a mine or quarry, or in a rifle, explodes after the manner of gunpowder; but if fired by a few grains of fulminating mercury, it "goes off" with terrific violence, and can therefore be applied for blasting purposes on a tremendous scale.

Good Health.

Delicate Operations.

Dr. Prengler, of Addison, Illinois, (*Chicago Med. Examiner,*) has transferred the blood of lambs into the human subject in two cases. The first was a young man who had been consumptive two and a half years. A healthy lamb was obtained, and secured on a board. Its carotid artery was laid bare, and surrounded by two loose ligatures, while one of the patients veins was prepared in a similar manner. Connection was made by cannula and rubber hose.

Compression of hose and artery, before employed to prevent loss of blood, was discontinued, and for ninety seconds a stream of vital fluid was allowed to flow into the patient's system, the quantity being estimated by the subsequently ascertained rapidity of the current, at about eight ounces.

Immediately a sense of warmth spread from the incision over the patient's entire surface; the face became flushed; the pulse slackened but full and firm, a slight *fullness* in the head increased to excessive vertigo; ringing in the ears was heard; vision became indistinct; *snowflakes* seemed to appear before the eyes, while a constantly increasing dyspnœa indicated a discontinuance of the transfusion. All symptoms disappeared in a few minutes, and nothing was observed until, after about two hours, rigors set in, giving away after fifteen minutes to a rather high fever, the temperature rising to 104°, the pulse to 115 beats, leaving the patient toward the middle of the night in a sound sleep. On the next evening the fever was repeated, but only in moderate intensity.

Very little change appears to have followed in the patient's condition. Hasse, of Nordhausen, Germany, claims to have cured several cases of advanced phthisis by this method, which he put in practice in forty persons. In the present case the account goes on to state, that an uticaria which Hasse had met with, appeared after eight days, covering most of the surface, and subsiding in three days; "its subsidence being accompanied with the vanishing of a strong *odor of lamb,* which had haunted the patient till now."

The second case was that of a man far advanced in phthisis. Ten or twelve ounces of blood was transfused in the same way. The effects were similar. Chilliness commenced immediately and the extremities turned blue, while the temperature rose to 104°. Reaction followed, but the result was not known at the time of making the report.

Bloodless Surgery.—A description of the Esmarch process for performing surgical operations without provoking the usual hæmorrhage, recently appeared in *Les Mondes.* The devices used in connection therewith by inventor are thus described: These consist of an elastic bandage, measuring 26 feet in length by 18 inches in breadth, and a tube or cone of strong vulcanized rubber, having a hook at one end and a chain and bar at the other. The application of the apparatus is very simple. Supposing that an arm is to be amputated, the hand is tightly wound around the member from the extremities of the fingers up to a little above the point at which the division is to be made. By this uniform compression the blood is forced back and out of the vessels. At the upper limit of the bandage the rubber end is passed three or four times around the arm, as closely as possible, and fastened in place by the hook and chain, thus preventing the return of the circulation to the member after the bandage is unwound. The latter on being removed, leaves the arm white and free from blood, and hence ready for the operation, which is accomplished with a very trivial effusion.

The Right Sort.—There is a class of cosmetics we can safely recommend, and guarantee that they will produce not only a clear complexion, but improve the general health. Our cosmetics are plain, wholesome, nutritious food, not vitiated with soda or spice, or lard, abundance of fruit (dried apples nicely cooked will answer), frequent ablutions of the entire body, accompanied with plentiful use of fine soap on the face as well as other portions of the surface, ample exercise in the open air, and early and long sleep. Three months' use of these cosmetics will improve the most hopeless complexion, and leave only the happiest after effects.—*New York Tribune.*

Hospital Hygiene.—Dr. Alphonse Gueriu, an eminent Surgeon of the Hotel Dieu, in Paris, has recently presently to the French Academy of Sciences a remarkable memoir on the influence of atmospheric germs on surgical maladies, in which he strongly advocates tow dressings for wounds. He states that, when this material is packed upon the injured part, the pus is completely preserved from putrid fermentation. He uses the tow in brief as a filter for the air, which circulates freely through it, and in fact produces an arrangement highly analogous to the cotton wool respirator mentioned by Professor Tyndall in his paper on haze and dust.

An English chemist, officially employed to detect adulterations, has reported 40 faulty samples out of 170. Arrowroot was mixed with starch, coffee with chiccory, milk with water, mustard with flour and turmeric, vinegar with sulphuric acid, etc.

New Remedy for Dysentery.

In a recent issue of the *Archives de Medicine Navale* is published an official note, addressed by Dr. Robert, who is the medical chief of the naval division of China and Japan, to the Inspector General of the Health Service in the French navy, calling attention to a drug used by Chinese physicians in the treatment of dysentery. It consists of the root bark of the *ailanthus,* very common in China, also cultivated in France and in this country.

The bark of the root is the only part employed. An infusion of the bark, however, exhales a slighly nauseous odor, and possesses an excessive bitterness, resembing that of sulphate of quinia. The Chinese physicians employ the root in the fresh state only; but Dr. Rohort, having been compelled to use some that had become dry, found no sensible difference in its action in the two states.

For administration, one and a half ounces weight of the root is cut into very small pieces and triturated with two ounces of hot water for a few minutes, in a mortar, in order to soften the herb, and then strained. A teaspoonful of this strong infusion is administered as a dose, morning and evening, alone or in a cup of tea. Taken in this form, it provokes vomiting. The medicine is administered in this manner during three days, the patient being kept upon full diet. After that time the *ailanthus* is omitted, and the diet is altered to broths until health is restored. If after eight days' treatment the patient is not cured, the Chinese physicians recommence the use of the *ailanthus;* but Dr. Rohert states that he has not met with a single case in which this resumption has been necessary, although he had under his notice some where the disease had lasted several months, as well as others of more recent origin.

The principal symptoms which follow the administration of the *ailanthus* are said to be nausea, and sometimes vomiting, followed by a temporary lowering of the pulse. The disappearance of blood from the evacuations commences on the first day, and is completed on the second; the colic ceases a little later. The effect of the drug upon the color of the evacuation is variable. Dr. Rohart sums up by expressing his opinion that the administration of the *ailanthus* gave superior results to those of ipecacuanha, astringents, alone or combined with opiates, or calomel.

The Germ Theory of Disease.—That hay fever, a disease quite prevalent during the present month, is traceable to vegetable organisms, is a curious discovery, tending toward the confirmation of the theory that disease is originated and propagated by independent organic germs, recently made by Professor Binz, of Bonn. The investigator has been himself subject to the malady, and has pursued his researches over a number of years. On examining the nasal secretions with a powerful immersion lens, he found the organisms to be absent, except when the disease attacked him during spring. Then the parasitical bodies were chiefly seen in motion, vibrating on the slide and increasing in size after several days. By using a neutral solution of sulphate of quine, applied by the nasal douche, Professor Binz found that the animalculæ were completely destroyed, and that subsequent examination failed to show their existence in the secretions.

Ether for Tape Worms.—When the anæsthetic power of ether was first discovered, it was only proposed to use it on human beings to render surgical operations painless. Yon Heydon, the merciful man who would not inflict pain on any living creature, employed it as long ago as 1830 for killing insects for his collection. Even worms are rendered dormant and helpless by its use. Prof. August Vegel now announces a new application of this anæsthetic for worms—its application to tape worms. The ether is enclosed in a gelatin capsule and swallowed. The ether is vaporized in the stomach and the worm stupified, it being then easily removed by any of the usual remedies, against which, when awake, the worm offers a strong resistance.

Sausages Colored by Aniline.—Aniline red is used to impart to sausages a fresh and healthy appearance. It can easily be detected by the use of alcohol or ether, either of which substances dissolves aniline, but not blood. This use of aniline red is severely reprehensible, not only from the fact that it is known to have caused the illness of entire families who have eaten meat colored with it, but also because, from its mode of preparation, it frequently contains arsenic, and must, therefore, act as a poison.

Antidote.—A post-office agent, traveling in Texas, tells of a successful use of the gall of a rattlesnake as an antidote for the bite of that reptile. In the case spoken of, relief was almost instantaneous to the patient, who was writhing in paroxysms of great pain, and rapidly swelling and becoming purple. We obtain the information from a local exchange. Sounds a little too much like "the hair of the dog, etc." What a simple remedy! and so extremely handy.

Water Contaminated by Copper Tubes.—Copper tubes, like those of lead, are objectionable for conducting water for drinking purposes. Experiment teaches that in a short time 1,000,000 parts of water contained 7·2 parts of copper. In another case the same quantity of water contained .8 part of copper.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, Sept. 5, 1874.

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S. S. FISHER.—We regret to have to announce the death of Hon. Samuel S. Fisher, our former Commissioner of Patents. Mr. Fisher and his son were both drowned while on a boating excursion on the Susquehanna river, on the 15th of August last. As Commissioner of Patents Mr. Fisher was the author of many reforms in our patent office, from which the inventors of the country have received and will continue to receive permanent benefits. As a patent lawyer Mr. Fisher stood at the head of the list and his decisions upon patent subjects were always characterized by reason and good sound sense.

NORTH PACIFIC RAILROAD.—Two fine narrow gauge passenger locomotives for the North Pacific Coast Railroad arrived in this city on Wednesday morning from the Baldwin Locomotive Works. This is good news for our friends in Marin and Sonoma counties, as they can see that it will now not be long before the road will be in running order. The engines are very handsome and serviceable.

IT is estimated that $20,000,000 have been invested in Colorado mines by New Yorkers; that the bullion product has been $3,000,000, and that the property now owned by the companies is worth $38,500,000.

MR. DUFFY informs the Carson *Tribune* that the acid works which were recently destroyed by fire, will be immediately rebuilt upon a much larger scale.

THE two potteries at Sacramento are doing a lively business. Both are enlarging their capacities.

THE Golden Fleece Tunnel, in the Peavine district, is now in 400 feet, and within 100 feet of the ledge.

THE Marysville foundry shipped last week to Battle Mountain, Nevada, a 10-stamp quartz mill.

San Diego Mines.

In conversation last week with Mr. Woods, from Banner District, San Diego county, we gleaned a few facts from that locality which are of interest. Mr. Woods tells us that of late a better class of population is coming into the district. There are a number of mining men from Grass Valley, Cal., and from Nevada, who are interested in the mines. It is a good sign for the district to see men coming from other mining localities to look at the mines. The Ready Relief mine, recently sold for $45,000 to Eastern people, will shortly be started up in first-rate running order. They have already a first-class 10-stamp mill with a 25 horse-power engine. The old mill was of three stamps and run by water power, which for the past two years has crushed from one to one and a half tons per day. This mine is situated in a peculiarly advantageous position for working. It is on the face of a bluff and tunnels are run right in on the ledge, no hoisting being necessary. One tunnel is in 150 feet, one 200 feet and another 150 feet, all three on the ledge. There is a shaft from the surface to the end of the lower tunnel, 110 feet deep, which is used as an ore chute. A small tramway was built about 60 feet long from the mouth of the lower tunnel and from it the ore is dumped about 30 feet right alongside of the mill. The creek runs alongside of the mill. They have had from 15 to 20 men at work for some time and for the past four months have used a five-stamp mill for crushing. No ore is being crushed until the new mill is completed.

The Helvetia is in Julian, the adjoining district. It was sold some months since to Eastern parties. They are now putting up hoisting works, with a 25-horse power engine to operate them. A five-stamp mill will shortly be erected at the mine. On the Owen's mine, now belonging to Booth & Co., a new shaft will probably soon be started as the old one has caved badly.

At the Golden Chariot, now known in the stock market as Chariot Mill, they are getting out very rich ore, and some of it is being selected and placed in boxes as specimen ore. The old shaft on the big ledge is 150 feet deep. The ore in this part of the mine was not very good; a drift was run to the eastward, to the "Joker" ledge, where they struck very rich rock. The ledge is very small, being only six or eight inches wide. The new shaft on the main ledge is about 180 feet deep; it is 600 feet north of the old one. In this new shaft they have got ore as rich as that in the Joker, but the ledge is from six to ten feet wide. This is the place where the very rich ore is found. This ore was struck about a month since. They have hoisting works at both shafts. The mill belonging to this company is four miles from the mine in San Felipe cañon. It is a ten-stamp mill of the most improved pattern, with copper plates, and five of Hendy's concentrators. A ledge, called the Young, has been found about four miles south of the Chariot on the same belt. The ledge is six feet wide and some of the ore crushed at Julian yielded $30 per ton; as the Chariot is four miles south from the cañon, and this mine four miles south of the Chariot, it gives some idea of the extent of the range. Mines are being worked some two miles north of the cañon, also. This belt of country is covered with ledges and has only been superficially prospected. Several other mines in the district are doing well, but the Chariot is the "Banner Mine."

OUR mint is turning out bullion by the ton: the coinage for last month was the greatest of any month in the history of the mint, being $4,120,000 in gold, 191,000 trade dollars, and $9,000 in half dollars, or a total in value of $4 320,000. It is the opinion of mint officials, judging from the receipts of crude deposits, that our California gold mines are producing more bullion than ever before, the dust deposits from gravel claims being constantly on the increase. For the eight months ending August 31st, the mint has coined $17,372,000. To give an idea of the ratio of increase, we append a table from the *Post*, which shows a comparative statement of the coinage of the San Francisco mint for the first eight months, corresponding with the portion of the calendar year just passed:

	GOLD.	SILVER.	TOTAL.
Jan. 1 to Aug. 31, 1865....	$ 9,642,000	$ 112,500	$ 9,754,500
" " " " 1867....	11,230,0 0	206,000	11,436,000
" " " " 1868....	7,035,000	442,000	7,478,000
" " " " 1869....	6,795,000	147,000	6,942,000
" " " " 1870....	12,533,000	276,000	12,809,000
" " " " 1871....	12,560,000	680,775	13,240,775
" " " " 1872....	9,920,000	339,540	10,259,540
" " " " 1873....	12,972,000	206,400	13,178,400
" " " " 1874....	15,325,000	2,047,000	17,372,000

SILVER NEAR CALISTOGA.—The greatest excitement has prevailed in Calistoga for the past few days, occasioned by the discovery of three distinct silver-bearing ledges west of the Calistoga silver mine. The croppings are bold, and assays prove the existence of gold and silver in small quantities. Between 200 and 300 claims have been located, and the Recorder and his deputies are busy recording and surveying claims. About 100 prospectors are daily seen climbing Mount St. Helena, and the reported successes of the Calistoga company bring new arrivals by every train. The first clean-up of the Calistoga mill will take place on the 15th instant.

THE Eberhardt and Aurora mines, White Pine, are turning out their usual quota of high-grade ore.

Mill and Mining Supplies.

An enterprise has been started in this city within the past few months which is of considerable interest to the mining community. Messrs. Kabath & Ladd have established themselves here as dealers in mill and mining supplies, intending to deal exclusively in articles for mining purposes. They rightfully judge that they can supply and sell goods of this class cheaper than parties who keep them only as an adjunct to their business. By making a specialty of this, they will in course of time accumulate considerable information which will be of benefit to customers, and which can be got at in no other way, as they will have better facilities for posting themselves than those who do a miscellaneous business.

Although the mining interests are so large and important on this coast, no one has heretofore attempted to establish a business intended specially to furnish mining supplies. This is somewhat strange, but we have no doubt that several establishments of similar character will be started before long. The business of mining is enormous on this coast, and is growing every day; so that it actually requires men who understand the business, and who make a specialty of it, to furnish the necessary supplies. A good many persons take charge of mines, or are connected with them in an official capacity, who have very little idea as to prices or quality of supplies. By purchasing promiscuously they pay two or three times the value of the articles bought. The firm to which we refer have an established price, from which they do not deviate. The only difference they make in price is whether goods are bought for cash or on time, or in large or small quantities. The prices established give them a profit of about two and a-half per cent. and they inform us that their facilities are such that general dealers can not undersell them. In some cases, where time is called for, they expect a profit of five per cent. on the goods, but never higher than this. Most any person will realize that these figures represent a much smaller profit than is usually made. They import their goods themselves, and have sufficient capital to carry on a large business with every facility.

It will of course remain with mining men to support an institution like this. It is always difficult to establish anything new, but this is intended for miners, and they should post themselves about the house, and not let an establishment like this fail for want of support. They have no intention of monopolizing the trade, for they fully expect, themselves, that five or ten similar houses will start in when they know this is a success. What they rely on is their ability to sell good articles at a low figure. People can purchase good or inferior articles as they choose to pay the price for them; and Messrs. Kabath & Ladd state that other dealers who only deal in mill and mining supplies in a small way cannot sell the same goods of the same quality at the same prices they do. They guarantee all first-class goods at an advance of from two and a half to five per cent., according to size of order. They are willing at any time to send their price lists to parties desiring them, and give such information concerning them as is wished for. It is useless to enumerate the many things comprehended in "mill and mining supplies," as every miner can understand what a varied list of articles the phrase covers; but these parties keep everything it is possible to mention in this connection and can fill the largest orders.

Messrs. Kabath & Ladd are also agents for the Laflin & Rand Powder company, the largest manufacturers of powder in the world, having five and a half millions of dollars invested in the trade. They make half of all the powder used in the United States, and claim that it has 25 per cent. more strength than any other powder. It is sold at the same figures as other brands of powder, and is packed in metallic kegs. In a conversation this week with one of the gentlemen who has started this business, we were informed that they had been quite successful thus far, and were very much encouraged. We hope to see before long a dozen similar establishments which have for their sole object the furnishing of mill and mine supplies.

THE Tacou country advices from Fort Wrangel, dated August 16th, state: H. N. Steele's party from the Tacou country returned this evening. They traveled up the Tacou river 150 miles to the forks. The whole country is nothing but a succession of quartz ledges. They found gold all along, but not in paying quantities. They think they did not go far enough by at least 150 miles. They represent the country as having a much milder climate than Cassiar, not over timbered, with prairie patches occasionally, in which grass grows to the hight of seven feet, and fruit and game of all descriptions exist without limit.

THE BLACK HILLS.—General Sheridan has issued an order to Brigadier-General Terry, at St. Paul, saying that unofficial information has reached his headquarters of the organization of parties at Sioux city, Yankton and Bismarck to invade the Sioux Indian Reservation, with the view of visiting the country known as the Black Hills. Should such information be correct, you will please notify such parties that they will not be permitted to go, unless under authority from the Secretary of the Interior or Congress.

Introducing Patented Articles.

In a recently published work entitled "Manual of Patent Law" by William E. Simonds, considerable space is given to the subject of the sale of patents. This subject is a very interesting one to inventors and is well treated by the author of the work in question. In speaking of the different methods of sale he has the following to say about "newspaper advertising," and we commend his remarks on the subject to the attention of inventors:

Another method of getting an invention before the public is through the medium of newspaper advertising. This is more expensive than the method just described, and is not, perhaps, advisable till that fails, though it may be often happily used in conjunction with it. If the inventor can afford it, it is well to have the invention illustrated and described in one or more of the scientific and mechanical publications of the day, of which the *Scientific American* and the *American Artizan*, of New York, and the SCIENTIFIC PRESS, of San Francisco, are notable examples. Such illustration and description may sometimes, of itself, prove sufficient. If not, it may be followed up by ordinary advertising; or, this illustration and description may be dispensed with, and the advertising confined to the regular advertising columns. In doing this, the advertisement should be inserted in the paper or papers which are designed to meet the eye of the class or classes of persons to whom the invention is of special interest. Any reliable advertising agent will be pleased, on request, to furnish, free of charge, a list of any required size, extending over the whole country or any part thereof, which circulate among any special class of people, and the advertisement of the invention should be inserted in one or more such papers, as the judgment and means of the inventor may dictate. It is very much better to insert a small advertisement in a large number of papers, than to occupy a large space in a smaller number. The experience of old advertisers confirms this proposition. If the inventor is not skilled in writing advertisements, it will be best for him, if possible, to get some properly skilled person to write the advertisement for him; for it is no common accomplishment to be able to put into a small space, in an attractive and striking and yet not vulgar manner, a notice of any thing, which shall say just enough to induce the reader to push further inquiries. Suppose the invention to be an improvement in the manufacture of coach varnish: an advertisement something like the following would not be inappropriate:

A NEW COACH VARNISH.—A most valuable patented improvement in COACH VARNISH is offered for sale; thoroughly tried and tested.
Address, T. W. COPAL, Haysbope, Conn.

This will occupy but few lines of space, and yet tells enough to interest varnish and coach men therein. It is not advisable to make much parade of the patent *as a patent*, for there is something of a prejudice among business men generally against patents, on account of the great number of humbugs which have been pushed into notice under their guise; but this prejudice vanishes, when they discover that the patent covers a real improvement.

The proper papers in which to insert an advertisement like the above, would be those which are intended for circulation among varnish users, varnish manufacturers and carriage builders, a list of which, with the charge for insertion, the advertising agents can readily furnish. When answers to advertisements are received, they can be replied to by such a circular as that hereinbefore described, accompanied by a letter substantially like that set forth, changed to meet the requirements of the case.

The inventor must not be afraid, if his means permit, to continue his advertising for some little time; for experience has shown, that, unless a person is more than ordinarily interested in the matter advertised, he has to see an advertisement a number of times before he will take any active step in reference to it.

SACRAMENTO SMELTING WORKS. — A correspondent of ours, who visited these works last week, says that the site is wisely chosen, as far from the crowded sections of the city as possible. Here, on an area of two blocks, the company have erected suitable buildings and are already in vigorous operation. As soon as their machinery is all completed, they expect to do a large amount of business. The furnaces are now in operation on rebellious ores from Salt Lake, yielding $130 per ton. They will be able to refine all bullion, and expect to be in full operation early this month. The process is that of Ballhack, of New Jersey. A piece of apparatus, known as the "pay car," is in operation at the works; it is the invention of Thomas H. Cameron, the foreman, and will be fully described as soon as the patent is received. Mr. Cameron is also patentee of the self-dumping mould in use at the works. No Chinamen are employed at these works.

YIELD OF THE COMSTOCK.—The present daily yield of the Belcher mine is 550 tons of ore; of the Crown Point, 500 tons, and of the Consolidated Virginia, 300—making a total of 1,350 tons of ore from three leading Comstock mines. In addition, the Chollar-Potosi produces daily 100 tons; the Sierra Nevada, 60 tons, and the Hale & Norcross, 30 tons—making an aggregate of 1,590 tons from the seven mines.—*Virginia Chronicle.*

Steam Engines at the Fair.

On page 150 of this issus will be fonnd some remarks on the steam engines on exhibition at the Mechanics' Fair. We continus below our notices of these exhibits:

Near the trip-hammer is one of ths celobrated Hoadley portable englues, so much used for threshing and other farm and general purposes. The efficiancy and safety of those engines have been very universally anknowledged in all parts of the Union. Many improvements have been made from time to time to their original construction, under the immediate supervision of Mr. Hoadley himself, one of the latest and not the least of which is the automatic variablo regulating cut-off, which adds greatly to its economy of power. This engino is also exhibited by Treadwell & Co.

Joat beyond the above is a similar, but somewhat more pretentious engine of this closs, exhibited by Baker & Hamiltou. This engins is from the Ames' iron works, Oswego, N. Y.; is of the locomotive patturn, and very superior finish. It is designed for thn same nlass of work as the Hoadley engine, and is operated in ths Pavilion by steam conveyed direct from the boilers. The bolster is placed under the rear of thn boiler, over the fore wheels, which arrangement brings the weight of the farnace and forward end of the boiler on the hind wheels of ths truck, the axles of which are carved to the shape of tho under part of the furnacn oud of tho boiler, whieb it snstains. It may be remarked tbat all thn steam engines of this class iutended for farm work and other general purposes are constructed with special regard to safety and simplicity of parts and management in its running.

Baker & Hamilton also exhibit the Baxter engine, manufactured by ths Colt's Patent Fire Arms Manufacturing Company. This is considered very superior as a small engins for general work, and makes steam in a very economical manner—the draught is up and down and up again, by which a very largs amount of heating snrface is obtained for so small an amount of space occnpied. All the heating is below the watnr line, hence thsrs is little or no liability of burning out the boiler. Special pains is also taken to secure a perfect circulation of water. Tbn engine is built upon, and secared to, the cylinder, while the lattsr greatly economizes its usn of steam by being immersed in that of ths boiler.

Returning to a poiat near tbe horticultural department, we find atill another class of small upright, portable engines, exbibited by Treadwsll & Co. This engine is manufactured by the Nsw York Safoty Steam Power Co. Ons of its leading pscnliarities consists in placiug the engine separate from and by the side of the boiler, instead of upon or in any way attached to it, sxcept at its base; hence, it cannot be affected hy the expansion or contraction of the bo ler or unnecessarily heated by conduction from the same. The sngins consists of two principal parts, ths cylinder and ths frame—the latter consisting of a tapering column of enrved outline, having liberal openings to allow of free access by the attendant to all its working parts. Ths form is gracsful in design and simple in mschanism. Special attention has also been giveu to prevent foaming in the boilsr, and to render it otherwise safe and reliable.

Thesa two engines—the Baxter and tbat of the Safety Steam Power Company—have each been dsvised with the ntmost regard for svery essential of service and safety which is within the power of the best mechanics and builders in ths coantry to deviss, after years of nareful study and experiment. Tbe former has been placed npon the market by a company of world-wide reputation for its skill in producing special tools and machinery. Its engines are bnilt with the aame care that is devoted to perfecting the celebrated fire arms by the company, every part of the engiue being interchangeable, as is the case with the pistol; the importance of which fact is well understood by all who are familiar with machinery. The latter is manufactured with equal care at one of the largest machine worka of the kind in the country, located at Hope Valley, R. I. For printing offices, small machine shops, and wherever a small, safe power is needed, these engines are most pecnliarly adapted. These two forms of engines are so well guarded against danger of communicating fire that we believe insurance companies, by common consent, make no extra charge on buildings in which they are employed.

Tbe class of small portable engines, if we are not mistaken, is a specialty in America, and is seldom found in any other country. Their existence renders more practical the possibility of smaller establishments, carried on extensively in this country, and which are so seldom met with in Europe.

The Steam Fire Engine.

We come now to consider one of the latest successful applications of steam—for operating fire engiues. Long after steam had been introduced for almost every other purpose for which power was required, the world was indebted to firemen's muscle alone in its olt and terrible conflicts with the fire fiend. Even after tbe idea of applying steam to working a fire engine was fairly broached, many of our best engineers and mechanics were fully impressed with the idea thet the project was utterly impracticabls—tbat too much time would be reqnired to get up steam; that a steam power attached to a fire engins would ronder the entire machine too bulky for ths celerity of motion and antion required in ths emergency of fires in ths crowded streets of a city. But Yankee ingenuity and enterpriss finally overcame all obstacles, and we hava to-day steam fire engines so perfectly constructed and so admirably adapted to the character and celerity of the duty required of thsm, that thers is scarcely any point left in which any considerable possible improvement can nven be imagined. There is no application to which steam has been applied wherein it has reached a more complete success.

Hitherto all the steam fire engines in use on this coast have besn built in the Eastern States; bet we havs to day on exhibition in the Pavilion an engine of this class which is altogethnr of California maks and design. This machine has been manufantured in this city by Goodwin, West & Co., and is supplied by the wsll known Goodwin pump. The engius itself is very handsome in its finish and ornamentation, and is said to weigh 500 pounds less than a second-class Amoskeag engine. The pump is so placed that it can ho readily taken apart without interference with the working gear of the engine, or any other part of the machinery.

A. L. Fish exhibits a fire engine manufactured by Clepp & Jones, Hudson, N. Y. This company is evidently doing considerable business in this connection, as the machine on exhibition is No. 128 of their manufactnre. We understand that San Jose and Virginia City have each supplied tbemselves with one of these machines. All tho other steam fire engines on this coast were furnished, ws believs, by tbe Amoskeeg Company, of New Hampshire.

The leading impressiou left on the mind after a careful examination of ths various steam engines on sxhibition is the multiplicity of its applications, and the almost infinits variety of forms which it is mads to assums. Visitors will here see, as has been shown, the engine fitted to almost svery class of work dsmanded by ths mnltifarious wants of the world's toilers, and producsd by the united skill of our most eminent mechanics and engineers. Some of these devices, though strange looking and incomprehensible to many, will be readily explained to the attentive enqnirer; while to the thoughtful and reflective they will lead to a more correct appreciation of the advantages tbey afford, and thus establish a better friendship between the man and the machine.

Within the last twenty or thirty years the patent office records show that many hundreds of patents have been granted for improvements in the steam engine. The efforts of inventors have been directed to every detail—even to the most minute. During this time the engine has undergone almost as many modifications as there are pnrposes to which, and forms in which, it has been applied. Most of the inventions patented have had reference to economy in fnel or in the use of steam.

To show the progress which has been made in improving the steam engine, we give, from an English estimate, the mechanical effect produced by a given amonnt of heat-producing material at different periods, as follows:

By Smeaton, before the application of the condenser, an average of 9,450.

By Boulton & Watt, highpressure steam, worked expansively, an average of 15,785.

By the latest improved Cornish engine, an average of 54,000.

In the consumptiou of fuel Smeaton's average result was, 17 pounds of coal consumed per horse-power per hour.

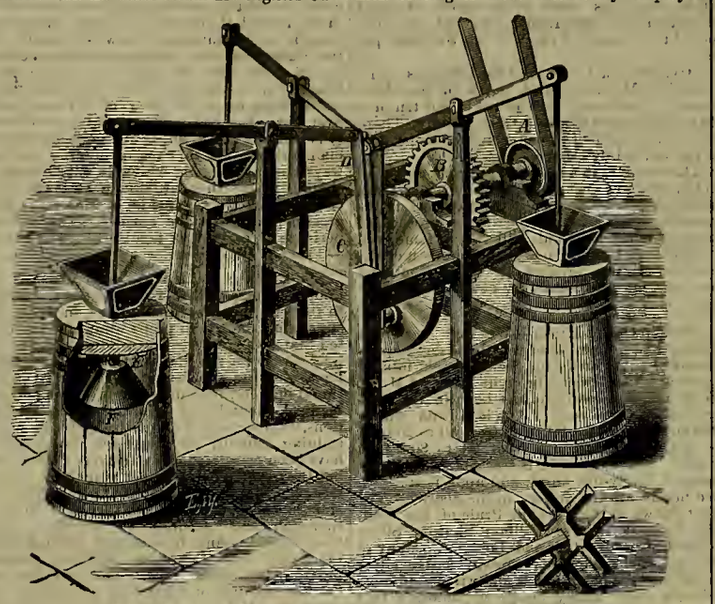
Watt's usual result was 10½ ponnds of coal per horse-power per hour.

The usual result in the best modern engines nsing high-pressure steam, expansively, is 3 pounds of coal consumed per horse-power per hour.

New Books.

Simonds' Manual of Patent Law is a book of 250 pages, containing information to inventors and patentees. Such a book has long been needed, and should meet with ready sale. The present work contains a plain and complets statement of the various laws, rules and conditions attendant npon application for patents, prosecntion of patsnt applications, rules of patent practice, and general instructions to inventors and patentees. It contains no surplus verbiage nor unintslligible decisions, snch as patent law books are generally mads up of, but its mannsr is concise and plain so as to be readily understood by every intelligent inventor. Ths work also contains soma sensible advine in regard to the sale of patents, together with a synopsis of Foreign Patent Laws, and a census table of the Statss arranged by counties, all of which is important and usoful to the patentee. Mr. Simonds is a nonsellor in patent cases, residing in Hartford, Conn., and has succesded admirably in producing a Patent Law Mannal or Hand-book, which will be of bensfit to the Patent world.

A Treatise on Bracing with its application to bridges and other structurss of wood and iron, by Rubert Heary Bow, C. E., has besn received from A. Romaa & Co. The book is a small one, comprisiug some 50 pages, with 156 illustrations on stone. The subject is one of much importance, and is briefly but olsarly treated. As bridges are the structures in which bracing is most extensively employed much is said of them; bnt, as the intention of the anthor is merely to explain its application, those parts which either influence or ars infineuced by ths character of ths bracing alone come strictly within the scope of the treatiss. In a few instances thn autbor may havs gone beyond this intention, in the belief that ths space so employed wonld not bs deemed unprofitable by the reader. The work treats mainly of the doubls acting or triangular method of braciug, but it is not strictly confined to that system, so it will supply an important desideratum in the library of the engineer.



RIDLER'S IMPROVED CHURNING APPARATUS.

Will's Table for Qualitative Chemical Analysis has been issued by Henry Carey Baird, the well kuown "industrial publisher," 406 Walnut street, Philadelphia. It is the second American, from the ninth German editiou, and was edited by Prof. Charles F. Himes, Ph. D. There is an introductory obapter on the "Course of Analysis," by Prof. Heinrich Will, of Giessen, Germany. The tables in the work, while compact, are sufficiently explicit. This edition contains, besides the marks of careful revision, two new tables by the anthor, embodying Bunsen's valuable flame reactions, and whilst nothing in the original has been omitted or changed, new matter has been freely added by the editor, generally placed in brackets. Thus other methods for the separation of the alkaline earths are given, and an additional table added for the detection of metallic oxides, which may replace parts of two other tables with the advantage of greater simplicity and directness. The ohapter on the "Course of Analysis" from the original is added, with the hope that it may relieve any inconvenience in directing the use of the tables. Compactness, completeness and general intelligibility have been mainly considered in the book. The work is one of great usefulness, and shonld be in the hands of every chemist and student in every laboratory in the conntry. The pnblisher will send it post paid for $1.50 to any part of the United States.

Encouraoino reports are received from the mines in the Cornucopia district.

Improved Churning Apparatus.

Ws illnstrata this week a devics invented by George Ridler, of Rickardsville, Dubuque connty, Iowa, who intsnded to fnrnish a convenient means of opersting a single churn, or any desired number of churns at once, in accordanca with the amount of cream used and power to be applied. To ths end of the driving shaft is attached a hand crank or a pulley, *A*, which is connected by a belt to a saitable motor. The shaft rotates in bearings in the frams work of tha machine, and carries a large gear wheel, *B*, which, through a smaller wheel below, actuates a balance disk, *C*. To a crank pin on ths latter are connected the rods, *D*, which, through the horizontal levers, pivoted to supports on ths frame, commnnicate motion to the churn dasher shafts. The frome of the apparatus may, if desired, rest upon a platform, in which recesses may be made for the reception of the lowsr portions of the churns. Ths peculiar farm of dasher represented in the foreground of ths engraving is mads by halving two bars to each other, and attaching them at their centers to the extremity of the dasher handle. Ths middle portions of ths ends of the bers ars cnt away, and ths arms thus formed are made V shaped upon the npper side, while they have groovss of similar contour on their lower faces. The undsr side of the middls portion of the dashsr is nonnaved, in order to gain a better hold upon the milk, and to prevent spattering. In the cover is formed a chamber, of which the funnel shown forms an upward continuation. Ths object of the chambsr is to receive the milk and fine butter which may be carried np by ths dasher shaft. Its bottom is formed by attaching to ths cover a plate, *E*, ths undsr side of which is made convex, so as to scatter the milk that may bs projected against it by the dasher. This plate is secnred by screws and may be readily rsmoved for cleaning, etc. Instead of the form already desoribed, the dasher may be made of the shape shown at *F*, its upper side bsing conical and its base slightly concavs.

In describing the churn the invsntor says: When the apparatus is in operation, it can be seen at a glance the usefnlness of my inveution. It will make mors and better butter than anything evsr invented for the purpose of churning. It works with ease and quickness; a child five years old can churn with it, and no cream will be spilled, worked with the funnel top and save-all chamber nover. Tho improved eight-finger dash not only churns, but by turning ths machins slowly after the butter is come, gathers it. We havs bsen in the dairying business 40 years, and have tried almost every kind of churns, and found by experience that the up and down dash churn is the best we ever tried. We experimsnted with four gallons of cream; we churned it in a rsvolving churn, got all the butter ws could, then put the buttermilk in a stone churn, worked with the machine and got a pound and a quarter of batter from the buttermilk; and we know it is impossible to maks as good butter with a revolving churn as with the old fashion dash churn. Conseqnently my churning apparatus will pay for itself in one month with a dairy of six cows. A singls machine will weigh about 50 pounds; it tekes but little room, only 12x18 inches, and will do the churning for a dairy of a hundrsd cows, and would be an ornament to any dairy room, and is always ready for use. All you have to do is to put ths churn on the platform and work the machine, and if the cream is of the right temperature you will get butter in fivs minutes.

The Patent Office.—We regrst to learn that the mania for change has again attacked the management of our Patent office. If there is any one department of our Government in which a frequent change in its working force operates heavily upon the effectiveness of the department we think it is the Patent office. An examiner in the Patent office must be familiar not only with mechanical theory bat also with the routine of the office; must be able to refer to former actions of the office readily, and the longer an examiner has been connected with the office the greater his efficiency and value on this acconnt.

Prof. Hedrick, who has for the last fifteen years had charge of the Chemical Department in the Patent office, we learn is to be removed, and a young man put in bis place. Under Hedrick's management, the chemical class, which is always a difficult one to manage, has been especially effective. Its work was thoroughly done, and the action upon applications presented to that department was unusually prompt and well considered. We hope that the Commissioner will reverse his action in removing Prof. Hedrick, and retain him in a class in which he has proved himself to be extraordinarily well suited.

The Briggs' creek mines, in Jackson county, Oregon, are being worked with considerable success. There is plenty of water and quite a number of miners, who are constantly receiving accessions to their ranks.

The American quicksilver mine, in Lake county, recently purchased by Geo. S. Wright and others, Wednesdsy made its first shipment of 45 flasks, the result of 15 days' run with six retorts.

Little Cottonwood Mines.

A correspondent of the Salt Lake *Tribune*, at Alta, says: During the past week we have been having a little war at the McKay mine. Last seaeon J. P. Harlow and Walter McKay bonded this mine to Selby and Gunter, said bond coming due some time last apring, but by mutual agreement the time was extended to the 1st of August, then another extension to the I0th, but the parties failing to come to time on the last extension, Harlow wanted possession, which was refused. Watching his chance last Monday morning, he found no one in the mine, so he at once took charge, hoisted the stars and stripes and put an armed force in possession. A few honrs after, Mr. Gunter having returned from a fishing excursion to Big Cottonwood, and finding an armed force in possession of the the property, at once proceeded to Salt Lake City, swore out warrants for Herlow and several others, and Depnty Sheriff Florida came up and made the arrests; hnt as soon as the arrested party stepped out another crew stepped in and filled their places. The next dey another lot of arreets were made, and another force were in readiness to fill their pleces in the mine. J. P. Harlow, having been released on bail, returned and held a consultation with Mr. Selby. A compromise wae effected by which Harlow holds possession till it is tested in the courts, which will be the 3Ist of the present month. It is generally thonght that Harlow is in the right, and he has the sympathy of the miners.

Other mines are moving along about as usnal and shipping considerahle ore, hut it is not quite as lively as we could wish. Dull times are the general complaint throughout the whole country, and I think our camp the best in Utah. The Flagstaff is shipping ahout 75 tons daily, and the mine looks well; in fact, it is the main stand-by, and always hae plenty of ore in eight.

The Emma hes quite a force prospecting, hoth einking and running drifts; and it is hoped a new ore body will be found soon.

The Ohio ia working in a fine body of high-grade ore, and is daily ehipping quite a qnantity; it will soon have a whim in operation, when its shipments will he increaeed.

The Reed & Benson is working about 25 men, and the mine is said to be looking well. A whim will soon be erected, which will greatly facilitate the working of the mine.

The Davenport hae heen leased hy John Young, and is being worked hy a small force, hut there is hut little ore in sight.

The Wellington has again suspended operations for some cause beet known to its owners.

The Fuller is looking tip-top, and its shipmente will he materielly increased as eoon as the new whim, which ie now being constructed, is completed.

Mail Troubles.

Still we are compelled to put up with a tri-weekly mail, when plenty of otber towne in Uncle Sam'e dominione, not receiving one-half the mail matter we do, are furnished with a daily one. We have repeatedly petitioned Col. Wickizer for relief, hut all such petitione have never heen heard from, and it cauees much dissatisfaction in this hurg, and it is hoped the Colonel will aoon do something for us, or at least let us know what he intends to do.

The Ingersoll Drill.

A correspondent of the Grass Valley *Union* says: Over a year ago the Milton company, at French Corral, made arrangements with the agent of the Ingersoll Drill Co., of New York, to experiment witb their machine, in the company'e hedrock tunnel. After expending a large sum of money, under the direction of the Drill Co.'s agent, W. S. Pinney, found they had not power enough to run the air compressor to drive the drill. Satisfied with the working of the drill, with the emall power attached, they have erected ample machinery to drive the air compressor up to any power required by means of a hurdy wheel. The drill is now working successfully, under the management of C. S. Davis, Esq., who ran the Burleigh drill in the Mt. Cenie tnnnel for two years. He hes only heen operating the drill a couple of weeks, and is highly pleased with ite work—making at thie time 24 feet of drill hole in a shift of eight hours, with two drills, and eays that mnst he increased to 30 feet in the same length of time, within one week from thie writing. He hae had everything to contend with to make it perplexing, in the way of inexperienced help, and help too thet did not want to see the machine take the place of eingle-hand drills. He is determined to make it a snccess, if it is at the discomfiture of some of the old confidential hands of the company, hy giving them their time to he carried to the superintendent's office. It is certainly a great overeight in workingmeu to "buck against" modern improvements and machinery. Mr. Davis is eanguine that he can break four feet line of rock every 24 hours after he gets his workmen all accustomed to the work and machinery. The superintendent of the company, Mr. V. G. Bell, wonld be pleased to see the mine owners throughout the county pay a visit to their worke and see the drill running.

New Hoisting Works.—The Murchies are going to erect new hoisting works at their mine known as the Lone Star, and we presume will also huild a mill at the same time, although they have one about half a mile dietent from the Lone Star. This ledge promiees to be one of the richest in this vicinity. It ie large and has paid well as far as worked.—*Transcript.*

New Discoveries in San Juan.

The Boulder *News* (Colorado) gives the following acoount of the new discoveries made lately in the San Juan country: On Tnesday last, on the Young America lodge, which is an extension of the old America owned by Jackeon & Fullen, when a depth of 10 feet had been reached, a crevice of about two inches in width was strnck, the ore of which was very rich looking, equel in every appearance to the ore from the original American, so well known to your readers. It will be remembered that Prof. J. Alden Smith purchased ore from this lode and paid a good price for it. It has become a matter of considerahle sport that the discoverer of the Young America, while sinking his shaft, was offered five dollars for a half interest, which offer was accepted, and now it turns out to he one of the richest lodes in the district. After striking the pay streak where it was two inches wide, at a further depth of two feet it widened out to I2 inches.

The Wood Bros., on the same day, struck a rich tellurium lode under the corner of their cabin. One of the Wood Bros., and a man by the name of Green, discovered another good lode about 200 yards northeast of Wood's honee.

On the Osceola lode, B. Hanna has got a good milling ore at a depth of I0 feet. It aseaye $400 per ton and is nearly the same as the America ore—free gold and tellurium.

On the Silver Dale lode free gold has been struck at a depth of 25 feet. Crevice ahout two feet wide.

The owners of the Tennessee lode, at a depth of 20 feet, have come upon a rich vein of gray copper.

Morrieon, on the Grand View lode, at a depth of 40 feet, has come upon a good streak of tellurium ore. Specimens exhibited are supposed to be worth at the rate of $I00,000 per ton.

Day, Jones & Co., have two rich lodes and a tunnel on Mt. Hope, just north of San Juan camp. This tunnel ie expected to cut ten or a dozen lodes, and will he pushed rapidly. There are quite a number of veins on Mt. Hope now being worked hy other parties.

This camp is increasing in dimensions on all sidee, and now occupies a space of at least two aqnare miles. The rueh of new comere ie increasing daily, and prospecting is proeecnted with great vigor. Gold Hill has a fame well estahlished, but this new San Juan ie now absorhing all the interest in mining mattere amongst the prospectors for new discoveries of rich lodes.

Schell Creek Mines.—We were yesterday shown a large number of very handsome speoimene of silver ores from Schell creek mining district. They were brought here hy M. D. Bowie, a gentleman who has heen in the district about three years. The lead from which the epecimens were teken is from 80 to 200 feet in width and crops out from 60 to 80 feet in hight. This huge vein ie traceable for a dietance of thirty-five miles, and upon it are locoted nearly all the mines in the district. The hest known of these are the Pride of the West, the Wide Weat, the William Sharon, Silver Wreath, Cow and Calf and Lookout. Many of the specimens ehown ue contain native eilver in the form of small flakee and wires, and some of them were eimply lumps of chloride that were nearly pure eilver. What they need in the district is a good mill, and to indnce some one to go out there and put up a mill appeare to he Mr. Bowie's principal business in thie pert of the State. Their nearest mill is at Eureka, distant 125 miles from the minee. The ores hauled to this mill and reduced have averaged over $1,300 to the ton.—*Virginia Enterprise.*

Specimen of Cobalt.—We were ehown this afternoon, by J. N. Rnseell, a beautifnl specimen of cobalt from Lndwig & Carter's mine, near the head of Walker river. There is a large deposit of the mineral in that locality, and it ie being extensively worked. The ledge hae been tracod for a long distance, and ore is being taken out in five or six places. The most of it is sent to Birdsall'e mill, in Dayton. When the Bluestone works in Carson are rehuilt, they will also consume a large quantity. The rate of freight from the mine to Dayton ie $20 a ton. Mr. Russell informs us that a great deal of prospecting is heing done on Walker river at the preeent time, for silver, copper and other mines. Some of the indications appear very favorahle, and valuable discoveries may he made.—*Virginia Chronicle.*

Yield of Ore.—The daily yield of ore of the Crown Point mine ie 500 tons; of the Belcher, 450 tons; of the Conecolidated Virginia, 300 tons; of the Chollar-Potosi, 80 tons; of the Sierra Nevada, 60 tons; of the Hale & Norcross, 50 tons; of the Juetice, 40 tons; making a total of 1,480 tons, I,200 tone of which are produced from three leading minee. In addition, the Ophir, Woodville, and several other mines are shipping ore in greater or less quantities.

The oake of Lake county being large, afford excellent material for the manufacture of staves. William Curry, of Sonoma conty, is at present engaged in making oak etaves in Scott's valley, for Fuller & Co., of Petaluma. He will have 30,000 stavea ready for delivery hy the Ist of Septemher. They will be of different eizee, and used in the manufacture of wine pipee, barrels and butter kegs.

There are five companies working in the river between Placerville and the Clements bridge—four heathen and one white.

Creeping Clay.

A peculiar kind of clay is found in many places in our mines, whioh is not a little curious on account of its oreeping propenalities. A stratum of this olay will crawl out into tunnels and other openinga in a manner much resembling the action of the toy known as Pharoah's serpents. You can't see where it is coming from or what moves it, yet it is constantly crawling out. In the drift which is being run into the American Flat mine, at a depth of 750 ft., they have a stratnm of this clay. In order to keep the drift open, it is necessary to keep one man constantly engaged in cutting away the clay as it pushes itself into the drift. This is not owing to the slaking and swelling of the exposed surface, as in that case after a few removals of the surplus material a hole would be left. The whole body of clay appears to be creeping. It has the almost imperceptible motion of the glacier, and, like the glacier, irresistibly advancee, smashing everything in the shape of timbers that may he placed in its way. The cause of this creeping is probably to be found in the preesure of the superincumbent or surrounding strata of rock. Its motion is not unlike that seen during the etraitening out of a piece of pith which has been compressed. There appears to be a limit to this creeping of the clay, hut it ie not reached nntil many feet have crept out into the drift, tunnel, shaft or chamher, and been cut off and removed. Its action is so mysterious that some of the miners are ready to explain it hy simply saying that it is becanse "nature abhors a vacuum." If left to ite own course it wonld very eoon cloee the drift, tunnel or other opening so completely that no one could eee that an opening had ever been made in it; indeed, thousande of feet of drifte and tunnele in onr mines are now so closed. In the Caledonia mine much trouble was experienced with this creeping clay. We have heard of a streak of it two or three feet in width rising np in the floor of a tunnel until over thirty feet had come up and been cut off. It ie bad anywhere, but is most mischievous in main shafts. For this reason mining men always seek a sport, in which to put down such shafte, where they are likely to have solid country rock (rock outside of the vein) to a great depth below the surface. The ead experience of early days taught them the lesson. —*Virginia Enterprise.*

Eduoation in California.—Mrs. Sarah B. Cooper, whose addrees is at the *Overland* office in this city, has isened a circular, in which ehe states that ehe has in preparation, for the United Statee Commissionere of Edncation, the annual report for the State of California. Circulare, soliciting information in regard to educational mattere, inclnding librariee, museume, medical, dental and pharmaceutical institutions, benefactions, asylnms, schools of science, training schools, art, teachers' salaries, etc., have been circulated ae extensively as poseible, but the experience of former years have proved this plan to be inadequate. As the Commissionere desire the forthcoming report to be as thorough and accnrate as possihle, Mre. Cooper eolicits any information hearing npon the topics ahove named, or anything pertaining to educational growth and advancement that the patrone of education throughout the State may desire embodied therein. All such matter mnst he ae clear and concise ae the eubject treated will permit.

Sunnyside.—Benson has just made a run from his Geneva lode, in the Sunnyside etamper, obtaining five ounces gold per cord from surface ore. The vein carries three feet in width of such rock, and is easily mined. A number of cords were rnn, enough to make the most satisfactory test. The ore ie soft, the gold free, and the location near the mill. Facilities for economy and conseqnent profits of working, were never hetter. The reenlt of the run affixes permanent value to the mine. Sunnyside is a new dietrict, but hound to jump at once into a gold-producing center of considerahle importance. The Milwaukee and Geneva minee alone wonld make a rich camp. —*Boulder (Col.) News.*

Cloverdale Quicksilver Mine.—In this mine, situated in Sonoma county, at the junction of Squaw and Sulphur oreeks, Supt. Hall hae 50 men now employed grading the ground for the furnace and rednction works, and in putting up a large hotel and other huildings. The company have contracted for 400 corde of wood, to he delivered hy the 1st of Novemher, when the reduction works will he ready for operation. They have 300 tons of ore on the dump, ready for reduction. A nnmber of partiee interested in this mine are residents of Lake county.—*Lake County Bee.*

Lewiston.—The Helena *Independent* eaye: Mr. C. E. Kemp arrived from Lewiston, Sunday evening with over seventy pounds of silver. The Lewiston mill has suepended operatione for the purpose of enlarging its capacity, new and larger harrels replecing the old ones. Mr. Kemp has ordered from New Haven a Blake's crusher, to be used in his sampling and orushing works, which are aoon to be erected.

Pennsylvania Coal Mines.—All of the coal companies doing business around and in the Wyoming and Lackawanua valleya have stopped work, the market being overstocked. They expect to resume by September Ist. About 20,000 men and boys will have no employment during suspension.

Pine Flat Quicksilver Mines.

A correspondent of the Napa *Register* seys: The Sonoma mine haa a 20-ton furnace running, and is turning out abont 40 flasks per month. Mr. Edward Clark is superintendent at the famous Rattlesnake. It was surprising to see the vast amount of work that has been done, auch as building roads, erecting furnaoes, building houses, offices, etc. Rich ore has been struck in the lower or third tunnel, and the furnece will be ready for operation in a few days. The Missouri has two little retorts which are yielding ahout six flasks a week. The old superintendent, Mr. John Hsms, has been relieved, and A. Watters put in his stead. Rioh rock has heen found in a new spot, and there is no doubt hut that the main deposit of ore bas heen found at last. The Lost Ledge is proving itself to he the chief mine in the district, having yielded as high as 24 flasks per week, from one hench of three retorts, and they have an immense amount of ore in sight—enough to run their retorts for one year. The Kentuck is turning out a fine lot of ore, whioh ie being hauled to the Missouri for retorting. The company that owne theee two minee hae somewhat curtailed its expensee hy diecherging a large force of men; yet, with the present arrangement, they seem to be getting six flasks with ten men, while with 40 men they got no silver. The Flagstaft is surprising the most sanguine, having struck a rich ledge in the lower tunnel, and after going into the ledge for I2 feet it seems to be one solid mass of cinnabar, intermixed with native eilver. At the Brandt mine the ledge has been etruck, and they are taking out some good ore. The Georgia has an immenee amount of ore on the dumps, and more ie being taken out every day. Thompson Brothers & Reynolds contemplate erecting a furnace at the mine this fall.

From Tybo.—The furnaoe of the Tybo Consolidated company has been oompleted and was started up yesterday. The condition of the mines in the district is most encouraging. Work on the 2 G mine is progressing favorably and it is looked upon as the most important in the district. There ie still a scarcity of lumber, and building is consequently retarded. A large amount of machinery ie arriving, to be used at the mines. A number of families have arrived and taken up their residence in the new town. J. B. McGee is meeting with great euccess in his various nndertakings, and is now being well rewarded for his efforts to make whet the place promises to be, one of the important mining distriots of eastern Nevada. —*Eureka Sentinel.*

Frazer & Co., on Willow creek, Deer Lodge county, have one of the heet mining claims in the Territory. It has paid about $25 per day to the hand all season, hut having put in improved hydraulics and constructed new ditohee, they can safely rely upon taking out $30 a day to the man in the future. What givee this mine so much importance is the fact that no other water can he brought upon the ground and the company have about three milee of a gulch that prospects as well as where they are now working. They cannot work out the ground in twenty years. We do not know of a more deserving man than Mr. Frazer, and we rejoice that he has found a good mine at laet. —*Helena Independent.*

Foundry Improvement.—The old building for eo many yeare covering and surrounding the basis of operation of the Gold Hill fonndry has heen removed, and a large, commodious and appropriate building is now heing ereoted in its etead. The Gold Hill foundry is one of tbe most useful institutions in the country, having turued out eome of the very largest, heaviest and moet meritorious castinge ever executed this side of the Sierra Nevada monntaine. The estahlishment ie nnder the hest and most competent mauagement, employing none but the hest ekilled workmen, and conseqnently always turne ont the finest work. —*Gold Hill News.*

Caribou Determined to be Ahead.—The finest epecimen of silver ore ever produced in Colorado is now heing carefully detached from its position in one of the Caribou minee. It is eight feet long, four feet wide, and I5 inches in thickness; its weight ie estimated at four tone at least, and it is covered with nuggets and scales of pure native eilver, some of which, as an eye-witness observes, are large enough for door plates. The proprietors intend to exhibit their specimen at the coming Territorial faire, after which they will ehip it to New York, where it will remain until 1876, when it will be taken to Philadelphia to be on exhihition at the celehration of the Centennial.—*Denver Tribune.*

It is now becoming evident, says the Elko *Independent*, that the gold belt intereecting Idaho and Montana, contrary to established opinion, extends as far eonth ae the northern part of this county, and if present indicatione can he relied upon, exteneive gold fields will be found in that seotion. A number of partiee who have arrived from the northern gold regions of Elko county, pronounce the country very eimilar in character to that of Montana, and express a firm helief in the existence of rich placer minee heretofore unsnspected.

Kuder & Co. have struck fine gravel in their mine, at Saddle-Back, Sierra conty. They raised a shaft fifty feet from their tunnel and tapped a fine-looking hed of river houlders and washed gravel. They think they are on the rim of the channel only.

Colorado Coal.

In a recent issue of the Colorado Springs *Gazette*, we find some interesting details of an exploring expedition recently made by the *Gazette* editor, in company with Prof. Hayden, into the coal beds near Colorado Springs. The *Gazette* says:

It is manifest that the supply may be reckoned by the millions of tons, the croppings having been traced for upwards of three miles, and drifts and tunnels having been run in upon the lowest and principal vein fully that distance apart. Three veins have been discovered. The first is comparatively unimportant. The second averages about six feet in thickness; on this a tunnel has been run in for over three hundred feet, and a shaft has also been sunk to it. The third vein is from eight to nine feet thick; a shaft has also been sunk to this vein, and, as the quality of the coal in it is superior to that in the other veins, and it is altogether free from "dead matter," it is proposed to work the third vein during the coming winter.

After a careful examination of the ground, and the whole of the openings which have been made, Prof. Hayden said there could be no doubt that the coal corresponded with the Marshall coal in the North, and the Cañon City coal in the South, and he thought it not improbable that, as it was developed, it would equal in quality the latter. He had no idea that such an extensive coal-field existed in this part of Colorado, and thought its discovery was of the greatest importance. The quality of the coal, he said, is fully equal to that of the Evanston coal, which supplies the Union Pacific railway and the whole of the Pacific slope; and he was of the opinion that its existence, in the position which it occupies, must certainly, ere long, bring to Colorado Springs an Eastern railway connection, for the K. P. must, without doubt, go somewhere for coal.

Quick Work.

A correspondent of the Amador *Ledger* writes to that paper of an experiment recently made at the Phœnix mine. He says: At seven o'clock A. M., at the south, or old shaft, they started to see how many tubs of rock, each holding eight hundred pounds, could be hoisted in five hours with the regular set of hands, from the 700-foot level. Shortly after starting, the exhaust escape pipe bursted, necessitating a stop of 20 minutes. At precisely 12 o'clock the engine was stopped, after hoisting 226 buckets, or 90 tons and 800 pounds in four hours and 40 minutes. Two car men and a bucket filler were all that were employed at the bottom; two car men and one bucket tender on top put the rock in the mill. "Pretty good work," everyone will say—is that all it is? Figure a minute, and see. The engine must be stopped and reversed twice, for each bucket hoisted, (452 times). A good many stops and starts to make in 280 minutes. Again the buckets traveled up and down 1,400 feet for each bucket landed. Now, just multiply that distance by the number of buckets hoisted and divide by 5,280, the number of feet in a mile, and you find the buckets traveled a distance of just 400 feet less then 60 miles in four hours and 40 minutes. Is there another mine in the State, hoisting with buckets, that can equal it? Or is there another miner can equal Humphrey Reese in preparing a mine for such work? Or an engineer that can equal Dick Taylor in handling an engine? If there is let us know it. There are men here who say it cannot be beaten at any other mine or by any other crew.

THE NEW MILL.—The foundation for the battery blocks of the Consolidated Virginia mining company's new mill is completed, and in a few days the blocks will be put in place. The boilers, eight in number, together with the steam-drums and smokestacks, are on the ground and ready to be set up. The new engine, which will drive all the machinery, is the largest in the State, being 500-horse power. —*Chronicle.*

FROM COAL TO WOOD.—Heretofore the railroad company have been using coal instead of wood on their locomotives running between Truckee, Wadsworth and Winnemucca. They have come to the conclusion that wood is more economical, and hereafter will use that article. This arrangement will increase the consumption of wood somewhat and the additional supplies will be drawn from this region—*Truckee Republican.*

ASPHALTUM.—The San Luis Obispo *Tribune* states that an asphaltum mine has been discovered, and is now in successful operation, on a tract of land recently sold by the Steele brothers to a party of Frenchmen. Large quantities have been taken out, and it is pronounced by experts to be of the best quality. A contract has been made with a party for the hauling of fifty tons to the landing, to be shipped to San Francisco.

DANGER OF FIREWORKS.—A remarkable instance of spontaneous combustion which may occur at an ordinary summer temperature, say of 78 to 84 degs., is that of a mixture of chlorate of potash and sulphur; and consequently also of matches containing those substances, and also of red and green fire, which contain chlorate of potash and sulphur.

THERE are two hundred miners in the Panamint District, Inyo county, and one ten-stamp mill is running.

The Bruneau Mines.

Those who are rushing to the new placer mines in the Bruneau mountains, about which there is so much talk in some quarters at the present time, are not likely to find a new El Dorado. We have known of the existence of these diggings for two or three months through A. J. Smith of this place, who visited the region early this spring and located a large amount of mining ground and all the water available for mining purposes. He heard of the diggings through men who were herding cattle in that region, and when he left here gave out that he was going to the Atlantic States; not wishing to be followed and watched. When Mr. Smith first visited the mines he thought well of them. He made locations of ground, water and all else that he thought of value and left two men to hold his claims. At that time there was a considerable amount of snow on the ground in many places, though not in the flats where the diggings were located. Mr. Smith and his partners dug several holes to the depth of four or five feet, and in all of these obtained very fine prospects from the surface down. The gold was tolerably heavy, and fine and bright in appearance. We were shown a sample of the dust by Mr. Smith when he came in from the mines, and published an item in regard to the discovery at the time, though without making known the whereabouts of the new diggings, as Mr. Smith did not want a rush to the place until he had his claims in shape and got to work on them. He had made arrangements for lumber for sluices, for a house and the like, and intended to start hydraulic works at once, but when he made his second visit to the mines he "weakened." He found that all the gold there was in the ground was in four or five feet of gravel near the surface. Under this came in a clay, in which not even a "color" could be raised. He sunk a number of shafts and always with the same result. On the surface, and down to the depth of three or four feet, pretty fair prospects could be obtained, but below that not a color.

Mr. Smith gave up the whole thing in disgust and returned to this city, where he has remained ever since, with no desire to return to the Bruneau diggings. When he returned after his second visit to the mines, Mr. Smith made a report on the diggings to parties in this city who were interested in the claims located, and all were satisfied that it would be of no use to bother further with them. Nothing more was thought of the matter here until of late, when wonderful stories of the richness of the Bruneau placer mines began to be circulated in the papers, many of whom spoke of the region as the new "El Dorado." Although Mr. Smith and his friends a short time since had possession of all the water in the region and all the mining ground they cared to locate, they do not feel at all disturbed by the reports now reaching them, as they know exactly just what the diggings are, and don't want any interest in them. Two or three Frenchmen have been working in the Bruneau mines for about two years, and have made small wages—$2 or $3 per day—and that is about as much as anybody can make in any diggings yet found in that country.—*Enterprise.*

LIQUID INDIA INK.—When India ink is kept in a liquid state it soon becomes worthless, from the fact that the gelatin which it contains decomposes. A little glycerine added acts as a preservative, and causes the ink to flow well. Too much glycerine will prevent the ink from drying, and in this case it is, of course, easily blotched or smeared.

TO REMOVE FUNGUS AND MOSS.—Hochberger recommends the use of petroleum to destroy fungoid growths on wood and stone. The green mold at once turns brown or black, and soon falls off after being moistened with petroleum.

A CORRESPONDENT writes from the San Juan country that the mines there are well worth working, but that a number of them are owned by people who don't want to work, and go away discouraged because they can't pick up the ore on the surface.

INVESTIGATIONS by Professor Lenbe, of Jena, on the action of pepsin in digestion, tend to show that it acts in just the same way as a ferment, and is itself indestructible during the process.

THE broken fly-wheel at the Belcher works has been replaced by a new wheel, and all is going on again as usual, as far as the working of the mine is concerned.

ROASTING COFFEE.—A new invention has for its object an improved mode of roasting coffee, and consists of means for roasting coffee by reflection of heat.

OWING to the failure of water, the Bald Mountain company, Sierra county, have commenced paying their hands in script, redeemable on or before March 1st, 1875.

FOUR or five large quartz ledges, yielding abundantly of fine gold, were discovered lately about forty miles east of Warren's diggings, Idaho.

PHILO HAVEN is reported to have struck very rich diggings at Gold lake, Sierra county, having taken out sixty or seventy ounces in three days last week.

FORTY-FIVE thousand dollars in cash will be distributed in premiums at the State Fair.

A LARGE additional force of Chinamen was employed last week to work on the new ditch in El Dorado county. The enterprise will be completed at the earliest possible moment.

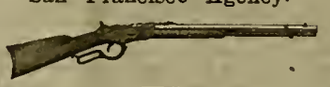
THE daily shipment of ore by rail, from the Comstock mines to the various mills on the Carson river, amounts at present to 1,800,000 pounds.

THE NEW WINCHESTER

REPEATING RIFLE,

(Model of 1873.)

San Francisco Agency.



The Winchester Repeating Arms Company, of New Haven, Conn., have recently made still further valuable improvements on the celebrated Henry Rifle, which now make it, beyond doubt, the most magnificent weapon in the world. They have just introduced this beautiful arm upon the market, and their San Francisco Agency is fully supplied with all the various styles, together with cartridges for the same.

In the manufacture of the new gun, iron mountings (blued or case-hardened) have been substituted for gun metal or brass, thus increasing the strength of the arm and decreasing its weight. It is also now so constructed as to carry a Central Fire Cartridge holding one-third more powder than used in the cartridge of the model of 1866, thereby greatly augmenting the power and accuracy of the weapon.

THE SPORTING RIFLE

Has a Set or Hair Trigger which can be used at will—set or not set, as preferred. All the arms have a sliding lid which covers the opening in which the Carrier Block moves up and down. This lid, by the action of the Carrier Lever, is always open when the gun is fired, and closed by hand when the firing ceases, thus protecting the lock and inner works of the gun from dust and rain.

Various other improvements, which it is not necessary to mention in detail, by which the strength of the several parts is increased and the general appearance of the gun improved, have also been made.

There is now a greater variety of the Sporting Rifle than heretofore. They can be had with a length of barrel (round or octagonal) ranging from 24 to 30 inches, fitted with Globe and Peep Sights, or any other kind in use.

The Carbine is now made with all the improvements above referred to, except the set trigger.

The Sporting Rifle and Carbine will also be made as Extra Arms, Gold, Silver or Nickel Plated, plain or beautifully engraved.

MILITARY ARMS.

Still further improvements have been accomplished which overcome all objections heretofore raised against the Repeating Rifle as an army gun. It is safe, certain and effective in fire, whether used with deliberation or during excitement in action, and no more motions are required than in operating the old model gun.

More extended and minute particulars concerning the new gun can be had by writing or applying to the San Francisco Agency for circular.

CARTRIDGES.

The trade is notified that the Shells of the Central Fire Cartridge for the new gun can be reloaded, and that the Winchester Repeating Arms Company are manufacturers of every description of Cartridge used for Carbine, Rifle and Pistol of any make, and that the Company have a full stock constantly on hand at their San Francisco Agency

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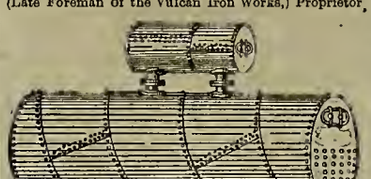

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—THE—

MECHANICS' FAIR

DAILY.

Having been awarded the publication of the Daily Newspaper in the Pavilion during the Fair of the Mechanics' Institute of the City of San Francisco, commencing August 18th, 1874, we would respectfully announce that no efforts will be spared to issue a

LIVE AND DESIRABLE SHEET.

Its immense circle of readers will include all adult visitors at the Fair, embracing during the exhibition a large proportion of the most intelligent, energetic and influential citizens throughout the Coast.

Advertisers will secure the best terms and space by handing in their orders early.

DEWEY & CO., Publishers.

CALIFORNIA THEATER.

BUSH STREET, ABOVE KEARNY.

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Family Circle..... 25

Boxes, according to location.....$10 & $6

Doors open at half past seven; Commence at eight o'clock. ja24-tf

[Continued from Page 149.]

assay of car samples has been increassd to from $100 to $150 per ton.

IMPERIAL-EMPIRE. — Driving the main sast drift, on the 2,000-ft. levsl is still making excsllsnt progress, ths rock in ths facs working quits soft. Sinking the sonth winze from ths 1,850-ft. level is also making good progress, the bottom still in fine ore.

GOULD & CURRY.—The face of the north drift, on the 1,700-ft. lsvel, is still ledge material.

SAVAGE.—The ssveral prospecting cross-cnts on ths 2,000-ft. levsl are still drivsn vigorously ahead, developing ssvsral bodies of low grads ore, but nothing that will yet pay for extraction.

BALTIMORE CONSOLIDATED.—Ths northwest prospecting drift, at the 450-ft. station, has been sxtsndsd 200 feet from the main shaft, in a portion of the mins hitherto nnprospectsd, and is showing some excellent ore indications.

SUCCOR.—Ths water is being drained from the Grant shaft preparatory to resuming the ainking of the shsft.

DAYTON.—The new machinsry is all in good running ordsr.

CALIFORNIA.—The north drift from the Virginia Consolidated on the 1,500-ft. level is in 174 ft. ths face in porphyry. The north drift on the 1,400-ft. level is in 140 ft., the face in very favorable matsrial for good progrsss. Two drifts have bsen started, on corresponding levels from the Ophir, to connsct with these drifts and thus secure thorough ventilation.

AMERICAN FLAT.—The main southwest drift on the 750-ft. lsvel is still pressed vigoronsly ahead This drift is running nearly parallel with the course of the ledgs, and will be run cousiderably frnthsr before cross-cntting the ore vein will be commencsd.

LEO.—The north drift looks fiuely and is yielding some rich ore. Stoping will be soon resumed at this point. Assays run as high as $400 to the ton. Lsdge from 5 to 7 ft. wide.

NEW YORK.—Whils sinking the shaft during the past week a fine vein of quartz, carrying some gold ors, was enconntsred. The main west drift at the 600-ft. level, also, has cnt a strsak of fine ore.

DANEY.—The indications are growing more favorable for a near approach to the maiu ledge. The drift is now in 250 ft.

JURTIOE.—Sinking the Waller shaft, the bottom of whioh is still in good ore, is making steady progress. The work on the new hoisting machinsry is rapidly approaching completion. Daily yield, 50 tons of ore.

SILVER HILL.—The ore body recently developed in the north drift on the 200-ft. level has greatly improved, and is now being extracted for milling.

OVERMAN.—The maiu north drift on the 1,400-ft. level is steadily advancing, following the fine streak of ore recently encountered, which, if anything, is showing a slight improvement.

CHOLLAR-POTOSI. — Prospecting operstions ars again fully resnmed in the Belvidere portion of the mins. Daily yield, 100 tons of ore, the assay value of which is $33 per ton.

GLOBE CONSOLIDATED.—The ore development in the west drift from the bottom of the winze at the head of the incline is proving valuable.

UTAH.—The flow of water is atill too great to admit of a resumption of the work of sinking the shaft.

BUCKEYE.—The main sonth drift ou the third station level is still driven vigoronaly ahead, the face in a brown-colored quartz that gives assays of from $12 to $30 per ton.

JULIA.—The work on the new machinery is making good progress. Most of the machinery has been shipped and is now on the road from San Francisco.

CALEDONIA.—Sinking the maiu shaft ia making excellent progress, the rock in the bottom working quite soft. It is now down 150 ft. below the 800-ft. level.

YELLOW JACKET.—The main east drift on the 1,740-ft, level is in a distance of 210 ft. in fair running gronnd.

PICTOU.—The rock in the face of the tnnnel worka well. Fine looking stringers of quartz continue coming in at the face. No water.

ORIGINAL GOLD HILL.—Drifting west for the ledge at the 320-ft. level is actively commenced, aud good developments are confidently looked for Water tronblea very little.

KOSSUTH.—The new machinery is all in complete runniug order.

OCCIDENTAL.—The ore developmeuts below the tunnel level are of a much more favorable character.

ROBINSON DISTRICT.

WARD-ELLIS.— White Pine *News*, Aug. 29: We still ooutinue to hear the most encouraging acconnts from our neighboring camp of Mineral city, the furuace being still in full blast, with every prospect of its continuing to rnn out quautities of bullion. The spirits of all are perceptibly higher than ever before in that camp. The new incorporatiou of the Ward-Ellis Mining Co'a valuable ground has been productive of bringiug that company into notoriety, aud work is being pushed more energetically on the locations. The ores now being extracted will go from $40 to $50 in silver, and carry 40 per cent. lead. This, taking into consideration the immeuse quautitiea of ore in sight, makes it a matter beyond donbt that the long struggles of the superintendent to make this company a success have been rewarded.

EUREKA DISTRICT.

EUREKA CONSOLIDATED.—*Sentinel*, Aug. 26: The prospects of this company were never brighter. At the greatest depth attained by any company on Ruby Hill—to-wit, 520 feet—the Consolidatsd has a four-foot lsdge of splendid ors, averaging in gold $116 per ton, silver $30, and 52 per cent. lead. This is an encouraging item of news, showing most conclusively that our mines have not only depth, bnt grow richer as they go down. The Consolidated has started bnt one furnace since the flood. The others will go into operation as soon as connsction can be made with the fume arrsster now in processs of construction. The iron for the flue is expected to arrive within the next 10 days.

THE K K.—Ths mines of this company sre bsing worked with the usual vigor, and all of the varions levels are looking as well if not bettar than ever bsfore.

RUBY CONSOLIDATED.—The new hoisting machinery of the Ruby will bs in place before ths closs of ths week. Work in the minss of the company is to be resnmed in a day or two on a comprehensive scale.

THE RICHMOND is still closed to the ontside world, thongh we are creditably informsd that the main workings are showing magnificently in ore of excellent grade.

PIONEER CONSOLIDATED—Work in this mine was somewhat ioterrupted during the last two dsys, owing to foul air setting in the main shaft. This obstacle has, howsver, been ovsrcome, and work is now progressing as usual. The shaft is down 85 feet, at which point a rich and apparently extensivs strike has been made.

BULLION PRONUCT.—The yield of the furnacss for the past week was as follows : Richmond, 300,000 pouuds ; Eureka Consolidated, (one furnace) 73,000 pounds; Hoosac, (one furnacs) 100,000 pounds; K K, (one furnace) 75,000 ponnds. Total, 548,000 pounds.

BULLION SHIPMENTS. — Following are the shipments : Richmond, 220,500 pounds; Eureka Consolidated, 65,710 ponnds; K K, 92,000 pounds ; Hoosac, 40,140 pounds. Total, 418,350 pounds.

PROFESSOR DAVIDSON, in charge of the expsdition to observe the transit of Venns, at Nagasaki, lsft this city last week for Japan. He is accompanied by O. H. Titman and W. S. Edwards, of the Uuited States Coast Survey, assistant astronomers; S. R. Seibert, Uoited States Treasury Department, chief photographer; H. E lertou Dodge, of Boston, first assistant photographer; Francis H. Williams, of Boston, secoud assistant photographer.

SOUNDINGS IN THE PACIFIC.—The "Tuscarora," George E. Belknap, commander, has returned to this port, having bean about a year on her sounding expedition batween this place and Japan. During that time she has run 14,000 miles of soundings. The greatest depth of water found was 4,655 fathoms, or 5¼ miles. This is the greatest authentic depth yet sounded. The greatest depth found ou the line finally surveyed was 4,037 fathoms.

NATE WEBB has showu the Truckee *Republican* an ingenious contrivance for raising ous end of a car ou or off the track, as may be desired. It consists of a nnmber of amall iron windlasses geared to the nsual platform-car derrick. By means of thia oontrivance ono man can in a few seconds raise the end of a car up several feet. For wrecking purposes the invention or contrivance is invalnable.

ONE of the most intsresting features of the Fair is the operation of the fine new Potter printing press in the center of the Pavilion, at work almost at all hours on the FAIR DAILY, a large eight-page free paper, published by Dewey & Co., of the MINING AND SCIENTIFIC PRESS. It furuishes a large amount of spicy and editorial matter aud miscellany.—*Oakland Tribune.*

THE Industrial Exhibition at Cincinnati waa opened on tbe 2d inst., and it was made the occasion of a general holiday, business being nearly suspended. The Board of Trade closed and the streets were decorated. The exhibition promises to far exceed auy previons one. The attendance at the opeuing was not less than 40,000.

SUTTER FORT.—C. Sweeuey and family have leased Sutter's Fort, and turned the old fortificatiou into a chicken ranch. The California Pioneers ought to have bonght this memorable place, enclosed it and kept it as a shrine for occasional pilgrimages.

THE MCGLEW FURNACE.—This furnace is doiug its work in good shape, roasting 10 tons, capacity of the mill, per day; at a cost of two dollars per ton, bnrning only two oords of wood in 24 honrs. Ore at the mill can be worked at seven dollars per ton.—*Alpine Chronicle.*

MINING machinery for the hoisting works of the Raymond & Ely mines is arriving at Toano daily, and is beiug shipped from there by ox teams to Pioche.

CLOUGH & Co. will immediately proceed to build a five-atamp mill on tbeir ledge, near Rock creek, Sierra county. They intend to have it runniug before winter.

THE Mansfield gold mine, near St. Lanrencebnrg, El Dorado county, is improviug. Negotiations are in progress for the erection of a mill.

MINING operationa in Independence gulch, Moutana, have been suspended for the season, on acconnt of the failure of water.

The Crouch Steam Engine.

This engine, which has been placsd in the boiler-shed, outside of the Pavilion, is quite a novelty in its way, and has attractsd considerable attention from mechanical engineers, both in this State and at the East. It is a California, or rather an Oregon, invention. The inventor is Master Frank A. Crouch, an Oregon boy, who was bnt 17 years of age when he first brought out his inventiou, about two years ago.

The principle upon which the invention is based is that of working steam supsr-heatsd, and its novelty is found in the mode of superheating. Snper-heated steam has heretofore been used in steam cylinders ; but it has always bsen super-heated in an iutermediate heater between the boiler and the engine, and introduced into ths cylinder in a highly heated condition, while the cyliuder was at a much lower temperature. While much better results were obtained in this way than in using steam at ordinary temperatures, the conditions were such that the cylinder and piston were soon destroyed by the excssssive wearing away of the iron, which was softened by the excessive heat of the steam, while the heating coil rapidly succumbsd to the oxidizing influence to which it was subjectsd in the furnace. By Mr. Crouch's plan the cylinders themselves are kept at a higher temperature than the steam, and made to serve as snper-heaters, as well as cylinders ; giving also ths additional advantage of utilizing the explosive effects produced by the sudden expansion caused by super-heating at ths instant the expansion occurs.

In order to effect these results, Mr. Crouch employs two single-acting cylinders, the lower portions of which ars dropped down into the furnace, where they are exposed to the direct action of ths fire. By this arrangement ths wet steam, whsn admitted into the cylinder from the boiler, is iostantly snpsr-heated and converted into dry steam, by which a large amount of expansive foros is gaiued at a very small expenditure of heat ; and, as a consequence, lsss water and steam is required, thus greatly economizing boilerspace. The cylenders of this engine ars open at the upper end like those of the ordinsry hot air engines, and the piston is forcsd back by atmosphsric pressnre.

Hitherto evsry attempt at workiug superhsated steam seems to have failed mainly from the mechsnical difficulties incident to handling steam at extremely high temperatures. While this may, to a large extsnt, bs avoidsd, as shown above, is it not possible that a more moderate degres of supsr-heating than that hitherto employed might be made practical ? Inventors are apt, by sndeavoring to do too much, to become discouraged by failures, which wonld have proved snccesses had they besn contented with more moderate achievements.

In the experiments thns far made with the Cronch engine, we have not heard of any attempts at working steam very highly super-heated; its proprietors thns far aeem to have been satisfied with moderate successes, slowly achieved. This conrse ia the snrest road to nltimate success. This invention, if it can be made practical, must certainly become an important advance step in reaching the ultimate point of economy in the generation and employment of steam. Sufficient time, however, has not yet elapsed to fnlly test the invention, and, so far as we have learned, it has not yet been snbjected to auything like a crucial test in the matter of super-heating for heavy work.

This, we believe, is the first time the invention has been placed on pnblic exhibition, althongh the machine now exhibited is the tenth which has been constrncted. One of the engines has been running nearly a year in the San Jose foundry, and, as we understand, without any appearance of deterioration in the cylinder, or any other part; but we are not advised as to the amount of work it has had to perform.

HEAVY SHIPMENTS.—For the past few days, the amonnt of ore shipped by rsil from the Comstock mines to the variona mills in the vicinity, has averaged 90 car-loads per day.

THE Sonoma quicksilver mine, np to a few days ago, had shipped $25,000 worth of qnicksilver since the starting of the fnrnace last January.

THE "Nantilns" haa returned from the expedition to the "gold island," in the North Pacific, but without any bullion or ore.

THE frame of the Consolidated Virginia Mining Company's new mill is ready to be raised.

THE Central coal company, Contra Costa connty, is taking out from 75 to 100 tons of coal per day.

Two thousand tons of steel raila are being laid on the monntain portion of the Central Pacific.

TIMBER is becoming scarce in the vicinity of Nevada City and Grass Valley.

SINCE the first of April 15,000 immigrants have arrived from the East hy rail.

A COMPANY haa been formed in Buffalo, N. Y., to put a railway tnnnel nnder Niagara.

A NEW sst of timbsrs is being made for the Yellow Jacket hoisting works.

A RICH strike has been made in the Silver Lake mine, nsar Dayton.

AN slevated single-rail railway is to bs put np in this city.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Sept. 1st, 1874.

FOR WEEK ENDING AUG. 18TH, 1874."

SPRING FOR VEHICLES.—John Smith, San Francisco, Cal.

TAP AND FAUCET.—Michasl Kreiss, Redwood City, Cal.

GAUGE WHEEL FOR GANG PLOWS AND CULTIVATORS.—Don Carlos Mattison, and Truman P. Williamson, Stockton, Cal.

HAY AND COTTON PRESS.—Evilee T. Armstrong, Baker City, Oregon.

PAPER STOCK.—George B. Walker, Placsrville, Cal.

———"The patents are not ready for delivery by the Patent Office until some 14 days after the date of issne.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

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FOR STATE OF NEVADA.—We have appointed Mr. F. B. Alderson our special agent and correspondent for the State of Nevada. He will visit our friends and patrons there soon.

CAMPO, SAN DIEGO Co., CAL., July 3d, 1874.

MESSRS. DEWEY & Co.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. GASS.

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BY OTHER AUTHORS.

The Quartz Operator's Hand-Book; by P. M. Randall. 1871. Revised and Enlarged Edition. Cloth bound, 175 pages. Price, $2.

Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked; with a Chapter on the Blow-Pipe Assay of Minerals. By Wm. M. Barstow, M. D.; 1867; cloth bound, 114 pages. Printed and sold by DEWEY & Co. Price, $1; postage free. The best written work, and most complete work on the subject treated.

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Our intimate knowledge of the various inventions of this coast, and long practice in patent business, enable us to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most steadfast friends and patrons, who fully appreciate our advantages in bringing valuable inventions to the notice of the public through the columns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity.

Foreign Patents.

In addition to American Patents, we secures with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, Brazil, Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales, Queensland, Tasmania, Brazil, New Grenada, Chile, Argentine Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainable.

No models are required in European countries, but the drawings and specifications should be prepared with thoroughness, by able persons who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

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Home Counsel.

Our long experience in obtaining patents for Inventors on this Coast has familiarized us with the character of most of the inventious already patented; hence we are frequently able to save our patrons the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applications which will interfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventious and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, bnt their inventions also, from this canse and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of this coast haa been donc, and is still being done, throngh our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the valne and patentability of inventions discovered here than any other agents.

Situated so remote from the seat of government, delays are even more dangerous to the inventors of the Pacific Coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmit ting specifications from Eastern agencies back to this coast for the signature of the inventor.

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United States and Foreign Patent Agents, publishers Mining and Scientific Press and the Pacific Rnral Press, 224 Sansome St., S. F.

METALS.

WEDNESDAY M., Sept. 2, 1874.

There is nothing new to report of the Metal market. Quicksilver is firm; Iron, Steel and Tin Plates in slightly better demand; Lead slow of sale.

American Pig Iron, ₩ ton	—	@	40 00
Scotch Pig Iron, ₩ ton	38 00	@	42 50
White Pig, ₩ ton	—	@	44 00
Oregon Pig, ₩ ton	—	@	45 00
Refined Bar, bad assortment, ₩ lb	—	@	3½
Refined Bar, good assortmant, ₩ lb	—	@	4
Boiler, No. 6 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheat, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9½	@	—
Norway Iron	8	@	—
Rolled Iron	4½	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Sraziers'	31	@	32
Copper Tin'd	45	@	—
O. North's Pat	12 75	@	14 50
Sheathing, ₩ lb	31	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yallow	—	@	12½
Composition Nails	— 24	@	—
Composition Bolts	— 24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₩ box	13 00	@	14 50
Plates, I C Charcoal	12 75	@	14 50
Rooding Plates	11 50	@	14 00
Banca Tin, Slab, ₩ lb	31	@	33
STEEL.—English Cast, ₩ lb	— 20	@	25
Anderson & Woods' American Cast	— 10	@	17
Drill	— 18	@	22
Flat Bar	— 16	@	22
Ploogh Points	— 16	@	17
ZINC	—	@	11
Zinc Sheet	—	@	11½
NAILS—Assorted sizes	— 5½	@	8
QUICKSILVER, per lb	—	@	1 45

GENERAL MERCHANDISE.

WEDNESDAY M., Sept. 2, 1874.

Another slight decline in English Wheat Bags is noted. Coffees are weakar. Sugar and Tobacco are held very firmly. Spices are not quite so bnoyant.

JAGS.			
Eng. Stand Wht.—13	@13¼		
Detrick's Machine			
Sewed, 22x36 F	—	@13	
do 22x36, do E W	—	@13¼	
do 20x40, do A	—	@14	
Flour Sacks ¼s	10	@12	
" " " ⅛s	6	@ 7	
Stand. Gnnnies			
double seam	—15	@18	
single seam	—13	@13	
" Wool Sacks	65	@ 70	
Barley Bags 24x36	—@15¼		
do 23x40	—@15½		
do 24x40	—@16¼		
do 28x36	—@17		
Oat Bags, 24x40	16	@16½	
do 28x36	—	@17	
Hessian 10-in.gds	9¾	@10	
do 45	10¾	@11	
do 50	—	@15	
CANNED GOODS.			
Asst'dPis Fruits			
in 2½ lb cans. 2 75	@ 3 00		
do Table do	—	@ 2 75	
Jams & Jellies 3 75	@ 4 25		
Pickles ½ gl	—	@ 3 50	
Sardines,qr box 80	@—		
do bf boxes.3 20	@—		
COAL.—Jobbing.			
Australian Ston 10 00	@—		
Coos Bay	—	@10 00	
Bellingham Bay	—	@ 8 50	
Seattle	—	@11—	
Cumberl'd, cks..22 00	@23 00		
Scotch, bulk..18 00	@20 00		
Mt. Diablo	6 25	@8 50	
Lehigh	—	@19 00	
Liverpool	11 00	@12—	
West Hartley	12 50	@—	
Scotch	9 50	@10 00	
Sorenton	15 00	@17 50	
Vancouver's Isl	11 00	@11 50	
Chercoal, ₩ sk	75	@ —	
Coke, ₩ bbl	—	@ 60	
COFFEE.			
Sandwich Island	—	@ 22	
Central Amerio'n	20	@ 22	
Costa Rica per lb	21	@ 22	
Costa Rica, ord	19	@ 20½	
Java	—	@ 28	
Manilla	20	@ 21½	
Ground in cs	—	@ 30	
Chicory	10	@ —	
FISH.			
Pac. Dry Cod, new 5	@ 6		
cases	6	@ 7	
do honeless	11	@ 12	
Boston Cod, bbls	7	@ 8	
Salmon in bbls	9 00	@8 25	
do ½ bbls	4 50	@4 75	
do 2½ lb cans	—	@3 00	
do 2lb cans	2 65	@2 75	
do 1 lb cans	1 75	@ —	
Do Cal. R. ½ lb	—	@ —	
Pick. Cod, bbls	22 00	@—	
do ½ bbls	11 00	@—	
Bos. Sm'k Her'g	50	@ 50	
Mack'l, No. 1, ½ bbls	8 00	@8 50	
" Extra	—	@9 00	
" in kits	2 00	@2 50	
" Ex mess	3 00	@3 50	
" Ex mess, ½ bbls	—	@12 00	
Sm'k Herr'g, bx	55	@ 60	
NAILS.			
Assorted size, lb	4¾	@ 7	
OILS.			
Pacific Olne Co.			
Neat F't No. 1	—	@1 00	
Pure	1 25	@—	
Castor Oil, No. 1	—	@1 75	
do do No. 2	—	@1 60	
Coccoanut	45	@ 50	
Olive Plagniol	5 00	@—	
do Possel	4 15	@—	
Palm	9	@—	
do Agricultnpl	—	@—	
Linseed, raw	—	@1 02	
do boiled	—	@1 07	
Chine nut in as	—	@—	95
do hulk	75	@ 80	
Sperm, crude	40	@ 40	
do bleached	—	@2 20	
Coast Whales	35	@ 40	
Polar, refined	50	@ 55	
Sperm	1	@1 50	
Lard	1 00	@1 10	
Coal, refined Pat	37½	@ 40	
Oleophina	—	@ 34	
Devoe's Bril't	25	@ 28	
Long Island	—	@ 34	
Eureka	37½	@ 40	
Devoe's Petro'm	26	@ 29	
Barrel kerosene	20	@ 25	
Olive	4 00	@9 50	
Downer Kerose'e	35	@ 40	
Gas Light Oil	—	@ 34	
PAINTS.			
Atlan. W. Lead	7½	@ 12½	
Whiting	—	@ 2	
Putty	4	@ 4½	
Chalk	—	@ 2½	
Paris White	2¾	@—	
Ochre	4	@ 5	
Venetian Red	3½	@ 5	
Red Lead	7	@ 11	
Litharge	10	@ 11	
Eng. Vermillion	2 00	@2 10	
RICE.			
China No. 1, ₩ lb	6¼	@ 6¾	
do 2, do	5½	@ 5¾	
Japan	5¾	@ 6	
Siam Cleanod	7	@—	
Patna	—	@ 6¾	
Hawaiian	7	@ 7¾	
Carolina	10	@ 10½	
SALT.			
Cal. Bay, per ton	10 00	@14 00	
do Common	5 00	@ 7 00	
Carmen Island	11 00	@13 00	
Liverpool fine	20 00	@23 00	
do coarse	15 00	@20 00	
SOAP.			
Castile ₩ lb	10	@ 11	
Local brands	5	@ 8	
SPICES.			
Allspice, per lb	15	@ 16	
Cloves	47½	@—	
Cassia	22½	@ 25	
Citron	—	@ 30	
Nntmeg	1 20	@1 25	
Whole Pepper	20	@ 22	
Pimento	—	@ 15½	
Gr'nd Allsp'rdz	—	@1 00	
do Cassia do	—	@1 50	
do Cloves do	—	@1 50	
do Mustard do	—	@1 25	
do Ginger do	—	@1 00	
do Pepper do	—	@1 00	
do Mace do	—	@2 00	
SUGAR, ETC.			
Cal. Cube per lb	11½	@—	
Paris' Pro. Cube			
boxes 100 lb bxs	—	@ 11¾	
do in 50 lb bxs	—	@ 12	
do in 25 lb bxs	—	@ 12¼	
Circle A orushed	—	@ 11½	
Powdered	—	@ 11¾	
Granulated	—	@ 11	
Ory granuleted	—	@ 11½	
Hawaiien	8	@ 10½	
California Beet	—	@ 11¾	
Golden C	—	@ 10½	
do Sky Blende	—	@ 6½	
Cal. Syrup in cts	—	@ 5½	
do in ½ bls	—	@ 55	
do in kegs	—	@ 60	
Hawaiian Molasses	25	@ 27½	
TEA.			
Oolong, Canton, lb	19	@ 25	
do Amoy	28	@ 50	
do Formose	40	@ 60	
Imperiel, Canton	25	@ 40	
do Pingsuey	45	@ 80	
do Moynne	60	@1 00	
Ounpo'der, Cant	30	@ 42½	
do Pingsuey	50	@ 60	
do Moynne	65	@1 25	
Y'ng Hy., Canton	28	@ 40	
do Pingsuey	40	@ 70	
do Moynne	65	@ 85	
Japan, ½ chests, hulk	30	@ 75	
Japan, lacquered bxs, ½ and 5 lbs	45	@ 67	
Japan do ½ bxs	45	@ 90	
do pl'n bx, ½ lb	35	@ 65	
do ½ & 1 lb paper	30	@ 55	
TOBACCO—Jobbing.			
Bright Navys	50	@ 60	
Dark do	45	@ 55	
Ow'nf Twist	57	@ 62½	
12 inch do	57	@ 62½	
Light Pressed	65	@ 75	
Penn. Wrapper	40	@ 50	
Conn. Wrap'r	40	@ 50	
Penn. Wrapper	20	@ 30	
Ohio do	7	@ 15	
Virg'n & mok'g	60	@ 85	
Fine ot ohe'g, gr	8 50	@9 25	
Fine ont obewing, hno'ts, ₩ lb	75	@ 90	
Banner fine cut	—	@9 00	
Eureka Cnts	75	@9 00	
TURPENTINE.			
Eastern	60	@ 65	

Cazin's Combination Ore-Sizer and Concentrator—One Plunger System.

[Covered by Letters Patent of July 2d, 1872, and recent applicetione.]

Conteining a sizing apparatns, (revolving screen) delivering four sizes of ore to four rows of sieves, each row independent of the other, and each having 5 sieves, each row concentrating according to specific gravity the special size automatically fed unto it, resnlting in the simultaneous continual delivery of separated materials, working 2d end 3d-class ores into 1st-class ores of perfect cleanness. It thoronghly separates native gold or copper from quartz or any other lode matter;—galena and silver sulphurets from pyrites, haryta and quariz; and pyrites from quartz.

Addition to the story of stamps this machine constitutes a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 12 or 15 tons per 24 hours.

For particulars apply to,

F. CAZIN, M. & C. E.

At Denver, Colorsdo. Look-Box 2225, or 243 Sixteenth street. ag8-16p

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore.

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Black Mountain Coal Mining Company.

Principal place of business, City and County of San Francisco, Cal. Location of works, Santa Cruz County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 28th day of August, 1874, an assessment of 5 cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 402 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will oe sold on Monday, the 2d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sele.

F. H. WELLS, Secretary.

Office—No. 402 Montgomery street, room No. 23, San Francisco, Cal. sep5

Eagle Quicksilver Mining Company.—

Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—Is hereby given, that at a meeting of the Boerd of Trustees of said company, held on the 23d day of July, 1874, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 aod 6, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessment shell remain unpeid on Monday, the 21st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Setnrday, the 26th day of September, 1874, for sale at public auction, and unless payment shell be made before, will be sold on Monday, the 28th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Boerd of Trnstees.

WM. H WATSON, Secretary.

Office, Rooms 5 and 6, No. 302 Montgomery street, San Francisco. jy-25

El Dorado North Mining Company---Location

of principal place of business, 215 Sansome street, room No. 2, San Francisco, Cel. Location of works, Philadelphia District, Belmont, Nye County, Nevada.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 4th day of August, 1874, an assessment (No. 1) of fifty cents per shero wes levied npon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 215 Sansome street, room 2, San Francisco, California.

Any stock upon whicb this assessment shell remain unpaid on the 15th day of September, 1874, will be delinqnent, and advertised for sale at public anction, and unless payment is made before, will be sold on sixth (6th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Directors. GEO. E. HOUGHTON, Secretary.

Office—No. 215 Sansome street, San Francisco, Cel.

NOTE.—Since levying the above assessment, the office of the El Dorado North Mining Comoany has been removed to room No. 4, Heyward's Building, No. 419 California street, San Francisco, Cal., and said assessment is now payable to the undersi ned, who has been duly appointed Secretary of said Company. FRANK SWIFT, Sec'y.

Electric Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 3d day of September, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 4th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

Office—No. 318 California street, San Francisco, Cel. Room No. 13. sep5

Germania Mining Company—Location of

principal place of business, San Francisco, State of California. Location of works, Tnnio District, Juab County, Utah Territory.

Notice is hereby given that at a meeting of the Directors, held on the fifth (5th) day of August, 1874, an assessment (No. 2) of one dollar per share was levied npon the capital stock of the company, payable immedietely, to the Secretary, at the office of the Company, 408 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the twelfth (12th) day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the second (2d) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. TRIPP, Secretary.

Office—No. 408 California street, room 16, San Francisco, Cal. ag15

Kincaid Flat Mining Company—Principal

place of business, San Francisco, California. Location of works, Sonora, Tuolumne County, Cel.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 18th day of August, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 217 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 21st day of September, 1874, will be delinquent, and advertised for sale at public anotion, and unless peyment is made before, will be sold on Monday, the 12th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office, 217 Sansome street, (np etairs,) San Francisco, California. ag22

Manhattan Marble Company of California.

Location of principal place of business, San Francisco, California. Location of works, Oaklend, Alameda County, State of California.

Notice is hereby given, that at a meeting of the Directors, held on the 26th day of August, 1874, an assessment (No. 5) of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary of the compaoy, at his office, No. 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shell remain unpaid on the 29th day of September, 1874, shall be deemed delinquent, and advertised for sale at public auction, and unless peyment is made before, will be sold on Tuesday, the 20th day of October, 1874, at 12 o'clock M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. A. B. CLASON, Secretary.

Office—No. 212 Sansome street, San Francisco, California. ag29

Plumbago Gold Mining Company—Cer-

tificate of incorporatino dated and filed in the offios of the County Clerk of the City and Coonty of San Francisco, California, June 24, 1864, No. 3340. Mina and works at Plumbago Ledge, Sierra County, Cal.

TO ALL WHOM IT MAY CONCERN TO KNOW: The representatives of two-thirds (⅔) of the capital stock and stockholders of said corporation, having made and filed with the Board of Trustees, on the 4th day of August, 1874, their written assent that the place of business of said corporation should be changed from the City and County of San Francisco, to Minnesota, in Forest Township, Sierra County, Cal,

Notice is hereby given, that it is the intention of said corporation to remove its principal place of business from the City and County of San Francisco, to Minnesota, to Forest Township, in Sierra County, immediately after publication of this notice for the period of thirty days from its first insertion in the MINING AND SCIENTIFIC PRESS, a newspaper printed and published in the City and County of San Francisco, Cal. Done by order of the Board of Trustees. S. B. DAVIDSON,

Secretary Pro. Tem.

August 4, 1874. 6w26-1m

Providence Gold and Silver Mining Com-

pany. Location of principal place of business, San Francisco, State of California. Location of works, Lassen county, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 10th day of July, 1874, the several amonnts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
E C Brown, Trustee	128	47	$4 70
E C Brown, Truetee	151	50	5 00
B C Whiting, Trustee	159	100	10 00
B C Whiting, Trustee	160	100	10 00
B C Whiting, Trustee	161	100	10 00
B C Whiting, Trustee	162	100	10 00
B C Whiting, Trustee	103	100	10 00
B C Whiting, Trustee	104	250	25 00
B C Whiting, Trustee	105	250	25 00
B C Whiting, Trustee	166	132	13 20
A D Hatch, Trustee	118	200	20 00
Jas McLaughlin, Trustee	57	500	50 00
Harvey S Brown, Trustee	189	57	5 70
F P Howard	146	14	1 40
Henry Raymond, Trustee	150	114	11 40
Henry Reymoud, Trustee	177	1000	100 00
Henry Raymond, Trustee	178	500	50 00
Henry Raymond, Trustee	179	198	19 80
Henry Raymond, Trustee	180	255	25 50
J H Kingeley	181	28	2 80
Cornelius Cole	168	100	10 00
Cornelius Colo	180	100	10 00
Cornelius Cole	170	83	8 30
John R Spring, Trustee	167	1000	100 00
John R Spring, Trustee	168	1000	100 00
D W Frary	171	100	10 00
Jes McLaughlin, Trustee	103	1000	100 00
Jas McLaughlin, Trustee	104	500	50 00
Jas McLaughlin, Trustee	105	250	25 00
Jas McLaughlin, Trustee	106	250	25 00
Jas McLaughlin, Trustee	107	100	10 00
Jes McLaughlin, Trustee	108	100	10 00
Jas McLaughlin, Trustee	109	50	5 00
Jas McLaughlin, Trustee	110	50	5 00
Jas McLaughlin, Trustee	111	40	4 00
Jas McLaughlin, Trustee	112	37	3 70
Jas McLaughlin, Trustee	142	25	2 50
Jas McLaughlin, Trustee	143	25	2 50
Jas McLaughlin, Trustee	144	25	2 50
Jas McLaughlin, Trustee	145	38	3 80
M L Morrison	114	25	2 50
S A Stevens	121	13	1 30
W J Miller, Trustee	129	12	1 20
W J Miller, Trustee	130	500	50 00
W J Miller, Trustee	131	500	50 00
W J Miller, Trustee	132	500	50 00
W J Miller, Trustee	134	100	10 00
W J Miller, Trustee	135	100	10 00
W J Miller, Trustee	136	100	10 00
W J Miller, Trustee	141	100	10 00
Solomon Heydenfelt	188	566	56 60
W H Knight, Trustee	190	57	5 70
Henry Raymond, Trustee	191	14000	1400 00
James Mee, Trustee	192	1000	100 00
T E Marks, Trustee	113	142	14 20
A D Bell	147	14	1 40
L Visaria	116	28	2 80
M C Blake	117	200	20 00
S A Raymond, Trustee	120	1415	141 50

And in accordance with law, and an order of the Board of Directors, made on the 19th day of July, 1874, so many shares of each parcel of such stock es may be necessary, will be sold at public auction, at the office of Middleton & Son, Auctioneers, 310 Montgomery street, San Francisco, on Monday, the 7th day of September, 1874, at the hour of 2 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

WM. H. KNIGHT, Secretary.

Office—331 Montgomery street, Room 18, San Francisco, Cel.

POSTPONEMENT.—The above sale is hereby postponed until the fourteenth day of September, 1874, at the same hour and place. By order of the Board of Trustees. WM. H. KNIGHT, Secretary.

ag29-2t

Saw Pit Flat Gravel Mining Company

Consolidated.—Locetioo of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Plumes County, Cal.

Notice is hereby given, thet at a meeting of the Directors, held on the 17th day of August, 1874, an assessment (No. 1) of five dollers per shere wes levied upon tbe capital stock of the corporation, payehle immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the 21st day of September, 1874, will be delinquent, and advertised for sele at public anction, and unless payment is made before, will be sold on Thursday, the 15th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, Californie. ag22

Tuolumne Hydraulic Mining Company.

Principal piece of business, City and County of San Frencisco, State of Californie. Location of works, Tuolumne county, State of California.

Notice is hereby given, thet at a meeling of the Boerd of Directors, held on the 19th day of August, 1874, an assessment of twelve and one-half (12½) cents per share was levied upon the capital stock of the corporetion, payable immedietely in United States gold and silver coin, to the Secretary, at his office, room 14, 302 Montgomery street, San Francisco, Cel.

Any stock upon which this assessment shall remain unpaid oo the 21st day of September, 1874, will be delinquent and advertised for sele at public auotion, and unless payment is made before, will be sold on Monday, the twelfth (12th) day of Octobor, 1874, to pay the delinquoot assesment, together with costs of advertising and expenses of sale. I. T. MILLIKEN, Secretary.

Office, 302 Monigomery st., San Francisco, Cal. ag22

Virginia Consolidated Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Keeseergo Mining District, Inyo County, State of Californie.

Notice is hereby given, thet at a meeting of the Boerd of Directors, held on the 31st day of July, 1874, an assessment of seven cents per shere was levied upon the capital stock of the corporation, payable immedietely in United States gold coin, to the Secretary, at the office of the company in San Francisco, Cal.

Any stock upon which this assesement shall remain unpaid on the 7th day of Septemoer, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 30th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sele.

T. B. WINGARD, Secrtary.

Office, No. 318 California street, San Francisco, Cal. Room No. 13. ag6

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THE RISDON
Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

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JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
24v17-qy

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—AND—
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☞ PRICES MODERATE. ☜
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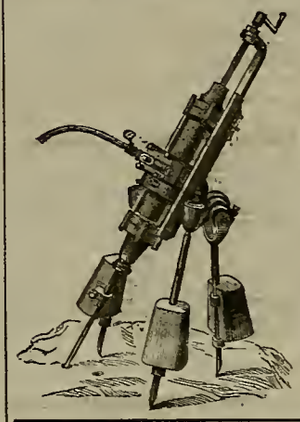
WARING ROCK DRILL COMPANY.



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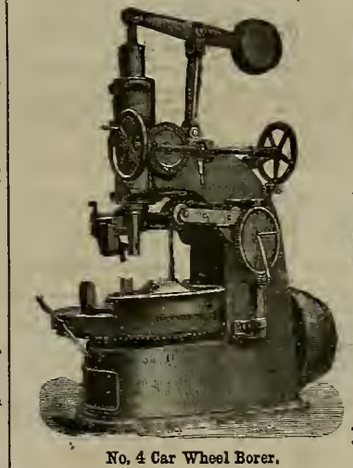

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Comprising all those used in
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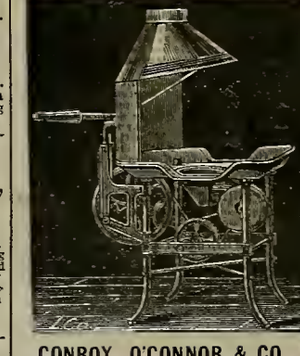

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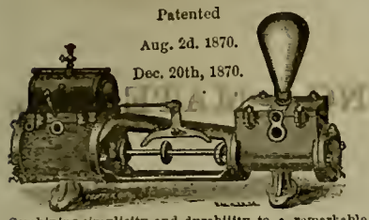

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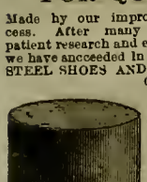

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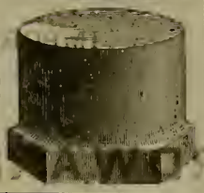

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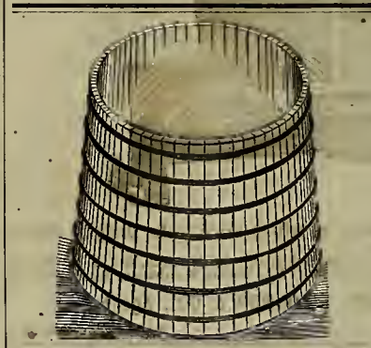

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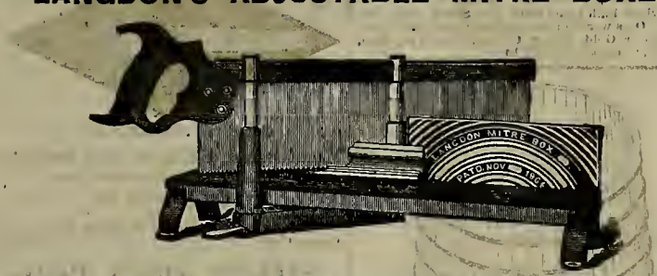

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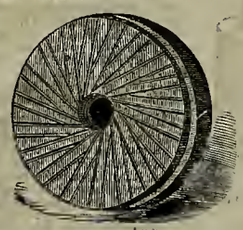

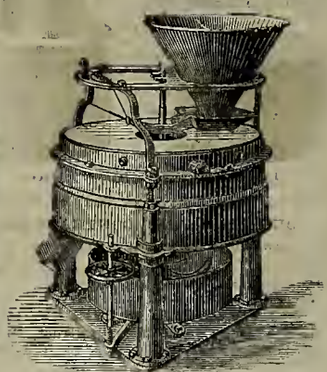

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MINING AND SCIENTIFIC PRESS.

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The Old "Soggs" Mine.

A company was incorporated in this city a short time since under the name of the Nevada Gold Quartz Mill and Mining Company, to work the Nevada Quartz or Old Soggs mine, from which over a million dollars were taken before the present owners took possession of it. This mine is situated on Deer creek, Nevada county, California, and has quite an eventful history. The mine, as located by Charles Marsh, E. E. Matteson and Dr. McIntyre, was 1,300 feet in length, and was turned over by the Bunker Hill company, as it was called, to Soggs and others, in 1851; and the water of Deer Creek and its tributaries was located and taken up and used April 1851, by Charles Marsh and others. It was worked about 2,000 feet from the present mill, and the ore crushed by a steam mill, with good results. Subsequently the Nevada company purchased 700 feet on the north end, being induced to do so from their having taken out some $40-rock from a tunnel run in on the Nevada. Subsequently the Nevada company purchased 1,000 feet of the old Bunker Hill ground, and also the water right. They put up the present mill, and from three tunnels run into the hill took out something over a million of dollars.

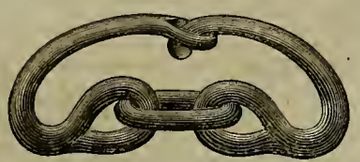
When the original Bunker Hill company failed in their work it was supposed that the mine was of no value, and was not worth accepting as a gift. As before remarked, however, after the ledge had been located further north and tried, it was found to be valuable. The mill put up by Soggs, Van Pelt & Green, for a half interest in the ledge, was run successfully for several years. They got money enough from the mine to buy out the other owners, and when it was known that the Bunker Hill was the same ledge, the mill site, water-wheel and flume of that company were purchased, and a new mill put up in 1860. About this time the company was incorporated as the Nevada Quartz Mining Company. Nelson Soggs was the superintendent from the time the first mill was built up to 1864, when he resigned, on account of ill health, but the mine is still known as the Soggs mine.

Up to date no cross-cuts have been made in the mine, and it is the general opinion that if this were done more rich discoveries would be made. Although a large ledge with ore averaging $20 per ton right through, the mine failed to pay after 1867, and was shut down until July, 1871, when John Berry, the present superintendent, took charge of it. He found the ground badly caved and the mine expensive to open. He began an incline near the mill, and at a depth of 80 feet found some promising ore. At 105 feet he started a level, and took out some fine ore, although some still remains. On this level there is a drift running north 90 feet, and one about the same length south. Ore has been taken from both drifts that was rich in fine gold and sulphurets.

Leaving this stand for future use, they commenced sinking, and at 217 feet opened a second level and ran a drift 124 feet south. Here the ledge was broken, but the walls were wide apart. Having a worn-out mill and poor hoisting works, the ore was left and a drift started north for the pay chute in the old mine. This drift is 630 feet long; the first 150 feet turned out some good ore and a large quantity of low grade ore, which will pay if assorted. In the face of this drift there is a promising looking ledge, fifteen feet thick, which is increasing in size and quality as the distance and ground correspond with the old works. It is believed that this is the foot of the old pay chutes. From this drift to the old lower tunnel, 227 feet, some of the ground has been stoped, and it is expected to furnish ore for the 15-stamp mill for several years. From the 217-foot level they have sunk 162 feet, the most of the way through a ledge varying from three to 10 feet, being seven feet at the bottom, with no permanent walls in sight. A drift north from this bottom level is still being worked in ore. The north side of the ground is broken, but carries good ore. This mine connects on the south with the Providence, in which mine they are working a body of ore varying from 25 to 40 feet in thickness. This body has pitched south between the 300 and 500-foot levels, but at the 600-foot level it is pitching north, which is the regular pitch of all the pay chutes on the ledge. It is expected that this will eventually run into the Nevada ground 200 feet deeper than the Nevada shaft is now run.

The old Nevada or Soggs mine, with all its vicissitudes of fortune, is now in a first-rate condition for work under the new company. Within the past two and a half years there have been put up on the creek a new stone dam, 1,200 ft. of new flume, etc. New hoisting works with hoisting and pumping machinery have also been put up. The mine has two good pumps. The machinery is run by a hurdy gurdy wheel and free water power, of which the company own the oldest right on the creek. Within the past two years, there have been put in operation 15 new stamps, two patent rubbers and six concentrators, all of first quality, and the mill will crush 30 tons of ore per day when running to its full capacity. The batteries are fed by self feeders with hoppers that hold eight tons each. Everything about the mill and mine is in good order. The mill is also run by a 32 foot overshot wheel.

The Providence mine, adjoining the Nevada, is valued at half a million. It has a 20-stamp mill and is now adding ten stamps more, which will make it as large as the mill on the Idaho. The Wyoming near by has a six-stamp mill and is adding 10 stamps more, making 16. All these mills are within a radius of an eighth of a mile, making 61 stamps, all run by water power. The yield of the Nevada mine for the first nine days of last month was $2,232.75 or $249 per day, so the old mine is beginning to recover its position as a producer. The company have paid out $60,000 since 1861 for labor and machinery, the mine paying nearly all its ex-



Quinlan's Chain Connector.

penses. Nevada City is said to be more prosperous to-day than she has been in any past time.

Immense Real Estate Sale.—The large amount of real estate recently deeded by Mr. James Lick, of this city, for charitable, educational, scientific and public purposes, is advertised for sale by the trustees on the 17th of November next. The property including the Lick House lot and other real estate in this city, Island De Santa Catalina off Wilmington harbor, and Mr. Lick's landed interests in Santa Clara and Los Angeles counties and Virginia City, will be sold at auction by Maurice Dore. The terms proposed are one-quarter cash, one-quarter every succeeding year until the property is paid for, deferred payments to bear interest at eight per cent. per annum. The sale is ordered with a view to speedily carrying out the bequests of Mr. Lick.

The Cahill quartz ledge, in Baker county, Oregon, was discovered on the 29th of April last, and in June Mr. Cahill commenced taking out rock, and since that time $60,000 worth of rock has been taken out, and there is now, at the lowest calculation, $150,000 worth of rock in sight. This ledge is about 70 miles distant from Baker city, and 30 miles from Canon city.

A large body of hot water was struck in the 1,465-foot level of the Consolidated Virginia mine, on Saturday last. From this level a drift extends into the Gould & Curry, with a downward slope, and the water runs into the latter mine. The Gould & Curry pump is a foot in diameter, and it requires its utmost capacity to control the water.

Considerable excitement exists concerning coal mines in Palmyra district and El Dorado canon, which have recently developed favorably, and new locations are being constantly made. The coal is of an excellent quality, and has been tested in furnaces with satisfactory results. In some places the stratum is over six feet thick, and is solid and well defined.

Mending Cracked Bells.

Daniel L. Riggs, of Salem, Oregon, has recently invented a process for mending cracked or broken bells, which is rather ingenious. The fracture in the bell is mended in such a manner that the brass is homogenous throughout, and the tone of the bell is preserved. Metals have heretofore been soldered or turned together in mending bells, but these means have failed to make the brass homogenous, and the tone of the bell is destroyed.

The arrangement by which the bell may be mended may be seen by referring to the engraving.

A is the cracked bell, to the outside of which the inventor molds from plumbago and fire-clay, or any suitable substance, a frame, *C*, which passes around each side of the bell, and has a chamber, the center of which is contiguous to the crack. Inside of the bell is constructed a combined furnace and mold, *C* and *B*, which has a diaphragm passing across the bell, and making the furnace-chamber. Commencing at the top of the crack and extending to its bottom is made a mold, *B*, in the curved side of the furnace, the opposite side of the

Device for Mending Broken Bells.

mold being formed by the convex side of furnace, *C*, which bears against the outside of the bell. *E* are clamps which fasten the two parts of the mold to the cracked bell.

The operation is as follows: The furnace-chambers, *C*, *C*, being supplied with fuel and ignited, a blast is thrown on them until the edges of the crack are fused and united, the deficient metal being supplied by other metal already melted and prepared, poured into the mold, *B*.

This method is simple, while at the same time it is ingenious. By this process the old cracked Liberty bell, on Independence Hall, Philadelphia, can be made as good as new, so that it may be made to ring again in 1876, as it did in 1776.

Casting a Patch.—A master mechanic of Sacramento showed our correspondent "Athlesis" a piece of his handywork the other day which was of interest. He showed him how he had cast a patch into a broken locomotive cylinder. The cylinder would have been condemned to be broken up, the way of all old castings, but by the ingenuity of this mechanic it was made as good as new. By the method employed, which he refused to explain, broken castings can be made new again. It is well known that the Chinese have for centuries been in the habit of mending broken iron kettles, etc., by casting patches upon them when broken or worn so as to admit of such kind of repair; but we were not aware until informed as above that any civilized mechanic had been able to do such work. The ingenious Sacramento mechanic should either patent his invention or make the modus operandi known for the benefit of the world. In another articles of this issue we illustrate a process for mending cracked bells so as to restore perfectly the original tone and quality.

The Silver City Miners' Union has elected the following officers for the ensuing six months: president, O. H. Roussand; vice-president, H. A. Savage; recording secretary, E. S. Ross; financial secretary, P. Dorenburger; warden, N. Marcille; conductor, Joseph Marcille.

Tripartite Chain Connector.

The accompanying cut represents a tripartite tie link for chains, recently patented through the Mining and Scientific Press Patent Agency, by William Quinlan, of Mayfield, Santa Clara county, California. The link is so constructed that it can be used for connecting any two links of a chain in almost an instant, so as to unite two or more chains into one continuous chain, or repair a broken one. The construction of the link is easily seen by referring to the cut. The flattened, arrow-shaped bead of one of the U-shaped links fits into an oval, elliptical or other shaped ring, through which it is passed in the manner of an interlocking buckle, in order to connect the ends together. This makes a perfectly regular or even exterior on which there are no projecting points to catch or drag, the ends being turned to the inside of the link.

Thus the link can be made of any desired size, so as to correspond with the links of a chain of any size. These chain connectors will be a great convenience to teamsters and drivers, as they can mend a chain in a moment in the dark, so as to render it equally as serviceable as before it was broken. The link also serves as a coupling in many places, thus placing in the hands of lumbermen, teamsters, millers, carmen and others, a real yet serviceable, useful and convenient implement. To connect the links of a chain, or two separate chains together, the arrow-shaped bead is disengaged from the ring so as to open the link and allow the arms of the U-shaped rods or bars to swing apart. The end links of the chains are then hooked into the U-shaped rods, and the ends of the rods are buckled or linked together, so that the tie link will form one of the links of the chain, and unite the ordinary closed links, thus repairing or connecting the chains or pieces of chain. It will be noticed that by bending the ends of the long arm of the U-shaped rods inward toward the link in the middle, a partition is formed which prevents the links from changing ends or getting entangled, while it permits the link to pass through any opening, or over a pulley, through or over which the ordinary chain links will pass. This link can be used for many other purposes, such as a tug attachment to singletrees, clips and for other similar fastenings.

Hiram G. Bloomer, Director of the Museum of the California Academy of Sciences, died suddenly in this city on Tuesday last. Mr. Bloomer was well known as an enthusiastic botanist, having resided in this city since 1852, and paying a large share of attention to his favorite study among the flora of this coast. He has contributed many valuable papers to the proceedings of the California Academy of Sciences, of which Society he was an old and prominent member. He was with the Academy in its dark days, and for the past few months has been laying plans for appropriately displaying the large botanical collection belonging to the Society, which its better fortunes would allow him to do. Mr. Bloomer has been Director of the Museum for several years, and filled his position to the satisfaction of all. He leaves a wide circle of friends, among whom his memory will be held in grateful remembrance.

The Saucelito Marine Railway, Tug and Water Co., will soon be incorporated, with a capital of $400,000, to build and maintain marine railways, run tug boats and supply water to vessels and others, transport and sell water, carry freight and passengers by water vessels, carry on the business of wharfing, docking, the construction of bridges, ferries, wharves, chutes, piers, marine railways, tag-boats, and to construct, build and use dry docks, warehouses and machine shops.

The directors of the Olive copper mining company, near Healdsburg, have decided to resume work on the mine immediately. In 1865 less than two tons of ore from this mine, shipped to New York, yielded 28¾ per cent. and brought $360.93 gross. In the same year 112 sacks, sent to Swansea, England, netted $608.10.

Industrial Fairs—Exhibitions of the Mechanics' Institute.

The following article, containing many historical and other interesting facts, is copied from the San Francisco *Journal of Commerce:*

Fairs have been the earliest mediums of commerce, and are much more common in the Old World than in the New. Through their means in olden days, the people of widely separated districts met and exchanged their respective products, thus laying the foundation of the vast commercial system which has given a tone and a manner to the whole of modern life. For long ages these fairs were held, growing yearly in importance till in what are now denominated the middle ages, the attendance at some of them might be numbered by hundreds of thousands.

During the last three-quarters of a century, however, fairs in Europe have begun to die out, and to day show nothing of their old time importance save perhaps at Leipsic and Novogorod. In Central Asia, particularly in that portion which forms part of the Chinese Empire, the fairs present somewhat of the appearance that they did in Europe in the middle ages.

To fairs and to the knowledge and information imparted through their medium the human race owes a great deal of its civilization—the accompanying games, contests and trials of skill helping to stimulate inquiry and research, and to give rise to invention. To them we owe the foundation of the theater, of the musical art, and literature itself—even the almost omnipresent if not omnipotent newspaper, being merely the successor to the story teller, to the bearer of news, and to the glorifier in prose or poetry of the attributes and the exploits of some favorite hero.

We have said that these fairs have been dying out for the last three-quarters of a century, we might almost have said for the last three centuries; but it has only been to revive again in

The Monster World Fairs

Inaugurated by the giant one at Greenwich. They embody all the characteristics of the ancient fairs, save those of buying and selling, people come together in them now solely to strive for the palm of excellence, leaving the mercantile part for other times and more appropriate places. Few of our readers have ever been fortunate enough to be present at the great world fairs, the meeting places of nations, but the majority are familiar with what has been done in San Francisco on a smaller scale. The managers of the Industrial Fairs here have not, as those of other lands, been enabled

To Wield the Resources of Vast Nations.

With the people at large the matter has not been one of national or sectional pride—they have had to struggle along a rough and weary road, often uncheered save by the consciousness of being engaged in a just and worthy cause, and one which they felt certain was sure eventually to triumph.

The Industrial Fairs of San Francisco owe their origin not to national or sectional efforts, but to the efforts of gentlemen connected with one of our most useful institutions, the Mechanics' Institute. And as so much of the success of the various Industrial Fairs has been owing to it, it may not be amiss to speak briefly of its origin in connection with the history of the movement that has culminated in the grand exhibition that we make the especial object of this notice.

Mechanics' Institutes had been successes in other quarters before the idea rose of founding one in San Francisco, though it is now so long since the first meeting for the organization of one was held in San Francisco, that it almost seems to belong to another age.

The First Move.

The first move to organize a Mechanics' Institute in this city was made in the latter part of 1854, by a meeting held in the office of the Tax Collector on December 11. At this meeting Mr. George K. Gluyas presided, and Mr. Roderick Mathewson acted as Secretary. Up to this time no successful attempt had been made to organize a society of mechanics; having for its object the establishment of a library, reading room, museum and other literary and scientific purposes, and excluding all political and religious matters.

But matters seemed to move rather slowly for it was only on 6th of March, 1855, that a committee appointed at the previous meeting, and consisting of Messrs. Benjamin Haywood, Roderick Mathewson, John S. Williams, E. T. Steen and Henry E. Carlton, reported a series of By-Laws and a Constitution, organizing the Mechanics' Institute, with a capital stock of $75,000, in shares of $25 each.

On the 29th of March, 1855, a permanent organization was effected, with Benjamin Haywood President; John Sime, Vice-President; J. W. Brooks, Treasurer; P. B. Dexter, Recording Secretary; Wm. M. La Roche, Corresponding Secretary; and the following Directors: Gardner Elliott, S. H. Williams, John C. Macredy, George Cofran, James Ballentine, Eli Cook and S. C. Bugbee.

On the 2d of July, same year, Messrs. La Roche, J. W. Brooks and S. C. Bugbee resigned, and in their places were elected Messrs. Henry F. Williams, Charles H. Gough and R. R. Williams.

On the 3d of October following, Mr. Haywood resigned as President, and Mr. John Sime became President, Mr. William McKibben being elected to fill the vacancy. We are thus minute in giving the names of the pioneers in the good work, as it is but right and fitting that our people should know who bore the brunt of the battle in the early days of the Institute.

The first annual report showed the total receipts of the year to have been $1,106.86; disbursements of the year to have been $1,085.37.

There were 487 volumes in the library. It is interesting to follow the history of this Institution from that time (1855), to the present, its struggle for existence and narrow escape from death, its pertinacity and energy, and, above all, its manly independence and freedom from doubtful pecuniary schemes, slowly fighting its way to its present important position, with a membership roll of 1,400 members, 25,000 books in its library—books of the rarest value to the mechanic and scientist—an annual income of $15,000, and owning the fine building it now occupies on Post street, above Montgomery.

In no way has the Mechanics' Institute so shown its usefulness to the industries and mechanic arts as in the Industrial Exhibitions held under its auspices. The primary object of holding such exhibitions as these was of course to raise funds for the Library, but one thing by degrees led on to another, until the movement reached its culminating point in the great series of expositions of the last two or three years.

On the 15th of December, 1856, a circular was issued by the Directors, signed by Mr. H. F. Williams, who was then Corresponding Secretary, announcing that an Industrial Fair would be held in this city in September 1857, and on the seventh of that month the Fair was opened in a building erected on the present site of the Lick House, which was some little distance from town, and not considered at that time very central. Mr. Henry F. Williams delivered the opening address, and Mr. Edward Pollock presented a poem.

We would like well to make a few extracts from both address and poem, but they would swell a newspaper article to too great a length.

The lot on which the Fair was held was the property of Mr. James Lick, who gave the Institute the free use of it. The building covered an area of 20,000 feet; the exhibition being held nineteen days; the total receipts being $22,374, a profit of $2,878.48 being cleared.

The names of the Managers were as follows: John Sime, Gardner Elliott, H. F. Williams, P. B. Dexter, J. E. Kincaid, Eli Cook, J. A. Banks, Isaac E. Davis, Wm. McKibben, C. L. Taylor, G. D. Street and Daniel Van Pelt, many of whom will be recognized by the present generation.

The second Fair was held in the same building as the first, and opened September 2, 1858, remaining open nineteen days. The receipts were $15,541.50; expenses, $13,569.43.

The third Fair was held in a frame building erected on the same lot as before; this did not prove a success, having run behind several thousand dollars. It opened in September, 1861, and took the society a number of years to wipe out the indebtedness incurred by the failure. Considering that they had been working so far for five years, and without result, it might have been expected that the holding of Industrial Fairs would have been abandoned. But no—

The Spirit of the Men was Indomitable.

The fourth Fair was held in a building erected on Union Square, having an area of 55,000 feet. The expense of erecting this building was met by a loan, without interest, made to the managers by liberal citizens of San Francisco, and which was repaid from the receipts of the Fair. The receipts were $41,579.55, and the disbursements were $38,737.64.

The fifth Fair was held in the same building as the preceeding one, opening on the 10th of August and closing on the 9th of September, 1865. The receipts were $32,133.25, and the expenses were $15,391.53. The success of this—netting nearly $17,000—was so marked that the managers were encouraged to attempt the holding of

A Monster Fair.

And so the sixth Fair was held in a new building erected on Union Square in 1868, having an area of 75,000 feet. It was opened on the 8th of August and closed on the 12th of September. The receipts were $58,402.83, the expenditures being $62,645.36. The building was much larger than any previous one, and the money for its construction was borrowed from the citizens of San Francisco without interest, and repaid from the receipts of the Fair. The opening address was delivered by Hon. Newton Booth. It was a success from every point of view save a pecuniary one, and the necessity of making up for the loss caused the holding of another Fair in the following year.

The seventh Fair, held in the same building as the sixth, opened on the 14th of September and closed on the 30th of October, 1869, area of building being increased to 87,000 feet. The total receipts were $70,701.06, and the total disbursements were $44,929.13.

The eighth Fair was also held in the same building, which had been enlarged to 100,000 feet, and was opened on the 8th of August and closed on the 7th of September, 1871. The total receipts were $62,846, and the total disbursements $30,991.91.

This Fair was held shortly before the great Chicago fire, and $1,000 was appropriated by the Institute to assist the sufferers.

The principal exhibits at these Fairs were of California manufacture; and, as a matter of interest, showing somewhat the progress in manufactures, we append a table of the size of each building, number of exhibitors at each Fair and the average space required by each exhibitor at the respective Fairs.

Date.....	1857	1858	1864	1865	1868	1869	1871
Area of Bld'ng	20000	25000	55000	61000	75000	87000	100000
No of Exhibitors	650	575	717	585	647	826	1020
Ft to Exhibitor.	31	43	77	104	111	105	98

The last item shows the increased importance of each exhibit, from the amount of space required. The Fairs of 1869 and 1871 being held in the same building as that of 1869, although increased in size, did not furnish sufficient room to meet the demands of the increased number of exhibitors.

The first Fair held by the Mechanics' Institute, demonstrated the fact that the seed had been sown that was to bear such good fruit to the manufacturing industries of this State, and that it only required such exhibitions as these to develop its natural resources. For instance, in the first Fair we find specimens of coal from Bellingham and Coos Bay, borax from Alkali (in Clear Lake), ores of gold and copper from California, of silver and copper from the Gadsden Purchase (Arizona), California made boots by Holcomb & Dole, paper by S. P. Taylor, crackers by Deeth & Starr, cordage by Tubbs & Co., cigars of native tobacco by I. Braverman, a silk winder by Ebenezer Smith, silkworms and specimens of silk by F. W. Jackson, specimens of beet root sugar by Eugene Delessert of San Jose, a sketch of Yosemite Valley by J. M. Hutchins. At this time California was not yet a producer—manufactures, it might be said, she had none, while the golden grain fields of the Sacramento and the San Joaquin valleys, the hundreds of green, grape covered slopes, and the millions of white wooled sheep grazing on a thousand hills, existed but in the imagination of the dreaming enthusiast. But the exhibits even at this early period in the history of the State gave

Promise of a Better Day,

And so we trace through each exhibition new branches of manufacture, newly discovered natural products, new arts, each containing an idea for something still newer, and awakening latent ideas or developing new ones in the brain of the observer and thinker; in fact each Fair forms a complete chapter in the history of local progress, and there can be no more valuable a channel of information to the people. It is an encyclopedia and advertisement combined into a kind of birds-eye directory.

The Sonora Company.

It was our pleasure this morning, says the San Diego *World*, to meet Colonel William Boyle, of London, England, who arrived in the city to-day on the "Orizaba," *en route* to Arizona. This gentleman represents the above named company in the capacity of Mining Engineer and Superintendent of the mines. A brief sketch of the objects of this powerful organization may be of interest: The Sonora company was incorporated for the purpose of working certain mineral estates in the Territory of Arizona and the adjoining State of Sonora, in Mexico.

The first property acquired by the company is the estate of Santa Rita, and other tracts, on the Santa Cruz river near the proposed line of the Texas and Pacific Railway. The mines on this property were known to the early Spaniards, and are spoken of by the Jesuit Fathers, and in Ward's "Mexico" as extremely rich. They were worked by an American company until the civil war and Indian depredations caused a suspension of operations.

The tract of land contains upwards of 100,000 acres, comprising 100 or more veins of ore, mostly silver and lead, with an average yield of more than $100 per ton.

The company has also purchased the celebrated estate of Arivaca, one of the most famous mining haciendas in Arizona or northern Mexico. This property comprises a valley of land surrounded by mineral mountains, and has the advantage of covering the only living water within a radius of 10 miles.

The mines attached to the Arivaca estate contain more refractory ores than those of Santa Rita; but this is compensated by the greater value of product, some of the ores having yielded £100 per ton, and the average for several years not having fallen below £50 per ton.

The company now purpose commencing operations immediately, and Col. Boyle feels gratified that the operations of the company will be principally carried on in the Territory of Arizona, it being preferable that all transactions be made under the jurisdiction of the United States government, having for protection the federal laws and courts.

Small Business.—The doorkeepers at the Mechanics' Institute Exhibition still continue to confiscate goodly numbers of season tickets. It seems strange that men who would scorn to come into the fraudulent possession of a half dollar in the ordinary course of things, should not scruple to attempt to cheat the managers of the Fair out of that sum by lending their ticket or borrowing one from somebody. Every effort that is made to get into the Pavilion on a season ticket not purchased by the person presenting it, shows that two people are willing to be dishonest at the small price of fifty cents for the pair. The number and respectability of the parties detected in this infinitesimal business is both laughable and melancholy. In most cases it is only with discovery that the meanness of their conduct flashes upon them. Not a few seem very glad to sacrifice the five dollar ticket for the privilege of getting out of the way in the shortest possible time. Others make the most ludicrous attempts to lie out of their difficulty, and in spite of the laughter and scorn of bystanders hang on to the remorseless doorkeeper until that enduring functionary loses all patience and threatens arrest. The astonishment of all at the inexplicable acuteness of the ticket taker is very funny. Never was there a more undignified position, and it is a mystery past understanding that a man with ordinary vanity, let alone self-respect, should subject himself to the possibility of such humiliation for the sake of saving four bits.

Quartz Mines of Washington and Eureka.

There at present but few mines working in these districts, but considerable prospecting is going on and ere long they will command the attention of capitalists and be sought after as they deserve.

At or a little below the town of Washington, we find Captain Miller, of the Dartmouth gravel mine in this place, opening up a new mine, which from reports promises well. The location is good, the ledge is large, and having a good water-power, the cost of mining and milling will be so small that a low average ore will pay.

On Diamond creek, the Comanche is working a small force with excellent prospects in shaft.

At the South Yuba, Messrs. Jones & Moore are getting in their winter supplies and repairing their mill and flume.

On the other ridge we find the Lindsay mine at work with a small force. They have a large ledge, which has the appearance of being excellent milling rock.

Farther down the river we come to Cañon creek, at the mouth of which is Cañon creek mine; a finely located property, having a prominent ledge cropping out boldly from the creek to the summit of the mountain, about 2,500 feet above. Mr. Samuel Locke, formerly of Grass Valley, has the management of this mine, and the developments consist in tunnels driven in on the ledge at five different levels, a distance of 100 or 250 feet, in all of which good pay ore is in sight; the ledge being from five to eight feet in thickness. They have as fine a ten-stamp gold mill as there is in the State, of which Mr. Samuel McCurdy, formerly of Gold Hill, Nevada, from whom we gathered many interesting facts about this enterprise, is superintendent. Connected with the property and making a part thereof, are a boarding house, office and other buildings; also 160 acres of choice timber and one of the best water powers in the State; capable of running 100 stamps. Taking into consideration the short length of time since work was begun here, they have accomplished wonders, and, as Mac. says, now don't need to care whether school keeps or not, as they have everything in shape for working to advantage.

Climbing to Gaston Ridge, the first mine we come to is the Treasury, owned by Messrs. Cowls and Maybank. They have sunk a shaft about 30 feet deep and thence drifted through their ledge, which is here about 20 feet wide and shows well in free gold and sulphurets. The claim is 1,500 feet long and the ledge is traceable the whole distance. A small lot sent below and worked by mill process paid $42.79 per ton.

Work is also being pushed on what is known as the old California or Gaston Ridge mine. They have recently cut through a ledge of very rich quartz some two feet wide, and we understand it is the intention of the owners to erect a mill this fall.

Next we pass to Eureka township, where the quartz interest is looking brighter than for some time past.

A short distance east of Grantiville is the Liberty mine, which we understand has just changed hands, and the new owners intend to thoroughly open it up. The quartz from this mine paid well from the surface down, a ledge from five to nine feet thick giving a mill average of from $12 to $19 per ton.

The old National is also being worked with very satisfactory results. A tunnel is driving in on the ledge about 100 feet lower down than it was ever before opened, and the quartz looks fine. This is one of the old mines of this district. Judge Walsh and Col. Raymond in 1855 built a 4-stamp mill on it, which was run very successfully for a number of years, the quartz paying $12 to $14 per ton. This mill was destroyed by fire in 1859, and the company being scattered, the mine lay idle until about two years ago, when it passed into the hands of Mr. Francis Henry, of Moore's Flat, who is now opening it up. This property is finely situated and can be worked very cheaply, as the right to 80 inches of water with 100-foot pressure, from one of the ditches, goes with it. We understand the owner has been offered, but refused, a considerable sum for this property.

The Republican, a first southerly extension of the National, has a large amount of quartz in sight which prospects well, and with other great advantages it does really seem strange that it is in a great measure lying idle. The main ledge is here 20 ft. thick, with large spurs putting in at intervals all along down the hill, from the hanging wall side. The general course of the ledge is nearly north and south, dip east and in slate formation. The owners are too poor to put up a mill, or this would now be a paying mine. They have a shaft down 50 ft. and a drift through the ledge, which here shows gold and galena, also a tunnel 90 ft. long, lower down the hill with a cross-cut at its face. There is one thing remarkable about this ledge: A large clay gouge is found on the west wall at every opening made. Here is a good chance for investment, and the owners invite a rigid examination by parties wishing to purchase.—*Foothill Tidings.*

Loading Hay.—A provisional specification describes an endless band elevator in a rear of a rake composed of parallel teeth which rest upon the ground with their points slightly raised. The rakes collect the crop from off the ground, and as the crop passes to the rear of the rake it is taken by the teeth of the endless band elevator, and is by it elevated and deposited into a chute, by which it is delivered into the cart or wagon.

Scientific Progress.

Vegetation Inside an Egg.—A foreign journal states that Prof. Panceri made an interesting communication to the Institut Egyptien at its meeting in December, on the cryptogamic vegetation which he had found within the egg of an ostrich This egg had been given him at Cairo, and was still fresh, the air space having not even been formed. He soon, however, noticed the appearance of dark blotches within the shell, and having been broken open to ascertain the cause, he found that they were produced by the growth of minute fungi. Instances of a similar kind had already been studied by him, and he had communicated the results to the Botanical Congress held at Lugano in 1859. The believers in the reality of the spontaneous generation of living organisms have not been slow to seize on these cases as an argument in their favor, since *a priori* it would seem that the shell of an egg would be quite impermeable to germs derived from without. Panceri has succeeded in satisfying himself, however, that the unbroken shell of an egg is permeable to liquids, and that these may introduce germs into its interior. He has, in fact, actually succeeded in inoculating other eggs with a fungus which he had obtained from the interior of one in which it had made its appearance in a way apparently so mysterious. He cultivated the fungus in egg albumen, and thus conveyed it to the uncontaminated egg.

Light and Electricity.—The English electrician, Willoughby Smith, has recently discovered a most curious action of light in altering the electrical resistance of a metal. In experimenting for a special purpose, with some small rods of selenium, about one-twentieth of an inch in diameter by three or four inches in length, enclosed in glass tubes, with platinum terminals, he found that their electric resistance varied most conspicuously and to a very great extent. He finally traced the disturbance to the action of light—finding that when the rods were enclosed in a dark box their resistance was perfectly normal, while even a slight exposure to light immediately reduced it some 10 or 15 per cent. On burning a magnesium ribbon at a distance of nine inches from the selenium rod, which, to cut off all disturbing action of heat, was immersed in its tube to a depth of several inches in a basin of water, the conductivity of the bar was at once increased nearly three-fold, remained constant while the light lasted, and as soon as the flame went out immediately returned to its original value. The discovery opens an entirely new field of investigation.—*Jour. of Chem.*

Hydrium.—This the new name proposed for the metal of which hydrogen gas is considered to be the vapor. There are several reasons for accepting this view; one is that hydrogen behaves in chemical compounds like a metal; it can replace a metal and be replaced by a metal, according to the law of equivalents, while recently alloys have been made of hydrogen with metals. Graham made the alloy of hydrogen with palladium, one of the heavy metals, and deduced from the density of the alloy and the amount of hydrogen that it contained that the specific gravity of the latter in this alloyed state of hydrium was 0.62. Recently Troost made the alloy with sodium, one of the light metals, and in the same way found for the specific gravity of hydrium 0.63. This number is very near that of lithium, which is the lightest of all metals, its specific gravity being 0.59.—*Manufacturer and Builder.*

The Siphon.—If two vessels are connected at the bottom by a tube, the water poured into one of them will rise in both to the same height, however different their width and shape may be. If, at the sea shore, a bent tube is led through a dyke, the water will, in the upper part of the tube, be on a level with the sea. If a drop of water falls into this tube, the whole sea will rise in a proportion diminishing in the ratio of its greater surface. This law, of course, holds good for any number of vessels connected by pipes or tubes. An illustration of the application of this law is furnished by the *suterazi* of the Turks, who, when desirous of conducting water from one mountain to another, construct a stone pipe leading from the slope of the former transversely through the valley, and then again up the slope of the latter.

When heat is applied to a solid, it getswarmer, until it begins to melt. As long as any of the solid remains unmelted, the heat which is continually being poured into it, melts, but does not heat it. It does not become sensible heat, but it changes the state of the solid and becomes, as it is sometimes called, latent heat. Such heat is called heat of liquefication. Again, the liquid so obtained, or another, on receiving the heat, becomes warmer until the liquid boils. As long as any liquid remains, the heat which enters it does not become sensible, but changes the state of the liquid, and is sometimes said to be latent in the vapor. Such is heat of vaporisation. The heat of liquefaction is given out when the vapor condenses.

The modern institution of railroad trains gives us occasion to observe the heat developed by frictional resistance in the heating of the railroad car axles, which often become so hot that the flame blazes out of them, setting the oil packing, and occasionally when not noticed, may in time set the car itself on fire.

Thermometers.

The simple principle of the thermometer is that a change in temperature produces a change in volume; and upon the uniformity of this increase depends the accuracy of the instrument. As instruments are usually made, this is assumed to be so throughout their entire range, but, in reality, this is not the case, either with a mercurial or spirit thermometer, especially the latter at low temperature, or with either one as the heat approaches the boiling point of the liquid. For measuring all ordinary ranges of temperature the expansion of mercury is so nearly uniform that the gradnations are made equidistant. If they were divided in accordance with the expansion of the mercury the spaces for each division would increase from the zero point upward, and decrease from it downward.

The freezing and boiling points are defined for the thermometer by immersion in boiling water and melting ice, and the space between these is then divided into any arbitrary number of equal parts, according to the standard desired. In the common instrument, used for the ordinary observation of temperature, the space is divided into 180 equal parts, and is known as the Fahrenheit scale, so named after its inventor. In this instrument the zero point is 32 degrees below the freezing point of water—erroneously so placed by its inventor, because he supposed that this was the absolute zero of temperature.

Now, since the rate of expansion is not uniform in the tube of the thermometer, it follows that the divisions of the scale are too short from the boiling point up or down, and too short from the freezing point up; consequently there can be only one point on the scale of a thermometer which is really accurate, all the others being only approximate, either above or below the truth.

There are yet several other unavoidable sources of error to be considered. First, the glass in which the mercury is contained also expands and contracts with the changes of temperature, but at a rate corresponding to only one-seventh that of mercury; so that, in order to be accurate, allowance must be made for this, if the graduation is made upon the stem of the instrument; if made upon the metal scale to which the glass is usually attached, still another compensation must be made, as expansion of the metal is different from either. Erroneous, therefore, as the measuring of heat must necessarily be by the use of a thermometer, it is yet an instrument of the utmost importance to the practical scientist in every field of investigation and industry. Where very minute differences of temperature are to be measured an instrument called a thermo-multiplier is used. This ingenious instrument was brought to such a wonderful degree of perfection by Tyndall that even the differences in the bodily temperature of insects could be measured, and by its use many interesting and useful discoveries have been made.—*Western Manufacturer.*

Yellow Glass for Photographic Purposes. The following simple method of testing the actinic properties of yellow glass for dark rooms is by Le Neve Foster, and the only apparatus required is a cheap glass prism. When a strip of white paper is placed on a dull black surface and looked at, through the prism, by daylight, it has the appearance of the rainbow, showing a complete spectrum. On bringing the yellow glass in question between the prism and the strip of white paper, those colors which are absorbed by the colored glass disappear. If on looking through the prism any blue or violet rays are seen, it is certain that the glass transmits the chemical rays, and hence is unfit for photographer's use. If only red and yellow be seen, it is non-actinic.

The Microscopic Examination of Well Water.—Reichardt has sought an expeditious method of determining the quality of drinking water, and recommends the use of the microscope in detecting salts in solution by their crystalline form. For this purpose, a few drops of the water under examination are evaporated on a slip of glass either at a high or low temperature, and the forms of crystals obtained, compared with those of known salts dissolved in water, and recrystallized in the same manner. In this way one can detect with dispatch and certainty, common salt, calc spar, gypsum, niter, etc., and to a certain extent the relative quantities present.

Will it Work?—According to the papers M. Michel's ingenious apparatus for indicating automatically the presence of blocks of ice or icebergs about ships is constructed as follows: A case suspended from the side of the ship encloses a bimetallic thermometer with a small rod attached to the helix, which moves right or left, according as the temperature rises or falls. When the temperature falls, the rod comes against a small metallic knob, and thus closes a circuit, ringing a bell placed near the officer on watch.

Manufacture of Gun Cotton. — Samuel Joseph Mackie, Westminster, England, claims: 1st. The treatment of the vegetable fiber with acids so as to transform it into gun cotton; the crushing of the fiber so as to destroy its capillary structure and reduce it to an impalpable mass, and the granulation of said mass. 2d. The production of gun cotton in a moist condition, and the drying of it in vacuo, as set forth.

Mechanical Progress.

The First Tool Used by Man.

It is interesting to look backwards and to find how the want of something to aid their natural power of muscle was first satisfied by the primitive man. The principal tool, judging by the number of them that have been found, was the stone hatchet, 1,500 of which were found in one spot in Lake Constance. In another 96 hatchets, 25 hammers and 25 arrow heads. There are 1,070 stone axes collected in the Copenhagen museum, some of which are a foot long, with 8¼ inches face, made of the toughest flint, which is chipped to a sharp cutting edge. They were probably tied to a handle of wood or sometimes were inserted in it, judging from the part that is polished by chafing.

With the aid of fire this tool seems to have enabled them to cut down trees of 9 inches diameter, as many thousand piles, smaller and up to that size, are found in the waters of the Swiss lakes with hatchet marks upon them. Besides being of use as weapons in war, they supplied nearly all the wants of men whose existence seems to have been spent in finding food and shelter. Accustomed as we are to a tool for every special purpose, so that they are as numerous as our wants, our respected ancestral relatives were forced to content themselves with but few in number, their trade list consisting mostly of axes, flat chisels, arrow-heads and knives, all made of flint.—*Newark Manufacturer.*

Aero-Steam Engines.—Mr. Richard Eaton's paper on the use of heated air combined with steam in locomotives, read before the British Association, has attracted considerable attention. The principle was invented by Mr. Geo. Warsop, and a stationary engine on this principle was in daily work at the International Exhibition of 1871. In the case of the locomotive named, an air pump, single acting, driven from one of the main cross heads, and secured to the frame work of the engine, in the place originally occupied by the feed pump, conveys a continuous supply of air, taken from the atmosphere, in its natural state, through a coil of pipes, fixed in the smoke box, into the boiler, at an average temperate of about 650° Fah. Within the boiler, the heated air is distributed and is continually rising, scattering the cohesion of the molecules of water, increasing the heating surface, promoting ebullition, joining the steam on its passage to the cylinder, and there greatly aiding the energy of the steam by retarding condensation, and following a higher curve of expansion. The action of the heated air also prevents a permanent settlement of incrustation on the boiler, fire box, or tubes, entirely obviates priming, and diminishes the liability to explosion. The duration of boiler, tubes, and fire box is prolonged by the non-deposit of scale, and steam is more quickly generated and more easily kept up.

Iron Clad Vessels.—The invention of iron plates to protect vessels is far from being of as recent date as is generally supposed. During the 12th century, the Normans covered their ships from the water-line up with an iron casing, terminating in a ram on the bow. Still earlier they had adopted a system of protecting the upper works with metal shields. In 1534 Peter of Arragon ordered his ships to be iron-plated, in order to protect them from the burning missiles then in common use. In 1530 the squadron of Andrea Doria contained a vessel built by the Knights of St. John, which was armored with several thicknesses of iron. At the battle of Lepanto, several ships protected their batteries with bars of iron. For two centuries no progress seems to have been made. In 1782, at the siege of Gibraltar, an engineer officer constructed six ships, which were the types of the modern iron-clad. They were covered with an armor of hard wood, leather and bar-iron. It is said that they resisted the fire of the forts for a long period, but were finally sunk by red-hot shot.

Economy of Iron Cars.—An iron car, made of boiler tin, with a capacity of ten and a half tons, weighs but 10,000 pounds, while the wooden car of like capacity will weigh 17,500 pounds—a difference so great that while 29 loaded iron cars make up a train on the Cumberland and Pennsylvania railroad, 20 loaded wooden cars make up one of equal weight. The iron cars stand the wear and tear of usage better than the wooden; come out of a wreck battered and bent but readily straightened out as well as new, whose wooden ones would be shivered to pieces and burnt, and the bolts and bars carried away in a basket. And, moreover, there is about $100 in favor of the iron car over the wooden when their first cost is considered.

Last February, Mr. J. C. Coburn, of Worcester, Massachusetts, patented a soft metal hammer, which is almost indispensable for various kinds of work. It has been designed expressly for that class of work requiring the use of a hammer that will produce no bruise on the object struck, and it meets this want in a highly satisfactory manner. These hammers are made from one and a half to four pounds in weight, with the head and handle cast in a single piece. The handle is strengthened by a rod of iron, which runs through the center.

How Thimbles are Made.

The manufacture of thimbles is very simple, but singularly interesting, and is described as follows: Coin silver is mostly used, and is obtained by purchasing coin dollars. Hence it happens that the profits of the business are affected instantaneously by all the variations in the nation's greenback promise to pay. The first operation strikes a novice as almost wicked, for it is nothing else than putting a lot of bright silver dollars, fresh from the mint, into dirty crucibles, and melting them up into solid ingots. These are rolled out into the required thickness, and cut by a stamp into circular pieces of any required size. A solid metal bar of the size of the inside of the thimble, moved by powerful machinery up and down in a bottomless mold of the outside of the same thimble, bends the circular disks into the thimble shape as fast as they can be placed under the descending bar. Once in shape the work of brightening, polishing and decorating is done upon a lathe. First the blank form is fitted upon a rapidly revolving rod. A slight touch of a sharp chisel takes a thin shaving from the end, another does the same on the side, and the third rounds off the rim. A round steel rod, dipped in oil and pressed upon the surface, gives it a lustrous polish. Then a little, revolving steel wheel, whose edge is a raised ornament, held against the revolving blank, prints that ornament just outside the rim. A second wheel prints a different ornament around the center, while a third wheel with sharp points makes the indentations on the lower half end of the thimble. The inside is brightened and polished in a similar way, the thimble being held in a revolving mold. All that remains to be done is to boil the completed thimbles in soap suds, to remove the oil, brush them up, and pack them for the trade.

European Ordnance.—All heavy ordnance are now built with steel barrels—this material being found best capable of withstanding erosion from the powder and indentation of the shot. But much divergency occurs in the mode of supporting the barrel by exterior layers of metal. Woolwich obtains support by coiling round the steel barrel bars of wrought iron. Vavasseur supports the barrel by shrinking on hoops of steel, so reguleted that the first layer of hoops shall not come into serious operation until the elasticity of the barrel has been developed. Krupp, who has been gradually assimilating his construction to that of Vavasseur, first by abandoning block steel for the breech, and then abandoning it for the chase, still makes the barrel much thicker at the inner end than is found desirable in this country, and so shrinks on the outer as to cripple the elastic action of the barrel. The French have adopted a system of construction which would be tolerable enough in conversions of old cast iron guns into rifled ordnance of an inferior order, but is without any merit but cheapness in new pieces. A steel half-barrel is embedded in cast iron, and further supported by steel hoops over the powder chamber. By this means the elasticity of the steel half of the barrel is crushed, and a joint with cast iron formed in the interior.

Double Chronometer Bank Lock.—A few days ago the Stockton *Independent* noted the fact that an automaton lock had been placed on the safe of the First National Gold Bank, and similar attachments have been placed on the safes of the Stockton Savings and Loan Society's bank, and the San Joaquin Valley bank. The attachment is known as Sergent's patent, and consists of two independent clock movements of the most complete and thoroughly finished workmanship. At the time of closing the bank, the movements are set in a manner somewhat similar to that of setting an alarm clock, to open or release a bolt at a given hour. The time of opening can be regulated from one to forty-eight hours. The chronometer attachment releases a bolt placed as additional security to the combination lock, and without the release of which the safe or vault cannot be opened even by those possessing the combination. The clock work is made double, so that in case one movement should in any event stop, the other will remove the fastening of the bolt which secures the whole.

George Stephenson, of English origin, the inventor and father of the railway system, was the son of a poor miner, and was born in 1781. Blacket, also an Englishman, made the first locomotive to travel on a smooth rail. Stephenson saw this engine, and decided that he could make a better one, and having $4,000 saved, he put it all into the construction of a locomotive, that broke down at the first trial. His patience and perseverance, two qualities requisite in an inventor, did not fail him, and he succeeded in making one of the grandest inventions of all the ages. At one step of his genius, he quadrupled the power of the engine, and in that invention he made a step so gigantic that it can never be forgotten.—*Ex.*

An invention by Signor Abbiati of a new plow for clearing the tracks of railroads, is attracting attention, and the claim is made for it that it is both expeditious, thorough and cheap. The machine, which operates on the snow or ice, is a heavy revolving saw, or fan, which cuts into the opposition deeply, and sends the fragments flying. The snow is thrown to a great distance on either side, or, in case of a very steep bank, it is taken up and hurled backward on platform cars, by which it can be removed.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Sept. 9, 1874.

NAME OF COMPANY.	FEET IN MINE.	SHARES IN MINE.	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo	300	6000	14M	13¾TH		1
Alpha Con	3600					
Alta		30000	7⅝e	7TH		⅛
American Flat	65	24000	57	47H		
Bacon M. & M		54000	7½T	7¼F	¼	
Baltimore Con		54000	7½T	7¼F	¼	
Belcher	1040	104000	72½M	69½T	¾	
Best & Belcher	224	22400	34F	32s		
Bowers	20	5000				
Buckeye		10000	3c	2½TH	¼	
Bullion	2500	25000	9W	8½e		
Caledonia	5000	20000	22T	20½TH		2
California			39T	38TH		1
Challar-Potosi	2800	28000	57M	54½TH		8
Confidence	130	24960	15¾T	13¾TH	1¾	
Con. Gold Hill Quartz	34½	20000	4T	3¾M		
Con. Virginia	1150	108000	83½T	81¼TH	½	
Cook & Geyer	1600	24000				
Crown Point	600	24000	70s	65T		5
Daney	2900	24000	1⅝s	1⅝s		
Dardanelles	1200	24000	13½T	12½TH		1
Dayton			5¾T	5⅝s		¼
Eclipse	10	24000	67T	67TH	⅛	
Empire M. & M	75	50000	10¾M	8½TH	1¾	
Exchequer	400	8000	85T	72F	10	
Fairmount						
Flowery	3000	12000				
Franklin			2¼s	1¾TH	⅛	
Globe		20000	1⅝e	1¼F		
Gould & Curry	1200	48000	22F	20½TH		2
Hale & Norcross	400	16000	44F	41TH		3½
Imperial	184	100000	10M	8¼TH	1½	
Indus						
Insurance	2000	30000				
Jacob Little						
Julia	2000	30000	4½T	2TH	1⅝	
Justice	3000	21000	10¾F	9¼T		1½
Kentuck	93	30000	16F	15T		
Knickerbocker	1200	24000	5⅝s	5M		⅛
Kossuth			1TH	¾F		
Lady Bryan						
McMeans	3600	36000				
Mint	1600	50000				
Nevada	3000	40000	1½F	1¼F	⅛	
New York Con	3600	36000	3⅜F	3TH		⅛
Occidental	800	10000				
Ophir	1400	28000	233M	214TH		½
Overman	1200	37400	45F	40TH		5½
Phil. Sheridan	1200	24000				
Pictou	2000	30000				
Rock Island		24000	4⅝F	4T	⅛	
Savage	800	16000	61F	57T		4
Seg. Belcher	180	6400	106F	93½TH		6
Seg. Caledonia		10000				
Seg. Rock Island			⅞TH	⅞TH		
Senator		24000	1⅛T	⅞TH		
Sierra Nevada		150000	8T	7½TH	⅜	
Silver Hill		24000	7½M	6¾TH		1½
South Comstock						
South Overman		24000	⅞F	½TH	⅛	
Sucker M. & M	7600	22500	1⅜T	1¼T		⅛
Sutro		120000	1T	1T		⅛
Trench	20	50 0	9s	9s		
Tyler	2200	33000	70cF	60cT	5c	
Union Con	803	20000	19½T	15TH	1	
Utah		20000	3¼T	2¾T		
Woodville	1400	28000	8⅛s	7TH		1½
Yellow Jacket	1200	24000	83½F	78TH		2½
NEVADA.						
Adams Hill		50000				
Alps	800	30000				
Amador Tunnel						
American Flag M. & M		30000	2½TH	2T		
Arkansas	300	30000				
Belmont			9¾TH	8T		⅛
Bowery		30000				
Chapman M. & M		30000				
Charter Oak	1000	30000				
Chief of the Hill		30000	⅛TH	10cT		7½c
Chief East Extension		36000				
Columbus M. & M	10000	50000				
Condor		25000				
El Dorado South			2⅝T	1⅝s		⅛
Eureka Con		50000	11M	10¾T		¼
Excelsior		12000				
Harper		30000				
Hayes						
Hermes	1000	30000				
Home Ticket	1400	20000	4⅝T	4T		
Huhn & Hunt						
Ingomar	3600	30000				
Ivanhoe	1000	40000	4⅝T	4T		
Jackson		30000				
Josephine		50000				
Juniata Con	5000	50000				
K. K. Con			3F	3F		
Kentucky	1000	30000				
Kinston	1000	30000				
Lehigh	1000	30000				
Lillian Hall	1000	12000				
Louise	2400	30000				
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24025	60000	6M	5⅝T		
Mocking-Bird	1200	30000				
Monitor-Belmont			2⅛F	2T		⅛
Murphy	2000	60000				
Newark	800	32000	⅜TH	55cT		2½c
Pacific Tunnel			1¾T	⅝TH		
Page & Panaca	2400	30000			½	
Peavine	1000	30000				
Phœnix		50000				
Pioche	1000	20000	7F	6TH		1
Pioche West Ex		35000				
Pioche-Phœnix		40000				
Portland						
Raymond & Ely	5000	30000	10½T	10s		1¾
Rye Patch						
Silver Peak		30000				
Silver West Con						
Standard M. & M						
Star Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mount		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole	200	30000	1⅝TH	1¼M		⅛
Watson						
Yellowstone						
CALIFORNIA.						
Alpine	1200	12000				
Bellevue	8000	24000	¾F	¾F		⅛
Calaveras	2200	20000				
Cederberg		24000	¾T	¾T		
Charcot Mill			10¾T	10T		¼
Con. Amador						
Cottonwood Creek		20000				
Dunderberg M. & M						
El Dorado	1650	20000	10T	10T		
Eureka		24000				
Gillis	1800	25000	¾T	¼T		1½
Independent		10000				
Keystone	1500	25000				
Mt. Jefferson						
Oakville	1800	20000				
St. Lawrence M. & M	3000	30000				
St. Patrick						
Tecumseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000	1¾M	1TH		⅛
Golden Chariot	750	30000	7¼M	7e		⅛
Ida Elmore	1300	10000	1¾F	1½T		⅛
Mahogany	720	10000	5½TH	5M		⅛
Red Jacket						
South Chariot	650	20000	16½T	15M		4½
War Eagle	1000	10000	1⅞T	1⅞T		
WHITE PINE.						
General Lee	1000	20000				
Mammoth	1800	36000	20cs	15ce	5c	
Noonday	1000	20000				
Orig. Hidden Treas.	800	21333				
Silver Wave						
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertiseemente in the Mining and Scientific Prese and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No. Amt. Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Alpine Gold M & M Co	Amador Co	Cal 7 1 00	Aug 10	Sept 14	Oct 5	J F Lightner 438 California st
American Flag M & M Co	Ely District	5 50	Aug 26	Se.t 29	Oct 27	G R Spinney 320 California st
Bellevue M Co	Placer Co	Cal 50	Aug 18	Sept 21	Oct 15	D F Verdenal 409 California st
Belmont M Co	Nye Co	Nevada 3 1 00	July 17	Aug 22	Sept 12	C H Bogart 402 Montgomery st
Best & Belcher M Co	Washoe	9 50	July 13	Aug 17	Sept 12	W Willis 419 California st
Buckeye G & S M Co	Placer Co	Cal 50	July 21	Aug 28	Sept 16	G A Sankey 331 Montgomery st
Chief of th Hill M Co	Ely District	5 25	Aug 11	Sept 11	Oct 1	C S Neal 419 California st
Condor S M Co	Ely District	3 25	July 17	Aug 25	Sept 15	Geo T Grimes 240 Montgomery st
Daney G & S M Co	Washoe	10 75	Aug 6	Sept 8	Sept 30	G R Sobiney 320 California st
El Dorado North M Co	Belmont Nevada	50	Aug 4	Sept 15	Oct 6	C E Houghton 215 Sansome st
El Dorado South Cone M Co	Nevada	4 1 00	Aug 7	Sept 14	Oct 1	W Willis 419 California st
Empire M Co	Idaho	7	Aug 26	Sept 30	O t 24	Wm Willis 419 California st
Empire Mill & M Co	Washoe	15 50	Aug 13	Sept 17	Oct 8	G R Spinney 320 California st
Eureka M & Smelting Co	Eureka Nev	4 25	July 14	Aug 18	Sept 7	T P Beach 424 Montgomery st
Gould & Curry S M Co	Washoe	23 2 00	Sept 1	Oct 6	Oct 27	A N Dunbrow 438 California st
Hale & Norcross G & S M Co	Washoe	44 5 00	Sept 8	Oct 18	Nov 3	J F Lichtner 438 California st
Ida Elmore M Co	Idaho	13 1 00	July 20	Aug 24	Sept 19	W Willis 419 Cal fornia st
Indus G & S M Co	Washoe	10	July 30	Aug 31	Sept 17	D Wilder Merchants' Ex
Josephine Cons S M Co	Nye Co	Nevada 1 15	July 20	Aug 22	Sept 12	C H Bogart 402 Montgomery st
Julia G & S M Co	Washoe	19 1 50	Aug 4	Sept 7	Sept 25	A Noel 419 California st
Justice M Co	Washoe	11 2 50	Sept 4	Oct 7	Oct 29	F Swift 419 California st
Mahogany G & S M Co	Idaho	13 2 00	July 17	Aug 22	Sept 14	O B Higgins 402 Montgomery st
Mammoth S M Co	White Pine	10	July 13	Aug 17	Sept 15	D A Jennings 401 California st
Mint G & S M Co	Washoe	10	Aug 21	Oct 2	Oct 28	D A Jennings 401 California st
Newark S M Co	Ely District	8 1 01	Aug 18	Sept 23	Oct 15	J W Clark 418 California st
New York Cons M Co	Washoe	10 50	Aug 26	Oct 1	Oct 19	H C Bibbe 419 California st
North Bloomfield Gravel M Co	Cal	33 1 00	Aug 11	Sept 15	Oct 5	Thos Derby 320 Sansome st
Page & Panaca S M Co	Ely District	7 50	Aug 4	Sept 8	Sept 24	H P Bush Merchants' Ex
Piache S M Co	Ely District	Nevada 7 1 00	July 29	Sept 7	Oct 2	C E Elliot 419 Cal fornia st
Portland S M Co	Ely District	5 25	Aug 21	Sept 23	Oct 22	B J Gray 438 California st
Raymond & Ely M Co	Ely District	1 3 00	An 17	Sept 23	Oc 16	T W Cothurn 418 California st
Rye Patch Cone M & M Co	Nevada	3 25	July 21	Aug 21	Sept 19	D F Verdenal 409 California st
Savage M Co	Washoe	16 10 00	Aug 1	Oct 2	Oct 18	E B Holmes 419 California st
Silver Peak M Co	Ely District	5 50	Sept 3	Oct 10	Nov 2	G T Grimes 240 Montgomery st
Sierra Nevada S M Co	Washoe	39 1 00	Aug 5	Sept 8	Sept 29	R Wegener 414 California st
South Chariot M Co	Idaho	10 1 00	Sept 2	Oct 3	Oct 26	Frank Swift 419 California st
South Comstock M Co	Washoe	1 50	Aug 18	Sept 22	Oct 12	J M Buffington Merchants' Ex
St Patrick G & M Co	Utah	50	July 22	Aug 24	Sept 19	D F Verdenal 409 California st
Sucker M & M Co	Washoe	9 1 00	Aug 18	Sept 22	Oct 14	W H Watson 302 Montgomery st
Sutro M Co	Washoe	20	Aug 14	Sept 18	Oct 12	G W R King 434 California st
Tyler M Co	Washoe	6 25	Aug 15	Sept 18	Oct 8	O D Squire 539 California st
War Eagle M Co	Idaho	7 1 00	Aug 21	Sept 26	Oct 17	L Kaplan Merchants' Ex
Washington & Creole M Co	Ely District	12	July 21	Sept 16	Oct 10	F D Clary Merchants' Ex
Yellow Jacket S M Co	Washoe	18 5 00	Aug 11	Sept 15	Oct 16	G W Hopkins Gold Hill Nev

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

California Cons M Co	Cal	1	50	Aug 26	Sept 23	Oct 19	B J Gray 438 California st
Consolidated Reforma	Lower Cal	1	50	Sept 1	Oct 5	Oct 23	A D Carpenter 605 Clay st
Cunel & Tiger S M Co	Arizona	2	50	Aug 12	Sept 14	Oct 2	C J Eaton Express Bldg
Edith Quicksilver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart 113 Liedesdorff st
Germania M Co	Utah	2	1 00	Aug 5	Sept 12	Oct 2	J W Tripp 408 California st
Gold Run M Co	Nevada Co	Cal 7	25	Aug 7	Sept 15	Oct 7	44 Pine Cor Market & Spear sts
Greenhorn G M Co	Cal	4	70	Aug 10	Sept 15	Oct 6	J F Lichtner 438 Montgomery st
Hayes G & S M Co	Nevada	5	20	Sept 4	Oct 6	Nov 3	G R Spinney 320 California st
Independence Cons M Co			15	Sept 4	Oct 10	Oct 29	F J Hermann 418 Kearny st
James Point Gravel M Co	Cal	2	10	Aug 12	Sept 15	Oct 3	D O Ferris 223 Montgomery st
Ko smith M Co	Nevada	2	25	Aug 25	Sept 25	Oct 14	E F Sears 419 California st
Mosquito Hydraulic Quartz M Co	Cal	1	15	Aug 12	Sept 15	Oct 3	C S Healy Merchants' Ex
New York M Co	Washoe	1	50	Aug 28	Oct 1	Oct 19	H C K bbe 419 California st
North Fork M Co	Plumas Co	Cal 4	1 50	July 24	Aug 21	Sept 15	A Martin 520 Washington st
Oneida M Co	Amador Co	Cal	75	July 18	Aug 21	Sept 19	L Kaplan Merchants' Ex
Prussian G & S M Co	Nevada	2	50	Sept 1	Oct 5	Oct 26	R H Brown 402 Montgomery st
Red Jacket M Co	Idaho	4	1 00	Sept 2	Oct 9	Oct 31	W Willis 419 California st
Sanderson G M Co	Cal	12	30	Aug 12	Sept 8	Sept 26	W Stuart 113 Leidesdorff st
Silver West Cons M Co	Eureka Nev	2	10	Aug 19	Oct 6	Oct 31	F R Bunker 606 Montgomery st
Starr King S M Co	Nevada	9	25	Aug 11	Sept 30	Oct 30	L Kaplan Merchants' Ex
Table Mt Alpha M Co	Cal	5	25	Aug 20	Sept 29	Oct 20	T F Cronise 438 California st
Tecumseh G S & C Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark 418 California st
Umpire Tunnel & M Co	Utah	3	5	June 29	Sept 2	Sept 21	P A Eakins 23 Kearny st
Ward Ellis S M Co	Robinson District	2	10	Jan 21	Sept 28	Oct 19	J M Buffington Merchants' Ex
Wyoming G M Co	Nevada	3	25	July 28	Aug 31	Sept 18	W J Gunn 410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Best & Belcher M Co	Washoe	Called by Trustees	419 California st	Special	Sept 21
Cosala M Co	Mexico	G Hohwieener	510 Battery st	Annual	Sept 21
Coquille Black Sand G M Co	Oregon	F P Reynolde	111½ Liedesdorff st	Special	Sept 23
El Dorado Water & Deep Gravel M Co		H Elias	418 Montgomery st	Annual	Sept 8
Eureka M & Smelting Co	Nevada	T P Beach	424 Montgomery st	Annual	Sept 29
Silver Cloud M Co	Arizona	C S Healy Merchants' Ex	419 California st	Special	Sept 15
Star M Co		Wendell Easton	418 California st	Annual	Sept 18
Tecumseh M G S & C M Co		F J Hermann	418 California st	Special	Sept 15
Yarborough M Co	Kern Co	Cal Edward Barry	415 Montgomery st	Annual	Sept 14
Victoria & Imperial T & M Co	Utah	W H Watson	302 Montgomery st	Annual	Sept 18
Woodville G & S M Co	Washoe	Called by Trustees	401 California st	Special	Sept 28

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver.	316 Callfornia st.	30	July 17
Belcher M Co.	Washoe.	H C. Kibbe.	419 California st.	4 00	Sept 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Sept 10
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	Sept 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	Sept 12
Diana M. Co.		N. O. Fassett.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	Jnly 6
Eureka M Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

The mining stock market hss hesn pretty lively this week and prices heve heen np, es will he seen hy onr stock tahle. Dividends are in order at this time of the month, end elready fonr have heen annonnced. Crown Point pays $3 per share; Cheriot Mill, (Sen Diego,) 40c.; Belcher, $4; and Consolidated Virginia, $3 per shere. Hele & Norcross has levied another assessment, its 44th, amounting to $80,000. This assessment makes a total of $1,450,000 collected in assessments hy this mine, egsinst $1,598,000 dishursed in dividends, the last one of which was paid in April, 1871. Affairs on the Comstock ere looking well, and the *Enterprise* of Saturday says: The ore-hodies recently developed in the Ophir, Imperial, Empire and other mines along the Comstock, are constantly improving es the work of their exploration progresses. This finding of ore et points where it was long vainly searched for is very encoureging to snch of onr mining companies as are still at work in the barren portions of the vein, es it shows them thet as long ee they have the vein they are liable to drift into sections that are fertile. Prospecting was never more active theu at present, nor were our mining companies ever before so well provided with machinery and fecilities of every kind for oheaply and repidly performing the work reqnired to he done for the proper opening and exploring of their mines. A nnmber of compinies that have not for some time heen crush ng—ae the Buckeye, Dayton, Silver Hill and Leo—will soon reeume the shipment of ore to the mills, and it is not unreesonahle to predict that ore will he found at no dietant day in severel of those mines which now oan boast nothing more than favorahle indications.

The Tailing Mill.—Messrs. Britten, Bsggs & Co's tailing mill started np on tailings from the Ida Ellmore mill lest Tuesdey, end operates splendidly. It hes two pans and fonr settlers. The cepacity of the psns is 3½ tons each, and they are charged every fonr hours, msking 42 tons as the totel daily (24 hours) ospacity of the mill. Only two cords of wood are consnmed per dey in driving the machiuery, and it only takes fonr men on a shift to run the mill. A Varney pan will be put in to grind the salphnrets, which will he so much clear gain. No clean-ups heve yet heen made, but they are confident thst it will pan ont handsomely. Everything is in epple-pie order, snd the hoys deserve much credit for the energy end persevereuce which they heve displayed in the enterprise. It is a great addition to the industriel pursuits of our camp, end will materially add to the wealth and prosperity of Silver City. —*Owyhee Avalanche.*

Meadow Valley.—The lowest west drift of this mioe hes been run to the Raymond & Ely line, and will he continned on until it connects with the east drift of the Raymond & Ely—of course et the expense of the laiter compeny. For ehout 200 feet the ledge carried considerahle metal asseying from $12 to $30, hut it wes impossible to prospect it at a greater depth from the rush of waler. The quantity of the letter is ssid hy some to he so great thst it is thought donhtful whether the Reymond & Ely will drain the ledge without machinery being elso placed on the Meadow Valley.—*Record.*

The mines of Big Cottonwood, Uteh, are producing considerable high-grade ore, and the roads down the cañon are considerably thronged with teams hauling ore to the Sandy smelters.

The Oregon Iron Co. shipped 60 tons of pig-iron from Portland, last week.

MINING SUMMARY.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

Silver Glance.—*Chronicle*, Sept. 5: This mine continnes to look well, and 14 tons of good ore are daily taken from it to the mill.

Mountain.—The directors decided to place new air-boxes in the lower tunnel. The tunnel is 1,864 ft. in length, and the hoxes throughout the entire length are unfit for further use.

Exchequer Bullion.—We learn that the testing of the Exchequer ore hy the McGlew process at the M. & N. W. mill hes resulted in the production of a goodly amount of fine bullion—said to he .975 fine. We have no particulars as to the general result, as to the emonnt per ton, percentage saved hy the new process, etc., hut it is greatfying to our people to know that efter years of patient waiting and the squandering of e mint of money, we have et last found e processs hy which our rebellious ores can be made to disgorge their treesure,

AMADOR COUNTY.

Amanor Quicksilver Mine.—The progress of this mine continues very favorebly as work progresses. The main shaft is now down about 50 ft., and although not sunk on the mineral-bearing ledge, yet the indications are very flattering. The shaft is being sunk so ee to strike the ledge at a greater depth. The ore now being teken out continues very rich.

CALAVERAS COUNTY.

Rich Rock.—*Citizen*, Sept. 5: It is reported that rich ore prospecting from $75 to $100 per ton was recently struck in the Calaveras gold mine. This mine has hed frequent ups and downs and we hope the report may prove correct.

Again.—The Mullins and Ryan gravel claim, on Central hill, made a clean-up last week which amounted to $4,000.50. This is the result of six or seven weeks' work for four men.

EL DORADO COUNTY.

Rich Development. — *Mountain Democrat*, Sept. 5: We hear rumors, hut no definite particulers, of an amezingly rich mining development—$5 000 taken out in a very short time—in e gravel deposit near Grizzly flat, in which D. T. Bodhurrow is intsrested. We somewhat anxiously await reliahle perticulars.

INYO COUNTY.

A Splennid Strike.—*Independent*, Sspt. 5: The most important item of local news we have to offer this week is the confirmation of the big strike in the Virginia Consolideted, on Kearsarge mountain. The 218-ft. tunnel now cuts through a ledge of good ore throughout of 27 ft. in thickness, the perfeetly defined walls hsing that distance apart. This is at a depth of 200 it. The ledge is pronounced a perfect Comstock. The valne of this strike can hardly he over-estimeted. The ledge is all quartz, and scercely eny of it thet will not go at least $50 per ton.

Omega.—We learn that an immense body of rich smelting ore has recently been struck at the lowest level of the Omega tunnel, Cerro Gordo.

Pine Mountain District.—The prospectors are all driving away with very encouragiug results. C. Albert and hie partner are taking out quentities of nnusnelly rich smelting ore. They heve hegun on a tunuel thet will open the mine to such a depth as will prove it is or is not a mine in fact, end have no feers of the result. The tunnel on the Moffatt ledge is heing driven es repidly along as three reguler shifts can do it. In a few weeks a number of these mines will he sufficienly developed to determine their worth as regards the erection of reduction works.

KLAMATH COUNTY.

Mining.—Cor. Lake *Bee*, Sept. 3: The plecer miuing is chiefly confined to the search afier the old chennel of the river. When that hae been found the pay has been nniformly good. As it is attended with great pecuniary expense end e great length of time required to develop it, few people have either the patience or means to attempt its exploration. Messrs. Finley and Doty are the last successful strikers of this chennel. It is paying remarkably well. They are running night and day, with a working force of ten men. It is paying cleer of all expenses about $1,600 per month, and this is a well merited reward; for they labored for three yeers in its development nnder the most depressing circumstences. All honor to their enterprise. The principal interest, however, is quertz. Gradually and steadily it is approeching the position which it will soon take and hold. The hest quartz region in the State lies invitingly open to capitel and enterprise. The Black Bear is slowly, though snrely working itself into public notice and favor, through its regular and steadily increesing dividends. At present 16 stemps are running. They heve torn out the originel hattery of 12-stamps and erected a fine hetiery of 16-stamps, meking an aggregate of 32 stemps, fonr more then formerly worked.

MENDOCINO COUNTY.

Rich Developments.—*Democrat*, Sept. 5: We understend the quicksilver discove y on Dry creek being opened up by Henehaws end othere, ie making a handsome showing. Two hundred tons of rock were teken out by five

men in 10 days, and the pile has been estimated as likely to yield about $40,000.

MERCED COUNTY.

Argus, Sept. 5: We saw some dirt taken from ground lying between this town and the Merced river, on Sunday last, which, when washed, gave six colors to the pan.

NAPA COUNTY.

Flagstaff.—*Register*, Sept. 5: The main tunnel is in 300 feet, running so as to crosscut the vein, which they did, and have just got through. This vein is 20 feet wide, and the ore is of the finest quality, being cinnabar and native metal. One cannot pick up a rock and break it without finding it full of native metal. After cutting the vein, they have turned to the right and are getting out an immense amount of rich ore. On top of the hill, just over the end of the tunnel, a shaft was started, but, on account of water had to be abandoned after attaining a depth of 50 feet. All the way down the shaft its sides are lined with good paying ore. So this vein is 20 feet wide and 200 feet deep, and there is no telling how far below the tunnel it runs.

Socrates.—The title of this mine having been settled, work will be resumed soon. There is an offer of $210,000 for the Socrates, but the owners do not feel inclined to sell.

Other Mines.—The Pacific mine, about one mile above Pine Flat, on the Geyser road, promises well, Prof. W. O Easton being the principal owner and business manager. The professor is confident of striking the ledge within 75 ft. He works two shifts of men, and the shaft is sinking rapidly. The Falls mine, on the Sonoma lode, is being worked, and the owners are confident that they have struck the ledge. The Great Central adjoins the Falls, and has been sold to parties in San Francisco. The Annie Belcher is proving itself to be a mine that gladdens the hearts of its owners. A furnace will be erected here immediately. The furnace on the Rattleskake mine will be in operation in a few days. The Missouri, Kentuck and Sonoma are doing well. The ledge has been struck in the lower tunnel.

Silver Mines.—*Reporter*, Sept. 5: The developments in the Calistoga silver mine have caused St. Helena mountain to be thoroughly prospected, and parties are daily and hourly scaling its sides looking for silver indications. Three distinct silver-bearing ledges have already been discovered, the outcroppings of which, when assayed, show plainly the existence of silver and gold.

NEVADA COUNTY.

Badger Hill.—*Tidings*, Sept. 5: The gravel mines, now worked in a very systematic manner by an English company, have been paying immensely this season.

The Empire, for a mine that was condemned by the croakers not long since as being on its last legs, is doing well. The run of the mill for the last 21 days of August produced two nice bricks, which were to be seen at Delano's bank early this week, worth nearly $16,000. The mine is said to be looking well at the various faces.

New York Hill.—We were shown yesterday 98½ ounces of nice dry amalgam, taken from the plates of the Larrimer mill after a two days' run on New York hill rock. The mine looks well in the lower works, both in the drift and stopes; the quartz showing lots of free gold and the ledge being of good size. In fact N. Y. hill looks anything but like the played out mine the croakers would have it appear three years ago.

Magenta.—Everything about this mine is running in good shape. Most of the work is done on "half-shares," which speaks well for the quality of the ore, as miners usually demand a much larger percentage. Report has it that the ledge in the bottom drift is looking well,

At Lowell Hill, the mines are said to be all running and paying well. Preparations are being made for a thorough winter run, and all hands feel in good spirits.

Silver Fink.—*Transcript*, Sept. 4: Parties in this city are very much excited over assays made on some silver ore which came from a ledge located about 25 miles from this city. The specimens taken from the ledge were on the surface, and were chopped out of solid rock with an axe which the party had along who made the discovery. The ledge is about 50 feet thick, and carries silver straight; that is, unmixed with other metal. The piece first assayed yielded at the rate of $14 per ton; the second, $23; the third, $39; the fourth, $52; and the fifth $66 per ton. The prospect for surface rock is regarded as flattering, and but little doubt is entertained by the discoverers and members of the company (each of whom made the revelation secretly, and made us promise not to mention their names in connection with the matter) that an independent fortune is within their grasp. The assays were made by parties perfectly reliable, and they feel confident that a very rich discovery has been made.

PLACER COUNTY.

Coal.—*Herald*, Sept. 5: The coal excitement around Lincoln is warming up, we understand, considerably. Besides an additional force on the old shaft, we are informed that several other parties are sinking prospect holes, and many others are talking about it.

PLUMAS COUNTY.

Alturas.—*National*, Sept. 5: Mr. A. J. Gould, superintendent of the Alturas Co's mine, near Long valley, informs us that he will have the ditching completed by the middle of this month, 20 men being now at work. The iron pipe for the mine will be put together on the ground, and considerable work is still to be done in the way of building flumes, cabins, etc.; but Mr. Gould will have everything in readiness to commence with the next water season, and is satisfied that the mine will prove to be one of the best in the county.

Sales.—Mr. Thos. Haycock has sold his Gopher Hill claims to the Plumas Ditch and Water Co., for the sum of $15,250. We have it on good authority that Col. Baker has disposed of his rich gravel claims at Gardener's point, near La Porte, to Mr. Bresd, and the price named is $100,000. The claim has proved immensely rich during the past water season. It is reported that Mr. Breed, owner of the Buckeye claim, at Sawpit, has bonded several of the other claims. The claims will probably be consolidated.

SAN DIEGO COUNTY.

Shenandoah.—*World*, Sept. 2: Mr. J. T. Nash, one of the owners of the newly-discovered gold and silver ledges in this county, has just returned from San Francisco, having, it will be remembered, some two weeks since left here with two sacks of rock for the purpose of testing it. The rock was put through what is called "mill process" at San Francisco, and turned out, for one lot, $100 to the ton; the other running as high as $3,000.

SISKIYOU COUNTY.

Eliza Ledge.—*Union*, Sept. 5: The reports from this mine are of a favorable character. The ledge, where work is being done now, is about twenty inches in thickness, and the quartz is of a different character from any ever before taken from the mine. It is said to resemble very much in appearance the Black Bear quartz of Salmon river; and is believed, at least, to be very rich.

Paying Well.—The few claims still worked at French flat, on Humbug, are reported to be paying well. The claim of Spangler, Moore & Co., near the mouth of Humbug, is also, according to report, paying well.

SIERRA COUNTY.

Prospect.—*Mountain Messenger*, Sept. 5: The Saddle-back claim, owned by Kuder & Company, is prospecting fairly. From where they struck gravel they run a breast down the pitch of the rock towards the channel, and soon struck good prospects. They will push their tunnel ahead to tap the lead, and do not expect to get in before spring.

Phœnix Mine.—Work on this mine is being vigorously prosecuted by a force of eleven men, under the direction of the Beard Bros., of Sierra city. They are down about 250 feet, and the ledge has solid, well-defined walls, and is from 18 inches to three feet in thickness. The quartz shows free gold in abundance, and is worth from $35 to $40 per ton. It is estimated there are $100,000 worth of rock in sight at present.

SOLANO COUNTY.

Golden Gate.—*Tribune*, Sept. 5: The stockholders in this mine are again looking up. An installment of sulphurets assayed a few days since, yielded $165 to the ton. Another batch of about two tons was received in San Francisco on Wednesday, which pronounces to assay nearly as well as the last.

TRINITY COUNTY.

Minersville.—*Journal*, Sept. 5: The miners of this district have done well the past season. Water having given out they are now a rest.

Damming.—The Weaverville D. & H. M. Co. is putting a dam in West Weaver creek, at the head of the new ditch. This will be completed in a few days, and then nothing can be done till water comes.

Fixing Up.—Trotter & Smiley, who have leased the Reading creek ditch, are now at work enlarging it at their own expense. No flumes will be put up along the entire line; 45 men are now employed, and it is estimated that the improvements in the ditch will cost $6,000.

TUOLUMNE COUNTY.

Riverside.—*Independent*, Sept. 5: The mill has had to stop for repairs. The old mortar-beds would not work, being cracked and leaky. So they will have to wait for new ones.

The T. M. Blue Gravel.—This company has struck a new streak of gravel in their tunnel which prospects well.

The Table Mountain Alpha.—In this claim the gravel is improving in richness and quantity. They are still going ahead, and only wash the dirt taken out in driving the main drift.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Gold Hill *News*, Sept. 3: Daily yield, 300 tons of ore. The ore breasts on the 1,400, 1,300 and 1,200-ft. levels are still looking splendidly and yielding the usual amount of rich ore. The north winze from the 1,400-ft. level is down to the 1,500-ft. level, and a drift has been started from the bottom to connect with the south drift from the shaft on that level. This connection will complete a splendid ventilation of almost the entire mine from the 1,500-ft. level upward. The south drift on the 1,500-ft. level is being pushed ahead with vigor. This drift is still following the west wall of the ledge, the east side of the drift cutting rich ore. Burleigh drills are used in this drift, as the rock is so hard as to require continual blasting.

Savage.—Sinking the main incline is still vigorously prosecuted, the bottom in good working ground. It having become necessary that new and more powerful hoisting and pumping machinery shall take the place of the old for working the mine at its present great and steadily increasing depth, Mr. Thompson, the architect and machinist, has been sent to San Francisco to superintend the manufacture of the same. This machinery, in point of strength and durability, will, when erected, be second to none on the line of the Comstock, and is calculated to have ample power to sink the shaft and work the mine at a depth of 4,000 ft.

Ophir.—The ore breasts on both the 1,300 and 1,400-ft. levels are looking well and yielding handsomely. The ore extracted is of an increased richness, and the prospects of the mine grow more flattering as the prospecting of the different levels is advanced. The body of ore developed in the east cross-cut, 180 feet from the south line, on the 1,300-ft. level, is 23 ft. in thickness, and fine milling ore. The east cross cut, on the 1,465-ft. level, is in 67 feet, with excellent prospects of soon striking the east ore body. The north raise on the 1,465-ft. level is still in rich ore. The south raise on the same level is also in fine ore. On the 1,300-ft. level, winze No. 1 gives assays of from $150 to $250 per ton, and the north winze from cross cut No. 2 assays over $300 per ton, and shows much fine sulphuret ore. Car samples of ore for the past week have ranged from $150 to $200 per ton.

Hale & Norcross.—Sinking the main incline below the 2,000-ft. level is making steady headway, notwithstanding the close, hard character of the rock penetrated. A drift has been started from the main incline which is running directly in the ledge, and shows much fine looking quartz, but no pay ore as yet.

Sierra Nevada.—The water is completely drained from the shaft; some of the bottom timbers which had been damaged have been replaced, and sinking the shaft will be resumed. The ore breasts in the old upper workings continue to look well, and show no signs whatever of exhaustion. Daily yield, 60 tons of ore, keeping the mill steadily running.

Gould & Curry.—The north drift on the 1,500 ft. level has made connection with the north winze from the 1,400 ft. level of the Virginia Consolidated, thus securing the thorough ventilation of both mines down to that depth.

Sutro.—The main west tunnel is still being driven vigorously ahead, the rock in the face blasting out finely. There is a steady flow of water from the face, but not enough to impede progress.

Woonville.—The recent good developments made at the 200-ft. station of the incline still hold out, and promise a yield of fine ore. In the north drift, at the third station level, the ore body shows considerable improvement, and the quality of the ore is even better than on the level above. The mill was started up crushing ore this morning, of which the company has between 300 and 400 tons at the surface and ready to hoist from the mine.

Julia.—The enlarging of the main shaft will be completed in a day or two more, which will then give a fine, well timbered three-compartment shaft for working purposes, to the depth of 1,100 feet. The foundations for the new machinery are progressing finely.

Dayton.—The water has been reduced below the third station level, and work resumed throughout the entire mine. The extraction of ore from the different ore stopes, both north and south, on the third station level has been resumed, the regular shipment of ore commenced, and last evening the Woodworth mill, on the Carson river, was started up crushing ore from the mine.

New York.—Sinking the shaft is making excellent progress, the bottom in clay and quartz, with some fine streaks of ore. The face of the main west drift, at the 600-ft. level, also shows some fine prospects, the streaks of quartz and ore encountered being of a very encouraging character.

Belcher.—Daily yield, 550 tons of ore. The mine has greatly cooled off during the past few weeks, which allows of resumption of much of the prospecting work on the lower levels. The ore breasts and stopes on all of the ore-producing levels are looking well and yielding finely.

Leo.—Assays from face of tunnel to-day reach $25.84, and from the stope $160.92. The stope is yielding some excellent ore for milling.

Crown Point.—Daily yield, 550 tons of ore. The mine is looking splendidly throughout. The ore breasts and stopes on all the different ore-producing levels are not only looking well but keeping up the regular yield of rich ores.

Chollar-Potosi.—Daily yield, 110 tons of ore, the assay value of which is $30 per ton.

Union-Consolidated.—The north drift on the 1,300-ft. level of the Ophir shaft has been driven over 900 ft. from the shaft northward, following the west clay wall of the ledge, cutting in its course some fine indications of ore.

Imperial-Empire.—The bottom of the south winze, on the 1,850-ft. level, two days ago passed out of the ore body into barren ledge material, but yesterday afternoon ore again appeared in the bottom, of a richer quality than ever,

California.—The north drifts, on the 1,400 and 1,500-ft. levels, from the Virginia Consolidated shaft, are still driven vigorously forward. Two drifts have been started on the corresponding levels from the Ophir.

Sutro Tunnel.—During the past week much better progress has been made with the efficient assistance of the four Burleigh drills. Eighty seven feet have been added to the length of the tunnel.

Utah.—The flow of water at the bottom of the shaft still continues too strong to admit of a resumption of the work of sinking the shaft.

Overman.—The main north drift on the 1,200-ft. level is still driven ahead, following the ore. This streak of ore is widening out and shows considerable improvement in quality.

Daney.—The face of the main west drift at the 400-ft. level yesterday afternoon again penetrated a fine streak of quartz of a very promising character.

Caledonia.—The main shaft is now down 60 ft. below the 900-ft. level.

Baltimore Consolidated.—Sinking the main shaft is making steady progress. Prospecting is being carried on vigorously.

Knickerbocker.—The main shaft is now down 60 ft. below the 600-ft. level.

Original Gold Hill.—Driving ahead with the west drift at the 320-ft. level, and occasionally meeting with good looking stringers of metal bearing quartz.

Justice.—Erection of the new hoisting and pumping machinery is making good progress. Daily yield, 40 tons of ore.

Buckeye.—The extraction of ore from the first station level, both north and south, has again been commenced. Yesterday the Hope mill was started up crushing ore from the mine.

Yellow Jacket.—The main east drift on the 1740-ft. level is in 136-ft. from the shaft, in fair running ground.

Mint.—Sinking the main shaft is making steady progress, the bottom still in soft sinking ground.

Tyler.—The strong, steady flow of water still continues, and there seems but little hope of overcoming it until more powerful machinery can be erected.

Florida.—Very little progress is made in sinking the new shaft, owing to an increase of water.

Bullion.—There is no change to note, except the steady and very favorable progress of the main north drift on the 1700-ft. level of the Imperial shaft.

Nevada.—The lower tunnel has passed through the clay, and the face is now in vein matter of very valuable character.

Pictou.—Tunnel still driving ahead, and making good progress. No change to report.

Succoa.—The new shaft is cleaned out, the water drained, and the sinking resumed.

Dardanelles.—The timbering of the shaft is finished and sinking resumed.

EUREKA DISTRICT.

Eureka Consolidated.—*Sentinel*, Sept. 6: The ore raised from the Leviathan shaft is of fine quality, being a soft, greasy looking carbonate, such as the smelter likes. From the old Champion works the yield continues about the same, and since last week a new streak of surface ore has been worked upon, between that point and the Windsail shaft.

K K.—Shipments of ore amount to 80 tons per day of first and second class. The ore chambers are looking better. The main shaft is 380 ft. deep and is now in rusty rock, which promises well for ore at no great distance. There are 70 men employed and more will be put on as soon as possible.

The Richmond.—Two 16 and 18-horse and mule teams are bringing about 120 tons of ore per day to the furnace.

British Company.—The Industry and Chief of the Hill are yielding about five tons of ore per day for 11 men employed. The Connolly, belonging to the same company, is opened 180 ft. deep by an incline, the lode at that point being strong and yielding from 10 to 12 tons of $120 ore per day, with 16 men at work.

Hoosac—Employs 40 men, the large increase made of late affording good evidence of the improved appearance of the mine. It is worked to a depth of 240 ft. and is still yielding a fine grade of smelting ore.

The Dunnerbeag.—The incline is now 300 ft. deep. The ore in sight is larger in amount and of better quality.

Pioneer Consolidated.—The strike has developed into a body of ore about eight feet in thickness.

Bullion Product.—The bullion product for the week is as follows; Richmond, 225,630 pounds; K K, 120,000 pounds; Eureka Cons., 99,000 pounds; Hoosac, 90,000 pounds. Total, 534,630 pounds.

Bullion Shipments.—Following are the amounts of bullion shipped by the respective furnaces: Richmond, 200,000 pounds; K K, 80,000 pounds; Eureka Cons. 75,175 pounds; Hoosac, 60,000 pounds. Total, 235,175 pounds.

Spring Valley District.—For 21 months Mr. Charnock has done all his own blasting with single-handed drills; has hoisted his own dirt, and has now, after great toil, reached a depth of 220 feet on the incline. He has been much troubled with "fants," but has at last got a good face of ore, which he is certain will average $100 per ton, the assays being twice that amount.

Diamond District.—The furnace is undergoing repairs. Seven men are employed on the Champion mine, and excellent ore is yielded by it, some specimens we have seen having a close resemblance to the Hoosac first-class.

A Promotive Quicksilver Mine.—The Napa *Register* learns that the last month's run of the Redington quicksilver mine amounted to 900 flasks. This was the production of two furnaces, the old furnaces being in course of demolition to make room for two others that are to be erected on a much modified plan of the superintendent, and for which 400,000 bricks are already prepared and on the ground. Only 125 men were employed during the month, and we are certain, says the *Register*, that this yield goes ahead of the monthly returns of either the New Idria or the Almaden mines.

The machinery for the Renton coal mines has arrived at Seattle.

Machinery at the Fair.

Windmills.

It is said that windmills were invented or first suggested by Hero of Alexandria—the same person who is credited with having first demonstrated that steam might be employed as a motive power. However this may be, the first practical use of wind mills, mentioned in history, refers us to the year 1408, when they began to be employed in Hollsnd. About one hundred years later, we find tbst they were very extensively used in tbat country, where they are still more generally employed than in any other region. From the time they were generally introduced there until the days of steam, this prime mover occupied an important position in the industries of the world, for grinding, sawing, pumping, turning, expressing oil, etc. Among all modern improvements since the days of Sancho Panza, and before, few have been of more practical value to the human race than the windmill.

The crude structure of a century ago, with its slow-moving huge srms, seldom more than four in number, and requiring a massive structure for its support, bears but a slight resemblance to the light, many-srmed, swift-moving mills of to-day. Tbere are, no doubt, many visitors to the Fair who will remember some of the huge old structures of this class of years ago, which were employed in the older States for grinding wheat, corn, etc. In Europe, aud eepecially in Great Britain, many of these old structures still remain, and now aud then those are met with which are still kept in active use. There are vertical and horizontal windmills; tbose with arms outstretched, and those witb arms (or fans) so closely enclosed, that one would scarcely infar that the structure was a windmill at all. The largest windmills in Holland are said to run from twenty to thirty horse power. Perhaps one of the most remarkable nses to which this description of power is employed, at the present time, is that of driving a ten-stamp quartz mill on one of the West India Islands, where mining for gold hss lately been introduced.

The windmill, while it performs all the offices of steam, except where an exceedingly uniform motion is required, consumes no fuel, requires next to no attention, and is of but trifling cost. Catching the breeze from every quarter, it brings it in quiet subjection to man, and employs its power in various ways, but most of all, especially in this State, to disperse the aqueous gift of Heaven to the thirsty soil or grateful beast. Still, ss "the wind bloweth" only when "it listeth," and as in this prsctical age most human indnstrial operations must be conducted in exact succession, and at fixed times, steam has slmost entirely superseded the use of wind.

Only one specimen of this useful device is exhibited in the Pavilion; but that is a model, not only in size, but in the matter of design and construction as well. It is shown near the upper end of the machinery department, by W. I. Tustin, corner of Market and Beale streets. It is styled "The Economy Windmill," aud probably combines as many advantages and improvements as can be found in any one other in nse. It is simple ss well as ornamental.

We understand that Soutbwick & Co., 428 Snnsome street, will have one of their celebrated "California Dexter Windmills" on exhibition withiu a day or two. Many of these mills sre now being put up in different parts of the State, as at Menlo Park, Monntain View, Oskland and other points. The Compsny is now putting up a $1,000 mill at Bridgeport, in Solano county, for grinding purposes. For this purpose they are unexcelled, as they are perfectly self-regulatiug. One has been put up for J. H. Latham, at Oakland, for $1,900. This mill runs in a light wind, and from its mode of constructiou it would seem to be but little liable to get out of order.

Perhaps no other portion of the world has done more than California, to revive and improve this useful and cheap mode of obtaining power. An important incentive to the lsrge employment of this power on the Pscific Coast is the remarkably (for this latitude) constant reliance which may be placed upon the wind here. While in Holland there are but one hundred and forty-five days on the average in the year, on which wind power csn be made available, there are nearly or quite double that number of daye ou which it can be made avsilable iu most parts of Cslifornia.

Horse Power.

Another cheap and often very convenient powor, especially for employment on the farm is thst operated by the horse. By it, a horse may be made to pump, saw, grind, churn, and do many other things on the farm which would otherwise, perbaps, have to be done by hand. Hence a cheap, durable and convenient horse-power machine is a very desirable and important mechanical contrivance. We notice several such on exhibition, on which much skill and ingenuity has been expended.

Mr. Tustin exhibits three devices of this kind which he respectively denominstes The Eclipse, The economy and The Eagle. All are constructed upon the same general principle, hut each differs more or less from the other in some one or more parts of the detail—especially in the gearing.

The Excelsior Windmill and Horse-power works, Messrs. Atwood & Bodwell, exhibit three or four machines from their manufactory, located at 211 and 213 Mission street.

C. P Hatch also exhibits a horse-power manufactured by him at Petalums. These machines work with seven levers, and up to fourteen-horse-power.

Prospect for California Tobacco.

The misfortunes of onr neighbors in the tobscco crop of the present season are likely to work to our special benefit. Even before the opening of the season active influences were in operation beneficial to our interests. For the last two years production has been discouraged, somewhat, by published statements of the sccumulstion of tobacco on the bands of holders. The proportion of inferior grades was supposed to be especially large; this phase of the market being particularly effective in bringing down prices.

This was known at the opening of the present season, and somewhat discouraged planting; but it was not supposed that the falling off was so great as it is now ascertained to be. By the agricultural report for July, made up from statistics from all the States, we learn that less tban half the usual acresge was set last spring. In Kentucky only about 20 per cent. of the usual acreage was planted. Tbe tobacco acreage of Connecticut is estimated at about 50 per cent. of that last yesr. It is said that the crops on even this limited acresge do not look favorable.

It is also ascertsined that the stock of old tobacco on hand is not as large as was supposed. These facts having been made known, the prices of tobacco are tending upwsrd; snd that portion of eastern and southern tobacco growers who hsve been holding on to tbeir stock, awaiting an advsnce in price, will probably do well. This favorable change in the tobacco market hsppens extremely opportunely for California; this season's tobacco acreage being larger than usual. Tho inherent merits of our tobacco, and the advantsges of our curing process, will stsnd a better chance of being recognized than in ordinary seasons; and we hope to see as great a gain in reputation as in immediate pecuniary profit. Look out for inflation in next yesr's tobacco acreage.

Sorghum.

Accordiug to recent reports of the Agricultnrsl department, the smount of sorghnm growing in the several States at the present time, compared with former years, is as follows:

Alabsma bas increased her acreage 11 per cent.; Minnesota, 9 per cent.; Texas, 6 per cent.; Mississippi and Arkansas, 5 per cent.; Knnsas, 1 per cent.; Delaware reports the same acresge ss last year. In other States there is a decline, the minimum, 77 per cent., being in Marylsnd. New England, New York, New Jersey, Pennsylvania, South Carolina, Florida, Louisiaua, California aud Oregon make no returns of the crop. Tbe condition is one per cent. above average in Texas; full average in Delsware, Michigan and Wisconsin; in tbe other States it is deficient, Kentncky showing the greatest decline, 43 per cent. below average. Several counties in different parts of the country report a declining interest in sorghum culture. It will be seen that California is among the States thst make no returns.

There can be little inducement for introducing the crop here. It cannot compete with our beet crop for sugar making. In those portions of the country where beets cannot be grown to advantage for sugar making, and especially where meaus are not available for making sugar on a large and expensive scale, sorghum may be grown snd converted into syrup, tbus forming a cheap substitute for sugar; but the results from its growth in America during the long period of its experimental growth, does not warrant tbe belief that it will ever become a staple product in any part of the country; least of all in California. We believe, however, that sorghum could be grown to advantage by the farmers here as summer fodder. The mid-summer season in California correspouds with the winter season in the Esstern states, in the difficulty of carrying cattle through in good condition. Sorghum would answer admirably for this purpose.

Tellurets.—When the sdvancing army of prospectors gets on to a mineral belt, especially if it is a tellurium trend, they are pretty sure to find its beginning snd ending. Northeast from Sunshine, the line of croppings has been followed to the Lee Hill, and there, we are informed, a California Co. are at work opening up the tellurets. The reason why this rare ore is so much coveted, is because if the prospector gets it, it is almost sure that he can "just fry the gold right ont of it."

At first it was thought incredible that it existed outside of the Red Cloud and Cold Spring. The opening of the Forest on Four-mile showed that it existed far to the south. Next it was found to the north, across the Left Hand, in the Gray Eagle. Then again it was found not stingily put into the splendid chain of lodes that binds the southern brow of Gold Hill. The next astonishment was in discovering the stuff at Sunshine, cropping there at the grass roots, while at other points these tellurets were not expected until considerable depth had been gained. And last of all it is reported west, at West's, on Left Hsud.—*Boulder News.*

Revival of Smelting at White Pine.

Is it not a little singular that the gold miner of 1849 became the silver miner of 1869, and the miner for the base ores in 1869? The order was natural and necessary, because the progress wss from the most simple and profitable to the more complex, dependent for profit upon skill and practical experiment. The result of the various experiences of the mining population has been the preparation of a class of practical men, capable of ntilizing the vast stores of metallic wealth which may be said to cover not only the whole surface of Nevada, but also that of the adjscent States and Territoriss. This business must constitute the solid fonndation of the future wealth of Nevada especially, for though the Comstock and the exceptional free gangues of other sections of the State may continue to furnish an annusl tribute equal to the average of the last ten years, the resources of the base mines are capable of a yield far beyond those of the free, and it may be asserted with a greater certainty of profit.

The first efforts at the reduction of base ores commenced at White Pine in 1869. The men who conducted the business were without experience. It did not prove profitable, mainly because of the difficulties arising from the distance of transportation. The business was dropped after a few months' trisl, and has laid dormsnt until the present summer. Since the riss of Eureka, great progress has been made in the treating of these ores, and a school of smelters have been educated there under the very glare of its furnaces, who excel the most skilled operstives of the Old World. Indeed, with characteristic ingenuity these novices have devised contrivances for the bettering of the furnaces and facilitating the work of reduction, which have been carried back and accepted by the veterans of Swansea and Freiburg. These unlettered men are doing for the State a hundred times more than the scientific sons of the academies, and with their nstive intelligence snd horny hands, are working succesess where the recipients of diplomss only wrought failure and disaster to capital.

In addition to tbe Mattison smelting works, sn account of which is given in another column, we are informed thst local capital is about to take hold of the very favorable locality of Swansea, which commands a number of the finest base ledges of this district. Situated as tbis place is, in the center of innumerable mines, among which may be named the Imperial, Fay, Mobile, aud Miser's Dream, and having abundance of water and wood for the making of charcoal, we hope and confidently expect to see the prediction made by Mr. McGee realized, that Swansea will rival Eureks in the production of base bullion.

The Howland Tunnel.

The Howland tunnel, located in Little Cottonwood mining district, says tho *Tribune*, is a project which bas attracted the interest of mining circles both in Utsh and Californis. During tbe last two years work on this great enterpriso moved slowly until lsst spring, when the company was recognized with Mr. B. O. Cutter as President, and this gentleman with Mr. Howland, the projector of the tunnel, are its active managers. Under their control renewed activity, and operations on the grandest scale were inaugurated. The plans in complete detail were matured, all looking to the early completion of the enterprise. Preparatory to the carrying out of the design the company had a map of the district made from the most accurate surveys by Col. C. L. Stevenson, one of the most eminent civil engineers in the country. This is literally a correct chart of all the mines adjacent to and on the route of the tunnel, with reference to the claims of Big and Little Cottonwood districts. We had the pleasure of examining the map, and have no hesitation in pronouncing it the

Most Exact Work of the Kind

Ever made in this Territory. It shows the location of the mines, longitudinal sections of that portion of the tunnel already cut and timbered, also the cross sections at the mouth of the tunnel, and the geological sections through the Davenport and Emma hills. The excavation is now in between four and five hundred feet, and has crossed four excellent veins of ore, one of which is from four to ten feet in thicknsss, and a good quality for milling. Day and night shifts of workmen are constantly employed, and the energy of the management is being rewarded with encouraging prospects. The mouth of the Howland tunnel, on the Little Cottonwood side, is situated just below Alta city, running thence through the hill diagonally, passing through the principal mines, and comes out directly east of Big Cottonwood by way of Cutter gulch. When completed this tunnel will be about four miles long, and in addition to its use as a channel, through which the wealth of the mountain is to be conveyed, it will also be made the route of a railway to connect with projected lines to be constructed at no distant day toward the Union Pacific, at some favorable point of junction. There is no question as to the feasibility of this ultimate result of the work now going on, but the immediate effect of tunneling the inexhaustible minersl belt of the Cottonwoods will be found in the enterprise itself, as it penetrates the rich deposits which assuredly lie in its path. These are certain to compensate the projectors for their daring energy, though the world, and especially our own Territory, will be greatest gainer for what they are doing.

The Rye Valley Mines.

We take the following article on the mines of Rye valley from the *Bedrock* (Oregon) *Democrat:*

On last Wednesday week we took passage on board the hurricane deck of the "Cayuse," and started for the mining camp of Rye valley, st at the lower end of Pleasant valley. Rye valley is entirely surrounded by hills and mountains, in which are found the rich placer mines and quartz ledges which make this camp noted and reliable. The town has some 30 or 40 buildings in it, built on both sides of the one street running up and down the valley. Across the stream, which meanders through the valley, are located the placer mining claims.

These claims are better and more scientifically opened than any others we have ever visited. To give our readers an idea of the amount of work done in opening these claims, we will, as well as we can, describe the claim of J. C. Powers & Co. The main bedrock tunnel running from the flat back to the claim is 500 feet long and well timbered; it is 55 feet below the rim rock, and the surface dirt over this is from 30 to 50 feet in thickness; there are three head races and tunnels running into the main bedrock tunnel that are from 150 to 250 feet in length; besides these there are two tunnels from 80 to 100 feet running into the hill above the head races. This claim is worked by hydraulics with 130-feet pressure, with 2½-inch nozzle stream. W. W. Webber's, James Odell's and Lafay's claims are all working on the same principle. Lafay's claim is worked with two hydraulics, and the surface dirt is some 70 to 80 feet deep above the rim rock. A great drawback to this camp is the scarcity of water, which is all csrried in the ditch of the Rye valley ditch company, of which Walter Fernsld and James Odell are the principal owners, as well as being owners in the mining claims above mentioned. At the most flush times there is not to exceed about 800 inches of waler svsilable for mining purposes. R. S. Johnson's claims, below town, are worked on the same principle as are those above mentioned, and are considered as good ground as is in the camp.

In the hills and mountsins back of these placer claims are found the rich quartz ledges that are bound ultimately to make this one of the liveliest and richest camps on the coast. Gilchrist & Co. now have a five-stamp mill in complete operation, crushing rock from their ledge, the Lafayette, which is very rich in both gold and silver. Charles Green is getting out the timbers for a 20-stamp mill, which he expects to have in operation yet this fall pounding out the precious metals from Grsen's discovery and the Monumentsl. There are a great many other ledges in this district that have already been discovered, but are not yet opened; therefore their extent or richness are not known. We understaod it is the intention of E. M. White & Co. to remove their mill from its present location, near Gem City, and place it on the Dsvis ledge, about five miles this side of Rye valley. All the indications lead us to believe that Baker and Grant counties can furnish as good mines and as many of them as any other sectiou of country on the Pacific coast.

Important to Inventors.

The following letter, which wss recently received from an old client of Dewey & Co., now residing in one of the EssternStstes, speaks for itself, and will do more, perhaps, to convince inventors of our capacity for business than sny nnmber of lосsl compliments. We extract as follows:

Gentlemen: It wss through your honse that I secured my first patent, and although I hsve since done business here in the Atlantic States with the ablest patent solicitors—gentlemen who have done me justice—yet I have often regretted that you were too far off to advise with me in my cases. It has taken a longer time with every patent I have taken out since I left California and came Esst, than in the cases you prepared for me in San Francisco, which is certainly very creditable to you.

By the way, one of my patsnts has passed the ordeal which is the essential test of a pateut's value. I mean that of a trial in the courts, and it stood the battling of one of the best lawyers in the country. The specifications and claims were completely made out and there was a perfect comprehension of its priuciple during the trial. Since giving it this test we thought that we would make it even stronger, if possible, and submitted it to one of the best patent solicitors for advice. After a careful examination of the case he advised us to let it alone as it stood, saying that whoever made up those papers understood their business. I then informed him that they were drawn up by Dewey & Co., of San Francisco, and he replied that he knew you well by reputation. * * * * * Very truly yours,

L. L. Sawyer.

Meriden, Conn., May 16, 1874.

From Tybo.—The mines in Tybo district sre now being worked with satisfactory results. The new furnsce has been in constant operation since starting on Monday last, and is producing a good quality of bullion. Both towns, Upper and Lower Tybo, are growing rapidly, and if building continues will soon consolidate. Nine of the softer sex now grace the place, and on Tuesday next a grand ball will be given. We acknowledge the receipt of an invitation, but cannot spare the time to attend.—*Eureka Sentinel.*

Good Health.

English Food Adulteration.

It appears, from the statements of the New York *Herald's* London correspondent, that shipments of spurious teas, adulterated wines and spirits, and fraudulent packages of Roman cements, together with a number of other commodities, all more or less adulterated, find their way to our markets.

Tea is doctored in order to improve its appearance, increase its bulk, and add to its weight. For the two last mentioned purposes, finely ground quartz and iron or steel filings are employed. Catechu gum, an astringent substance, is also used, but the favorite ingredient seems to be "lie" tea, or old tea leaves once used and then worked over. This is mixed with low grades of new tea, and placed in cylinders under steam, together with a quantity of carbonate of magnesia. Dutch pink, and Prussian blue. The adulteration with "lie" tea is usually done in China before export, but the "facing," as the coloring is termed, is performed by people in England who become skilled in the fraud as a business. The dealers face the tea to render it black or green, according to the desires of customers. Out of 170,000,000 pounds of the commodity annually consumed in England, it is asserted that one fifth, or about 35,000,000 pounds, is open to suspicion.

British wines, according to the testimony of several analysts, are largely adulterated with potato spirit; sherry is doctored with sulphuric ether, and to other liquors fusel oil and French treacle or brandy, which is often nothing more than beet root spirit colored and flavored. Beer is now comparatively pure, and the main adulteration is simply water.

In butter, often as much as 40 per cent. of water is found; patents have recently been obtained for a compound called "butterine;" and two other artificial mixtures, known as "Australian" and "Dutch" butter, have appeared in the markets. The Australian stuff is bone fat extracted by steaming refuse bones. It sells for 15 cents per pound, and smells horribly. Dutch butter is a mixture of genuine butter and American lard. There is, beside, a French butter, compounded of drippings and kitchen stuff colored with annatto.

Corn flour, a material largely used for food for children, is described as generally worthless and unhealthy. Thirty-three out of seven thousand grains, a pound, one analyst states as the proportion of nutritious matter contained, where there should be at least eight or nine hundred grains. The article is nothing more than starch, a fact proved by the circumstance that a dog fed upon it died of starvation.

Other well known adulterations in bread and milk are noted; but as these commodities do not come under the head of possible exports, allusion to them is unnecessary.

CAUTIONS CONCERNING THE USE OF PARIS GREEN.—Those who use Paris green for the extermination of the potato beetle should bear in mind that it is a most dangerous and deadly poison, and they cannot be too careful lest it prove fatal to "larger game" than the bugs. All packages of these substances should be plainly marked Poison. There is great danger in the mixing of this green for the potato bug, owing to the fine dust which arises in the process, which is inhaled, and also rapidly absorbed by the pores of the skin, especially if the person using it should be in a state of perspiration. To guard against this, the hands and face (particularly the nostrils) should be protected as much as possible, and should be carefully washed after working with it, or with any of the preparations of which it is an ingredient. As it penetrates and poisons wood, gets into the seams and crevices of articles made of metal and even into earthenware that is at all porous, it is important that all household utensils, or anything in barn or stable (which cattle or horses could have access to) in which the article may have been mixed, or from which it has been used, should be carefully set aside, and never again used for any other purpose. Malignant sores are not unfrequently caused by scratching the skin when itching or irritated from handling the green. —*Boston Journal of Chemistry.*

DOG DENTISTRY.—It is well known that the bites of rabid herbivorous animals are rarely dangerous, because their teeth are made flat-faced, for grinding their food without penetrating or tearing the tissues. Hence their bite is little more than a severe bruise, differing from that of a carnivorous animal, which pierces immediately through the skin. A veterinary surgeon of Paris, M. Bourrel, recently captured three mad dogs; and, tightly securing them, proceeded to file down the teeth. These animals he let loose with six other dogs. The latter were immediately furiously attacked, and frequently bitten, but in no case did the pointless teeth inflict more than a bruise. Not content with this, M. Bonrrel put on a thin, kid glove and then worried the mad dogs with his hand, until they bit him several times. Although pinching quite hard, the glove was not broken in a single instance, while the skin beneath was uninjured. As to whether we had better substitute a city dog dentist for the present pound master, we leave the question to the humanitarians who are endeavoring to abolish carbonic acid and the muzzle. — *Scientific American.*

The Eyes and Spectacles.

We are glad to see that one man at least has been found who is brave enough to face popular prejudice in the matter of spectacles—and he writes, in the Boston *Journal of Chemistry:* An old writer, living before the days of illuminating gas and kerosene, remarks that the "first sign of the need of spectacles is a tendency to bless the man who invented snuffers." In this age we should say that the first sign is to find one scolding about the publisher of his daily newspaper, who is charged with filling his columns with type growing every day more diminutive and indistinct. When a man or woman reaches the age of 45 or 50, it is generally found that some aid to natural vision is required. The discovery of this want is very liable not to be made soon enough, and the eyes suffer greatly in consequence. There is also a foolish pride which prevents some people from adopting spectacles after the discovery is made. There is no truth relating to vision more important, and which therefore should be more clearly understood, than this: that in every case of defective eyesight, whether it proceeds from advancing age or from congenital causes or from accident, artificial aids should be resorted to without delay. The tendency is in all, or nearly all cases towards irreparable injury, when this aid is withheld. It is true, bad or ill-adapted spectacles may and do cause injury, and so do improper medicines, or injudicious food or regimen. If proper care is used in selecting glasses, and the right ones are obtained, they strengthen vision, and the vigor of all the functions of the organs concerned in the phenomena of sight is increased. A child discovered to be "near-sighted" should be promptly furnished with appropriate glasses, and they should be selected if possible under the advice of a competent medical man or optician. In the case of persons who have passed middle life, as soon as it is noticed that the best artificial light is sought, or that letters grow apparently smaller or less distinct, or that the near point at which one can see distinctly is more than eight inches from the eye, the time for spectacles has arrived.

Middle Age.

Here is some English advice as to the proper way to spend middle life, with a view to sanitary requirements: From 45 to 55 the recuperative powers should be encouraged and developed. There is nothing like work to keep an old horse sound. Sporting dogs should be thin, but obesity will set in. About this time man has his first serious illness, or he gets a heavy fall, loses his nerve, and becomes miserable. Anxiety ought to be staved off, hope encouraged, sordid cares avoided. If a grief exists, it should not be brooded over, but talked out with a friend, gauged, estimated at its worst, and dismissed to absorb itself. If a man at this time is much occupied in out-door sports—hunting, shooting, fishing, etc., and lives wholesomely and temperately, he is pretty sure to be clear of sedentary disease. But he may probably have to his account a broken rib or collar-bone, or get a heavy fall from his horse. The last is often owing to the greater caution in riding produced by age and increase in weight; for riding boldly at a fence, as young blood does and light weights can, frequently saves horse and man from disaster. For this reason middle-aged men should not ride old horses. Rheumatism, coughs, and inflammatory diseases arising from exposure to wet or cold a man of 45 will have to contend with, but his blood will be in good condition for the struggle. Moderate exposure to hardships of this kind, like moderate irregularity of mealtimes, never harmed man yet.

EYES AND COLD WATER.—The *American Journal of Health and Medicine* says: Many persons are ruining their eyes by opening them in cold water of mornings. Cold water will harden and roughen the hands, and much more will it do so to the manifold more delicate covering of the eye; or the eye will, in self-defense, become scaly in the manner of a fish; that is, the coats of the eye thicken, constituting a species of cataract, which must impair the sight. That water, cold and harsh as it is, should be applied to the eye for curative purposes in place of that soft, warm, lubricating fluid which nature manufactures for just such purposes, indicates great thoughtlessness or great mental obliquity. Nothing stronger than luke-warm water should ever be applied to the eye, except by special medical advice, and under special medical supervision.

OBESITY AND HEALTH.—The tendency to accumulate fat is not a sign of good health. Nor of long life either. If a man or woman be above the normal weight, and the weight be rapidly increasing, it is not a favorable condition; since such a person is quickly making fat, and may convert tissues whose integrity is necessary to life, into the same materials. Especially in such is there a tendency to apoplexy, fatty degeneration of the arteries of the brain being often a cause of this disease; there is also a tendency to fatty degeneration of the muscular fibers of the heart.—*Herald of Health.*

THE TEETH.—It is known that the teeth decay more rapidly during ill health than when well, and Marshall Hall believes that long continued painful emotions cause the teeth to decay, as well as the heart to sink.

A MOUTH without grinders is like a mill without a stone. A diamond is not so precious as a tooth.—*Don Quixote.*

Useful Information.

Building Houses.

Every man who contemplates building a dwelling for himself, will make it a home, a hospital, or a grave for his family, according to his plan. The driest houses are the healthiest, hence those built of wood are the best; they are more liable to complete destruction by fire, but not more complete than iron or granite. Brick houses are the least injured by fire, because they neither melt, scale nor crumble. The damages to which they are liable may be prevented by two expedients. By placing a layer of slate or stone between layers of brick about a foot above the ground, the dampness from the earth is arrested, as brick soaks up water like a sponge.

The outer walls may be protected against the absorption of rain and fog thus: dissolve three-quarters of a pound of mottled soap in one gallon of boiling water, and with a flat brush spread it over the outer surface of the brick wall, while hot, without allowing it to lather; in clear, dry weather; next day dissolve a quarter of a pound of alum in two gallons of water, and paint it over the soap coating; the two combine and form a film of varnish which the rain can not penetrate. There should be a space of about an inch between the brick and the plaster. The old-fashioned comb roofs are best, as they shed water more rapidly, and give a garret, which protects the upper rooms from the heat of the summer sun. If possible, let the house stand east and west, the front facing the south, thus exposing three sides to the sun, and let the family room and all the habitually occupied chambers face the south, so as to have all the advantages of the warming, drying, and cheering influences of the sunshine. The house should be on an elevation, to allow the water to drain off in every direction. Plastered walls are cleaner than those papered; perhaps varnish is better than either, and is not so readily soiled, and is more easily dusted and cleaned from stains or grease spots.

Bare walls are dreary and barn-like. They can be ornamented with pictures and engravings, and thus made instructive, amusing and diverting to a very high degree. If frames are preferred, a very neat and cheap pattern can be made by getting a place of pasteboard and a glass of the size of the picture, which should be placed between the two, and a rim made to answer the purpose of a frame, as well as to keep all in place, by doubling over the edges a ribbon or strip of velvet. Ornamentation may go still further, and be made to afford quite as much pleasure to the eye as paintings, by simply placing a handful of heads of wheat in a vase of water. Each grain sends out bright green leaflets, and continues to replenish the fading ones for weeks together.

An exquisite transparency may be made by arranging pressed ferns, grasses and autumn leaves on a pane of window glass, laying another pane of the same size over it, and binding the other with ribbon, leaving the group imprisoned between. It is well to secure a narrow strip of paper under the ribbon. The binding should be gummed all around the edge of the first pane, and dried, before the leaves, fern, etc., are arranged; then it can be neatly folded over the second pane without difficulty. To form the loop for hanging the transparency, paste a binding of galloon along the edge, leaving a two inch loop free in the center, afterwards to be pulled through a little slit in the final binding. These transparencies may be hung before the window, or, if preferred, secured against a pane in the sash. In halls, a beautiful effect is produced by placing them against the side lights of the hall door. Where the side lights are each of only a single pane, it is well worth while to place a single transparency against each, filling up the entire space, thus affording ample scope for a free arrangement of ferns, grasses and leaves, while the effect of the light passing through the rich autumnal colors is very fine.—*Hall's Jour. of Health.*

GILDING AND SILVERING SILK THREAD.—In a process that has been patented in England, gold or silver leaf is rubbed on a stone with honey until reduced to fine powder. The silk thread is soaked or boiled in a solution of chloride of zinc, and after being washed it is boiled in water with which the gold or silver powder has been mixed. When washed and dried, it will be found coated with a fine layer of gold or silver, which may even be polished in the usual manner.

IN dressing for photographs, remember that dark brown, dark green, maroon and dark plaid goods without gloss, will give a rich drab color. Silks of the same color will take considerable lighter. Snuff brown, dark leather, dark drab, scarlet, cherry, dark orange, crimson and slate will also produce a drab color Violet, blue, purple, magenta and pink will take very light, and should be avoided. The hair should not be very wet or glossy.

ORNAMENTATION OF GLASS.—If a drawing be made upon ordinary ground glass with a mixture of boracic acid, gum and water, and when dry the glass be heated to a temperature sufficiently high to melt the boracio acid, the latter will render the glass transparent, and thus the drawings are fixed. Metallic oxides may be mixed with the boraoic acid, and thus any desired color can be imparted to the drawing.

How to Make a Good Bed.

Perhaps some housekeepers would like to know how they can make an inexpensive, and at the same time a good and durable bed, or mattress and bolster. I have a bed that will (with good usage) last a lifetime. It is merely a tick, the same as for straw, or husks, with openings in the upper side to insert the hand for stirring, and filled with cut paper. Now, reader, do not throw aside the paper with disgust, but, if for nothing but curiosity, finish the article, it will do no harm; possibly you may be induced to make one. The work of cutting the paper is not such a long job as you would think. Take any kind of clean paper (except straw paper) and fold it, or roll, so that in can be cut with one clip of the shears, and then cut it; you need not be particular as to the width. although the narrower it is cut the better. These clippings are like little curls or rings of paper, and lie almost as light as feathers, and after using the bed they will not break up and grow fine and dusty, but are clean, and can be stirred as light as when first used. I have heard people who have slept on them say "they were the best beds they ever slept on." I prefer them to feathers or common mattresses; hair mattresses are nicer, of course, but few of us farmers' wives can afford to buy them; whereas, the paper bed we can have without cost, except the work, and that the smallest child you have who can use a pair of shears, will help you, and if not kept busy too long at time, will think it but play. The same material makes nice pillows for lounges, chair cushions, cradle ticks, etc. I have a box to keep waste paper in, which is out of the way, and at the same time handier than the rag-bag; and when it is full, I cut them up into another box and put them into the tick. I use the same ticks that I have used for straw; wash them and sew up the openings, so they are just large enough for the hand to pass through readily; three openings are sufficient.—*Cor. Cincinnati Times.*

PLATE POLISHING POWDER.—The *English Mechanic* states that an excellent preparation for polishing plate may be made in the following manner: Mix together 4 ozs. spirits of turpentine, 2 ozs. spirits of wine, 1 oz. spirits of camphor, and ½ oz. spirits of ammonia. To this add one pound of whiting, finely powdered, and stir till the whole is of the consistency of thick cream. To use this preparation, with a clean sponge cover the silver with it, so as to give it a coat like whitewash. Set the silver aside till the paste has dried into a powder; then brush it off, and polish with a chamois leather. A cheaper kind may be made by merely mixing spirits of wine and whiting together.

TEST OF STEEL.—Geo. Ede says, in the *Iron Age*: Good tool steel in its hard state on fracture presents a dull, silvery appearance, is more close in its texture than annealed steel, and is of a uniformly white color with the entire absence of sparkling particles. If aquafortis be applied to the surface of steel previously brightened, it immediately produces a black spot; but if applied to iron the metal remains clean, so that it will be quite easy to select such pieces of iron or steel which possess the greatest degree of uniformity, as the smallest vein, either of iron or steel, upon the surface, will be distinguished by its peculiar sign.

To ascertain if a mineral contains copper, it is only necessary to pulverize a portion of it, dissolve it in strong nitric acid (aquafortis), and dilute a portion of the clear solution, which will probably be blue, until almost colorless, then add ammonia carefully. If copper is present the color will become an intense blue. In another portion of the solution, somewhat diluted, place a piece of perfectly clean polished steel or iron; in a few minutes the copper will be deposited upon the iron in a metallic state.

CARRIAGE SPRINGS.—Instead of using flat or elliptic springs an inventor uses a compound curved spring constructed somewhat on the principle of the *C* spring, and consisting of two or three springs connected together at their lower ends, while the upper ends which diverge are curved round and secured to any convenient part of the carriage framing.

MINERAL OIL may be detected by its property of imparting a flourescence to animal or vegetable oils, and by its aromatic odor in burning. The presence of resin may be ascertained by its giving a deeper color with nitric acid than that given by the pure oil.

RAWHIDE JOURNALS.—A correspondent of the *Scientific American* says: I have run a piece of machinery in rawhide boxes for fourteen years without oil; it is good yet and runs at 4,500 per minute. I put it in while soft, and let it remain until dry.

HERE is a Japanese receipt for keeping meat fresh in hot weather: Place it in a clean porcelain bowl and pour very hot water over it so as to cover it. Then pour oil on the water. The air is thus quite excluded and the meat is preserved.

THE metric system of weights and measures is to be made compulsory in all commercial dealings throughout the Austrian Empire from January 1st, 1877; and in the pharmaceutical establishments it is required this year.

TO TAKE STAINS OUT OF IVORY.—A little prepared white chalk, tinged with sweet oil and sal volatile into a paste; rub it on wet with a piece of wash-leather; let it remain until dry, then brush it off.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:
Saturday Morning, Sept. 12, 1874.

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THE village of Yon Bet, situated about six miles northeast of Nevada city, was destroyed by fire on Wednesday last. The place contained bnt few business honses, which were totally consumed, save Fox & Oliver's store, and an old nnoccnpied building.

THE Inter-State Industrial Exhibition opened in Chicago on the 9th inst. It is in every particular far superior to the exhibition of last year, since all the departments are more complete and the decorations and fixtnres much handsomer.

AMERICAN INSTITUTE.—The fourth annual exhibition of the American Institute was formally opened in New York, on the 9th inst. The display in all departments is said to be more varied and extensive than in former years.

THE mills near Dayton are working to their full capacity, some on tailings, and others on nre from the Belcher and other Comstock mines. A large quantity of wood is piled upon the banks of the river, ready for shipment to Gold Hill and Virginia.

JAMES CONNERY, chief of the boiler department of the Baldwin Locomotive Works, has invented a new system of caulking boiler seams, and a naval commission has been ordered to examine and report upon its merits.

IT is rnmored that engineers are out to locate the line of the Southern Pacific railroad from Bakersfield to San Fernando, and that the company will soon commence active operations in the way of road building.

THE process of refining is now in full blast at the smelting works at Sacramento, employing some 20 men night and day. Smelting will be resumed at these works as soon as the new furnaces are complete, which will be in a few days.

CRES. JOHNSON discovered a lead of stone-coal about 28 miles south of Eugene city, on the East Fork of the Willamette, one day last week. The outcroppings indicate a rich depoit.

H. B. PLATT, the lessee of the coal mines near Ione city, will ship 500 tons to Stockton immediately. The vein is 10 feet thick and constantly improving.

A New Process of Working Black Sand.

We have received several letters of inquiry in relation to the process and machinery employed by the Perseverance Black Sand mining compsny to amalgamate the infinitesimal particles of gold and separate the fine or floured quicksilver from the black sand, which was noticed in this paper some weeks since. The President of the compsny has furnished ns with the leading features of the process, which will enable those acqnainted with such matters to judge of its merits.

The sand is first screened so as to materially reduce its bulk, and then snbjected for about twenty-four hours to a solution composed of canstic potash and common selt in proper quantities. This is for the purpose of removing any coating or oxide that may be upon the gold, and destroying sulphur and other base substances which would be absorbed by the quicksilver. to its injury. The pulp is then heated in a pan by a jet of steam (being constantly stirred), which takes but a few minutes, as it should not be too hot, and then the quicksilver is poured in and the steam and agitation continued from fifteen to thirty minutes, when the gold becomes thoroughly amalgamated, and the pulp is discharged into a vat to cool before puttiug it through the separating sluice. The heat has the effect of expanding or partially vaporizing the qnicksilver, and, aided by the agitation, distributes it all through the sand pulp in very fine particles, like flour, where it meets and amalgamates with the eqnally flue and universally diffused particles of gold.

Care must be exercised in the heating, as too much heat flonrs the qnicksilver more than is necessary to secure perfect amalgamation, and thereby increasee the difficnlty of collecting it together again without serious lose. When we consider the fact that the amount of heat required to raise the temperatnre of one pound of water from 32° to 212° will raise that of about 30 pounds of qnicksilver through the same range, the reason for thie cantion is obvione. There is reason to believe that most of our millmen have fallen into the common error of nsing too much heat in amalgamating the precions metals.

It is proper to state here that great care is taken to pnrify the qnicksilver, by proper means, before it is pnt into the puln, upon every occasion of nsing it, as success depends much upon having the quicksilver in good condition. Retorting alone ie not always sufficient, as some of the base metals volatilize and pass over with the mercurial vapor.

The last and most difficult operation is that of sep rating the fine particles of smalgam and quicksilver from the heavy black sand, and collecting them together agaiu without too great loss; for it mnst be remembered that black sand cannot be treated like quartz pnlp, on account of its greater specific gravity. The fine particles of gold and qnicksilver cannot be wholly precipitated by agitation or a concentrating motion, because they are so minnte and light in comparison to the grains of sand, that they will not settle by their own gravity through the heavy sand, as through qnartz pnlp.

This difficulty is overcome and separation secured without material loss, by this company, by means of a systeni of galvanized copper rollere, grooved spirally, and placed side by side and in layers one above the other, so as to "break joints" and not qnite touch together, and extending across the sluice, which is three feet or more in width. A soreen is placed over them to distribute the sand and water as they fall upon them, and a galvanized copper plate beneath to catch the qnicksilver as it drips from them. Two or three layers of these rollers are thus arranged at two or more places a few feet apart in the sluice, and drop riffleor wells are sunk across the bottom a little below the copper plates, to receive and retain the quicksilver as it runs off from them. The rollere are one foot in length, and one and a half inches in diameter and hollow, six or eight of which are laid side by side and end to end extending across the width of the sluice. These, as also the copper plates, are kept in a highly sensitized condition and free from verdigris, and as the pulp passes down over and between their multiplied surfaces it necessarily brings the fine particles of quickeilver into contact with some one of them to which they will adhere, before passiug through the whole of them as arranged in the sluice. Ae the quicksilver accumulates upon the rollers it drops from the under side, and the amalgam is cleaned from them in the same manner as from the platee.

Theee amalgamating rollers and their application to both the cradle and the sluice, are the invention of William Sublett of this city, who has applied for a patent therefor, and have been freely tested by the Perseverance company, who are about to employ them in exteneive operations in black sand mining at the month of Rogue river, where they have valnable claims. Now that a practical method of treating the anriferous beach sands of onr nortbern coast appears to have been found, we hear of other parties about to engage in this class of mining, which promises to attract great attention another season.

J. McM. SHAFTER will deliver the annual address before the Sonoma and Marin Agricultnral society this year.

Discovery of Sapphires.

Discoveries of varions kinds of minerals and precious stones have been made lately in the United States of Colombia, and that country will before long take a fair place among the mineral-producing regions of the globe. The placer mines in varions States are now yielding considerable gold, since the hydraulic process in vogue in this State is now extensively used there. Several American and English companies are working the hydraulic mines, and some of them are doing very well.

In a conversa ion this week with Mr. Morales, Colombian Consul at this port, he told us that several sapphires had recently been found in the State of Cauca. They were brought here by Dr. Weaver, and the man who found them told the doctor that there were many of these stones there. The lapidaries to whom the stones were shown pronounced them sapphires and valuable, but not of the right color to be very valuable. They thiuk, however, that if further search is made, sapphires of proper color to be of value will be found. These stones, which we examined, are a little too clear and light colored to be handsome. The two larger ones shown us would have been worth $500 each, if of a deeper color. One of about half the size, the lapidaries pronounced worth $50, even with the off color; eo the find is a g ood one, after all. The stones were found accidentally on the surface, and the ground will probably now be worked deeper, to see if darker colored sapphires cannot be found. The man who found them was not aware of their real value, nor was Dr. Weaver until they had been examined by the lapidaries. The sapphires were found in the State of Cauca, on the interior side from the western range of the Andes. They are genuine sapphires, but not of the proper color to make them very valuable. The stones are quite large, and will ehortly be cut and set. Sapphires are next in hardnese to diamonds. They are found in various colore, and are much admired, being of value according to the tints of the stone.

The Central Pacific Hospital.

The Central Pacific Railroad Co., that much abnsed corporation and "soulless monopoly," ought to have more credit than it receives for some things it doee. For instance, the company hae a fine hospital at Sacramento for the accommodation of the employees of the railroad, as well as for strangers who are hurt on the road. Half the time the passengers are injured by their own carlessness, or by non-compliance with the rulee of the company; nevertheless, they are taken in and cared for in the best manner possible by the Central Pacific people. The hospital is situated on G street, and the building is sufficiently large for the patients now there, and for many more. There is an air of comfort about the place not usually met with in public hospitals. There are no long faces, no pitiful complaints, and every want is met by skillful attendants. The library is particularly worthy of mention, and no doubt most of the convalescents bless the liberality of a company which providee for the comforte as well as the necessariee of life in such a place.

The ventilation of the building, the arrangements and style of beds, snrgical appliances, the kitchen, dining rooms, etc., all evince skill and judgment. The grounds are neatly laid out, and the place generally is comfortable, olean and pleasant. Mr. Forbes, the steward, attends faithfully to hie dnties, and the whole hospital is excellently managed, furnishing a pattern which others might follow with benefit.

THE fifth annual exhibition of Montana, under the auspices of the Agricultural, Mineral and Mechanical Association, commences on the Territorial fair grounds, near Helena, on the 14th inst.

A BAR of pure gold, weighing 312 ounces, was the result of eight days' run of an 8-stamp mill on quartz from the Cabell ledge, in Baker county, Oregon.

THE Virginia and Truckee railroad company will introduce the Westinghouee patent air brakes on their passenger coaches at an early day.

THE Gilroy Consolidated Cigar Factory manufactured 200,000, and shipped 250,000 cigars for the month of August.

THE Lyon county *Times* reports the discovery of about 200 acres of mineral coal land in El Dorado cañon.

THE Eureka mill, Carson river, worked about 6,000 tons of ore last month. This is the biggest run by the mill.

THERE are six wagon-making establishments in Petaluma, and all are busily employed at present.

THE water in Carson river is now very low and irregular in its flow.

A BLAST of 700 pounds of powder was pnt off in the American mine, at San Juan, on Saturday.

THE Creed & Butler mine, in Colorado, was recently sold to a Holland company for $3,000,000.

Class Exhibit—9th Industrial Exhibition.

Prime Movers—Water Wheels.

In our enumeration and notices of prime movers, we inadvertently overlooked "water-wheels," of which there are two exhibitors. Motive machines, as steam engines, water wheels and windmills are simply contrivances interposed between the power—the steam-boiler, the waterfall or the wind—and the work to be done. Their form and combination of mechanical principles is supposed to comprise the most economio and convenient means for taking up the power at d sposal and conveying it to the various appliances for performing the work required. Thus in the use of water there are various classes of wheels termed *overshot*, *breast*, *undershot* and *turbine* wheels, according to the manner in which the water is brought upon them. In calculating the power of a water wheel we multiply the weight of water by the hight through which it falls. Thus: 500 cubic feet of water (which weighe 30,000 pounds), falling through *one* foot of hight in a minute, repreeents, conventionally, one-horse power; 500 cubic feet falliog through ten feet per minute, represents ten-horse power; 1000 cubic feet falling through four feet per minnte repreeents eight-horse power, etc.

In any water wheel the power actually obtained from the water passing through it is only a certain proportion of the calculated power, from the fact that much power is lost by the shocks and changes of velocity which it experiences on entering and leaving the wheel, and by the friction on the journals of the same; also in the form of the buckets, the general construction of the wheel, the fastening of the arms, the axle, etc. In practical use the losses arising from the different forms of wheels are substantially about as follows: In the best turbines, from 15 to 20 per cent.; in indifferent turbines, 25 to 40 per cent.; in overshot wheels, 30 to 40 per cent.; in breast wheels, 40 to 45 per cent.; in the best undershot wheels—hardy-guidies with light work—50 per cent., and from 60 to 70 in others.

From this it will be seen that the turbine is the most effective form of water-wheel in use. Its compact form and small liability to get out of order, and ready adjustment for work, are also important advantages connected with its use.

There are but two exhibitors of water wheels in the Pavilion, both of whom exhibit turbine wheels only. Mr. Myers exhibits five of Leffel & Myers' turbine wheels, all of large, working dimensions; and Baker & Hamilton exhibit a small model of the Eclipse Double Turbine.

The turbine wheel was introduced into Europe about forty years ago, and from thence to the United States about ten years later. It was first known here as the Parker Turbine wheel, a modification of the European Jonnville. A turbine wheel differs essentially from any other in receiving and discharging water in all directions around its axis; and in the further fact that it loses but a mere moiety of efficiency when submerged. The modifications of this wheel are very numerous; not less than one hundred and twenty-five patents on such modifications have been taken out in this country alone within the last ten years. The Leffel wheel shown by Mr. Myers seems to have distanced all competitors in the reputation which it has secured, and in the numbers in use. Over 8,000 are now in use in the United States, of which 300 are enumerated in California and Oregon, and about 100 in Utah.

It is employed here for all sorts of work, as for running quartz mills, flour mills, woolen mills, saw mills, etc. It is constructed of various dimensions, from three or four horse-power up to three or four hundred horse-power. One of these wheels is the only power employed in driving the largest quartz mill on this coast—that of the Union Mill Company, on the Carson river. This mill—a double Leffel turbine—is only 52 inches in diameter, and is placed on a horizontal shaft—these wheels may be worked on either horizontal or vertical shafts—and uses 8,000 cubic feet of water per minute under 38 feet fall, which, according to the rule, gives it nominally a 600-horse power. It drives sixty 950-pound stamps, with 26 pans, 14 settlers, 8 amalgamators, besides pumping, hoisting ore, etc. Another, 13½ inches in diameter, working in a horizontal shaft on the Truckee river, is sawing 60,000 feet of lumber, daily, for the Nevada Lumber Co., working under a head of 120 feet.

The Eclipse wheel, exhibited in a very neat model, by Baker & Hamilton, is also a double turbine, differing somewhat from the Leffel. It is cheaper in price, and, according to the Lowell Reports on water-wheel trials, reaches a percentage of from 55 to 75 per cent. of the theoretical value of the water employed. It is estimated that there are about 1,000 water-wheels other than turbines in use on this coast making in all about 1,300. But the time will soon come when this number will be largely increased. No State in the Union promises such unlimited water-power as California, and the time is not far distant when this advantage will be sufficiently improved to make this the most important manufacturing State in the Union.

Machinery and Tools.

The range of industrial operatione or mechanical processes by which raw materials are

converted into things of use and value is wide and various. Yet nearly everything in this direction which we see or use, save some of the simplest forms of machinery and tools, has been devised within the last hundred years. Scarce a single century has elapsed since every thread used in the manufacture of cotton, wool, flax and silk, throughout the world, was spun singly by the fingers of the spinners, aided simply by that ancient and time-honored instrument—the domestic spinning wheel! In 1764 an eight-handed spinner—the "Jenny," sprang from the genius of Hargreaves. Two years later the more wonderful invention of Arkwright was brought out, and five years later, in 1774 *—just one hundred years ago*—the happy thought struck the mind of Crompton to combine these two ideas; and a machine was devised by which a hundred spindles were placed under the perfect control of a single person, but still turned by a crank. Soon after Kelley, of Lanark, substituted water for man power, which was in turn supplanted by the more subtle agency of steam, directed by the mighty genius of Watt. From these crude beginnings the more perfect and elegant spinning machines of the present day have gradually grown into existence, until now many thousands of spindles may be seen in a single room, drawing out, twisting and winding up with a degree of perfection which no human hand can attain, as many thousands of threads—a scene magical to the eye, producing effects that have revolutionized the world and made possible the existence of thousands on lands where tens only could have existed before!

The progress in the art of spinning may be taken as a fair example of the improvements which have been wrought in almost every other class of productive industry—whether in the house, shop field or mine. The rapid progress toward precision of execution and high finish made in the manufacture of all descriptions of machinery and the work done by the same, is what makes the past century the most wonderful of all the thousands which have preceded it. Volumes, nay a whole library might be written upon this subject by our best and most practical writers, and still not the one-half be told even of the past; but what of the future—who can tell?

A few brief observations in regard to machinery in general is all we have room for in this connection. Not the least among the recent advances made in mechanical and constructive science are those in respect to the increased perfection of workmanship manifested in the general arrangements of the parts of the machines themselves. This may be seen in many of the great variety of machines which are yearly sent forth to proclaim the new and constantly increasing triumphs of mind over matter, and has been in a large degree brought about by the American idea of making all the different parts of a machine interchangeable. This is what has made a Colt's pistol, a Remington rifle, a cheap and good "American watch" and a sewing machine practical. The success which has thus been introduced into a few specialties must eventually become almost or quite universal. It has already, within a few years, been introduced into several small portable engines—notably the Baxter engine, and into many agricultural implements. To effect such a result, in most kinds of machines, is impossible by the old method of hand work. Hence it often occurs that one of the first things an inventor has to do to render his invention practicable, is to invent another machine with which to manufacture that which he has just devised to perform some important service in the factory, shop or field.

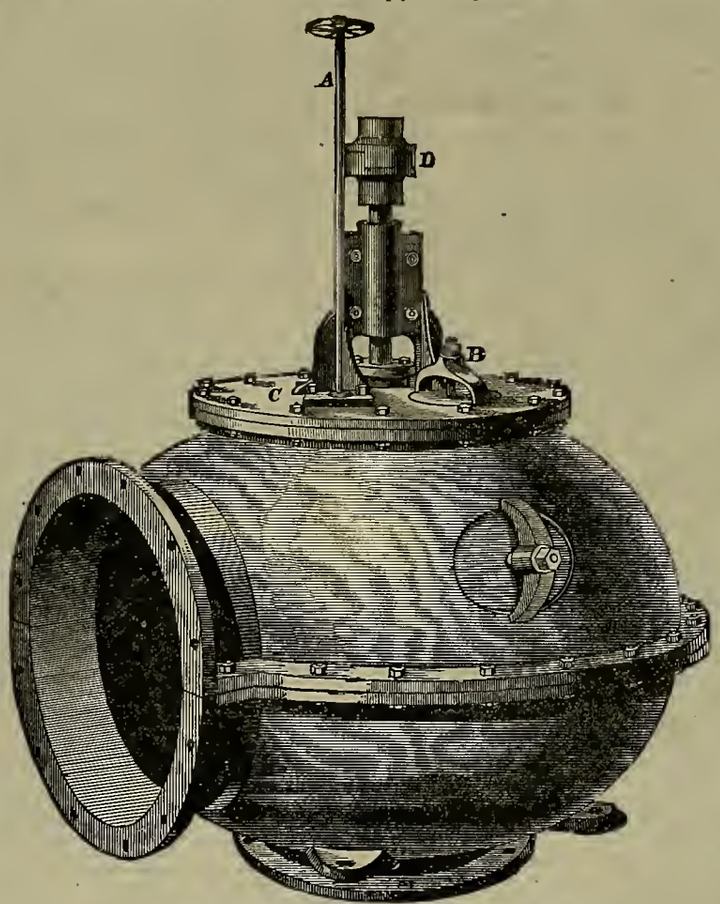
Until within 60 or 70 years nearly all finishing and shaping had to be done by mere manual labor. We were entirely dependent on the dexterity of the hand and the correctness of the eye for precision in all the details of a machine. We had no mechanical substitute for the human hand for applying and directing the motion of a cutting tool. It is only about 50 years since even so simple a principle as that involved in the *slide* rest introduced into tools and machines for the construction of machinery—a principle which is now almost universally employed for holding, applying and directing the edge of a cutting instrument to the surface of the work to be cut. By the use of this principle we are now enabled to cause the tool to so move along or across the surface of an object with such precision, that, without any aid from the hand, a workman is able to produce lines, planes, circles, cylinders, cones and spheres with a degree of accuracy which no amount of experience could give to the hand, and with an ease and rapidity wherein a single machine can represent hundreds of human hands. The same principle, in a modified form, is applied to every lathe, to the planing machine, the slotting engine, the drilling machine, etc., etc. Simple as is this device, its application in the various modified forms is of scarcely less importance than was the invention of the steam engine itself. Indeed, without it, the steam engine, in anything like its present perfection, could never have had an existence. What engineer would undertake to turn out a cylinder for one of our China steamers with nothing but a file as a substitute for a lathe?

It is to be regretted that so little attention has been paid to securing a proper exhibition of machinery at the present Fair. With the exception of the printing press, and machinery chiefly involving the use of saws for cutting, we find very little on exhibition in the way of hand or machine tools, or machinery for manufacturing purposes. The exhibition of agricultural machinery is very fine—the best ever made in the State. The show of pumps is also large and interesting.

Silk Manufactures.

This department affords but few articles of general interest. The only specimen of machinery for producing spun or woven goods is a single loom exhibited by A. Viannay, of No. 12½ Stockton street, who has there commenced in a small way the manufacture of silk dress goods. He shows one of his looms in operation near and just to the left of the main fountain. He also exhibits several pieces of dress goods woven by himself. They are very superior in quality, and deservedly worthy of attention. Mr. Viannay was formerly a silk weaver in France, and obtains his spun silk from the city of Lyons. He warrants his manufactures not to out or retain dust. They are made by the same process as the silk manufactured by the Bonnet Silk Factory of Lyons.

The California Silk Manufacturing Company, whose salesroom is at 566 Market street, make a fine exhibition of the products of their manufacture. We notice embroidery silk, buttonhole twist, machine silk dyed and ready for spooling, the same with gum extracted and ready for dying, and the same again exhibited on 100-yard spools. They also exhibit hair silk, and trim for weavers' and fringe makers' use. This exhibition shows that all the above



LEFFEL'S IMPROVED PATENT GLOBE CASING.

spun and twisted silk goods can be made here of as good quality as any which can be imported. Owing to the failure to produce the raw silk here, as above noted, this company obtains all its raw material from abroad—China, we believe.

The exhibit of cocoons, etc., which has presented such a marked feature at most of our former exhibitions, is now conspicuous only by its entire absence; thus we have absolutely nothing in the way of cocoons or the California product from the same, to show as the result of the many and costly efforts heretofore made to introduce culture of silk from the cocoons into this State. California is, beyond question, most admirably adapted for silk culture—so admitted universally by the best practical experts from abroad, who have studied our climate with reference to the matter. The finest cocoons exhibited at the Paris Exposition in 1867 were those from California. Notwithstanding the failure hitherto to make silk culture a permanent and growing business on this coast, we fully believe that the time will soon come when both the production of the raw material and the woven fabric will form an important article of California products. Its growth has no doubt been rather checked than otherwise by State aid, which led a few people into a disastrous speculative fever in the *morus multicaulis*, and the production of cocoons for the mere advantage of State premiums without any intention of building up the enterprise into a legitimate business. The reaction has fallen heavily upon the whole business, covering it temporarily with odium and discouragement; but as it has now come into the hands of a few earnest, plodding men, well acquainted with its details, it is confidently expected it will gradually come up from its season of folly and delusion. Honor and encouragement should be given to the few men who are now engaged in giving the business a fair, honest trial.

Silk manufacturing at the East, in all its forms—as sewing silks, ribbons, dress goods, fringes, etc., has already secured a firm footing, and has proven a most promising and lucrative business. New England, New York, New Jersey and the city of Philadelphia have a large amount of capital thus invested. May we not hope that the day is not far distant when the slopes and plains that skirt the western base of the Sierras will become as famous for their beautiful manufactures of silk, as the gorges of these slopes have long been for precious metals, and the valleys and plains for the gold-en grain that has fed and nourished the nations of Europe?

Barnes' Plaiting Machine.

Mr. Barnes exhibits a very ingenious machine, which attracts much attention, and which presents quite a novelty in devices for rope manufacture. It is really the novelty of the Fair, and is a right "jolly" piece of mechanism. The movements of the spools, in their gyrations and back and forward movement, remind one much of a set of automaton dancing figures. Ropes, as is well known, are made by simply twisting fiber into small strands and doubling up these strands upon one another by additional twists. The only change from this mode of manufacture which we have seen or heard of, until we met with Mr. Barnes' invention, is a machine which made a crochet stitch, and which could thus braid or crochet a covering upon a core and then increase the size of the cord or rope by adding other coverings indefinitely. But the machine here exhibited strikes out for something entirely new, and braids or weaves a perfectly round rope or cord, which may be composed of any desirable number of strands or smaller cords. The advantages of a cord so woven or braided are that it will not untwist or give out entirely when one or two strands have parted. It is so closely woven or braided that a rope will not ravel or unravel half an inch after being cut in twain, while the breaking of a strand, or even of several at different points, has very little effect in weakening the strength of the rope. A rope or cord made with this machine is not liable to tangle or work itself into inextricable knots while in use. For fishing lines, chalk lines, clothes lines, window or picture cords, this braided rope is unrivalled, and will endure twice, or thrice, as much wear as a twisted cord employed for such purposes, while its cost is only a small fraction in advance.

THE employes of the Crown Point mining company were paid off last week. The disbursements made by the Crown Point amounted to $90,000; Imperial, $16,000; Belcher, $83,000.

IT is reported that a remarkably rich development has been made in a gravel deposit near Grizzly Flat, El Dorado county, $5,000 having been taken out in a very short time.

Leffel's Improved Double Turbine Water Wheel.

There is perhaps no surer evidence of practical merit than success long established and widely extended, and based upon repeated trial upon the most exacting conditions. An invention of but little real utility may obtain a temporary reputation by means of shrewd management in bringing it before the public; but its deficiencies will inevitably come to light and a final verdict will be pronounced upon it in accordance with the facts. Cases in point are of almost daily occurrence, in which a transient popularity is gained by a device which will not endure the test of experience, and which speedily disappears from the market. It is therefore hardly too much to say that the fact that some 8,000 of the Leffel Double Turbine water wheels are now in successful operation, under heads varying from one and a half to 428 feet, and that the demand for them is larger to-day than at any previous period, constitutes the strongest possible evidence that it is what it is claimed to be by its inventor and manufacturers.

How the Wheel has Been Brought to Perfection.

No machine, however simple, durable and perfect in appearance, will in every respect prove satisfactory, when first put into operation; many parts will require perhaps a change of form, strengthening, or may be an entirely different arrangement, upon application to the work to be performed, and a trial of two or three years. In fact, it requires years of diligent study and practical experience, particularly with a water wheel, to so perfect all of its parts, as to make it successful under all circumstances, even though it be sound and practical in principle; of course many of them never can, by any amount of labor or attempted improvement, be made to operate all species of machinery, and must always remain but little better than worthless. To the general principle first stated, the Leffel Double Turbine has perhaps been no exception; during its introduction for the first four or five years, many of them were, no doubt, imperfect and not so durably made as all newly introduced machinery is necessarily. In short, the Leffel Improved Double Turbine has kept pace, from its first introduction, with the most advanced developments of mechanical science; and for any purpose for which the power of water is employed, it may be safely guaranteed as having no equal in utility, economy and durability.

An Improved Patent Globe Casing.

The next step in improvements was the invention of the spherical flume or pentetock, patented Feb., 1869, and now almost universally used in high heads, as it does away with much of the expense of setting the wheels.

The cumbersome pentstock, with its heavy timbers and large expense, is displaced by this tidy and neat arrangement, and the water conveyed to the flume by an iron pipe, costing but few dollars in comparison to the cumbrous construction of the old plan. Besides, being much cheaper than the old way, the spherical flume avoids all the objections to the old, as it being entirely constructed of iron, all the leaks can be entirely avoided and the wheel can be set anywhere in the mill. Being made entirely of iron it never rots, as did the planks and framework of the old style; and hence, with proper care, will last a lifetime.

The cut represents this new and improved iron penstock or casing, and in which many of the wheels are now placed. The form being that of a globe or sphere, it at once secures the greatest strength, with the least weight, and at the same time affords the largest space for the water to circulate above and around the wheel; while it also admits of the smallest exterior dimensions, and therefore occupies less space than any other form or shape that can be be adopted. As none of the parts are subject to wear or breakage, it never requires replacing, and of course its durability is beyond question.

JEFFERSON.—A private letter says the prospects at Jefferson river mines are becoming every day more encouraging; that many of the claims are being opened in a manner that will fairly test the ground, but as yet bed-rock has not been found. The river is now staked for sixty miles, and new camps are springing up every day. At the two principal camps, at the cañon, there are several hundred men; men are coming in and going out daily. As many as twenty business houses are in operation and projected, and if the present excitement should be justified by the prospects on bed-rock, it will be a lively place before winter. The writer does not advise those who have wages diggings to leave them for Jefferson river, as there is nothing absolutely certain as yet and will not be for some time to come.—*New North West.*

A. B. SCOTT, who has been boring for coal upon ranches near Lincoln, Placer county, a few days ago, at a depth of 55 feet struck a very superior quality of coal, the stratum being nearly 20 feet in thickness. The vein is not a mile distant from the Wilson mine, and quite near the railroad.

A PARTY of miners, Messrs. McIntyre, LeClair and two others, left Victoria September 2d, to prospect some creeks on the west coast of Vancouver Island. Two of the party have already been in the locality which the present party are leaving for, and found good prospects of gold.

Works of the Black Bear Company.

A correspondent of the Yreka *Union* writes as follows:

Leaving Sawyer's bar one morning, friend Grant and myself started down the North fork of Salmon river for a "swing round the circle," by which he proposed to take in the Forks of Salmou, the South Fork, Fairchild's, the Black Bear, and such other places as might come within the radius of our circle. At the Black Bear Mining Co's mill, a few miles from Yocnmville, all is life and animation. Everything moving and bnstling, the whole baviug the appearance of a lively little village. Going to the superintendent's office, we found Mr. Gould, and after a few moment's chat were joined by Mr. Rigby, who is now hnilding the new mill, and Mr. Farisb, the superintendent. After dinner we were shown over the works by Messrs. Farish & Gould. The works of the Black Bear Co. are by far the largest and most extensive of any company in the northern country, and comprise mill, chlorination works, saw mill, foundry, etc. The mill, when the present company bought it, contained but 12 stamps. As soon, however, as they came into possession of the property, they added an additional 16 stamps, making in all 28. Now they have taken down the old 12 stamps, and are erecting in their stead a new battery of 16 stamps, whicb will give them 32 stamps. The new addition is being built under the guidance of Mr. A. J. Rigby, a gentleman who has shown by his works that there is no better millwright in the State.

The new battery is being erected in a most substantial manner. The mortar beds are made of two pieces of timber 10 feet long and 30 by 48 inches and keyed together. These are stood upon end upon a foundation made of fine quartz dust, which is tamped down with hot irons, thereby making it as hard, and firmer, if possible, than rock. It takes four men a whole day to lay a half an inch depth of this dust. The space around the mortar blocks is then filled in with rock, packed carefully and closely together by hand, and the result is a battery, when finished, without the least possible jar. The 16-stamp battery now in operation is built in a like manner; eight of the stamps are fitted with revolving blanket troughs, by which the blankets are changed in a second. They were invented by a Mr. Patten, a gentleman in the company's employ. Tbe 32 stamps when running will crush 60 tons of quartz every 24 hours. The quartz is delivered at the mill from the mine in wagons which carry eight tons. These wagons when they arrive at the mill are backed np to the dump, the hind wheels blocked, a block and tackle suspended from a derrick, hooked on to the fore end of the wagon, which is then hoisted up and the rock slides out of the hind end in close proximity to the batteries. From here the quartz is fed into the batteries, and crushed into dust by the stamps, which are continually pounding away, the quicksilver in the batteries catching a good deal of the gold thus freed. Water flowing continuously through the batteries washes the powdered rock out through the screens and over the copper plates in front, which are also amalgamated, and catch most all the gold which escapes from the batteries. The stream then runs over long blankets, which catch the sulphurets and coarser particlee of rock. Tbese blankets are changed and washed about every 10 minutes. The blanket washings and tailings are then put into a Stevenson pan, which grinds them still finer; from this pan they run into a settler, from which, by constant stirring, the sulphnrets are caused to flow out and into two of Hendy's concentrators. These are vibrating pans, with revolving arms which keep the contents of the pan constantly stirred. The dirt flows out at the center and the concentrated sulphurets ont at the onter edge of the pan. These snlphurets are then ready for

The Chlorination Works,

Where the gold is extracted from them by a most interesting process. Upon reaching this department the sulphurets are first roasted in a large oven, where they are subjected to an inteuse heat. This oven has three hearths, two of which hold a ton each, and the third about six tons. While the sulphurets on the first hearth are being thoroughly roasted, those on the other two hearths are getting hot. When the sulpburets on the first hearth are roasted and taken out, those on the second hearth take their place, and a ton from the third hearth takes a place on the second. It requiree about 12 hours to properly roast a ton. This roasting process evaporates all the sulphur and arsenic. After they have been taken out and thoroughly cooled they are put into large vate. These vats are prepared somewhat similar to a filtering machine, by its having layers of gravel, from coarse to fine, placed therein. The roasted sulphurets are placed on top of thie gravel and the cover of the vat put on and sealed down tight. Chlorine gas is theu manufactured and turned on into the vats, wbere it is diffused through the sulphurets, and ite chemical action extracts the gold, which sinks to the bottom of the vat in a black liquid state. This is then drawn off and put in another vat filled with water, in which the gold is precipitated with muriatic acid. The gold, when taken from this laet vat, is of virgin purity. The chlorination process was not beiug used when I was at the mill, Mr. Farish having determined to endeavor to extract the gold from the snlphurets, after tbey have been roasted, with quicksilver. This is, however, only an experiment, made for the purpose of doing away, if possible, with the chlorination process, which is very costly. I have not heard as yet whether it has been successful or not.

In addition to the Hendy's concentrators, there are two large, old-fashioned buddles, which are likewise kept constantly at work concentrating tbe sulphurets. These are directly opposite in their operation to the Hendy machine, as they collect the sulphurets in the center and wash the dirt to the outside, the other machines doing just the reverse. Tbe company have here also a well-appointed little foundry, in which is cast the cams, shoes and dies used in the batteries, grate bars and other articles necessary ahont the mill or mine; also a saw mill, blacksmith shop, boarding-house, a brick office for the superintendent, and three or four neat private residences with tasty gardens, storehouses, stables, etc. The company have also a handsome flower garden, to which much care has been given, and of which Mr. Farish feels justly proud. The flowers therein are all splendid specimens of their species, and if not extremely ornamental, they are decidedly useful, being all of the cabbage variety, and nnmberiug about 3,000 heads; amonnting to about 8,000 pounds. The batteries, pan, settlers, concentrators, saw-mill and blower for foundry, are driven hy a hurdy-gurdy wheel 17 feet in diameter, with 250 feet pressure when there is plenty of water. When the water gives ont the motive is furnished by a 60-horse power douhle engine, the steam for which is generated in a boiler 16 feet long by 54 inches in diameter. The mill building is large and spacious, being 84 feet wide by 90 feet long.

The Mines at Bannock.

A correspondent of the Helena (Montana) *Independent*, speaks as follows of the mines near Bannock:

Shenon & Wadams are running tbree arrastras and one five-stamp mill on ore from the Wadams lode, located high up the mountain on the south side of Grasshopper creek, and the lode is from 3 to 30 ft. wide, and pays from $20 to $100 per ton. The ore is passed down to mill over a car tramway, 1,200 ft. long, the loaded car raising the empty one in regular succession. Phil. Shenon, the prince of quartz men, is engaged putting up machinery in the Butterfield mill, intending to run it on silver ore. It will be in rnnning order this fall. Mr. Wm. Purvine is introducing a new silver amalgamating pan (patent applied for), with concave top, calculated to force the rising pulp back to the center of the pan—an undoubted improvement on the old pan now in nse. Mr. Shenon is one of the most successful as well as one of the most enterprising quartz men in the country, and has good ore enough in sight to keep his mill running for years.

In the way of women's rights I have a few notes to make. Mrs. Wadams, a lady who has sons and daughters growu to man and womanhood, and a pretty little three-year-old baby, did all the work of running three arrastras last season, the proceeds from which amounted to more than $10,000, has charge of the same this season, and has fonnd time to collect one of the finest mineral cabinets in the Territory.

The Dakota lode, near Mayville, and one of the finest discovered in Montana, is now being worked by R. Bayles, and recently, at the depth of 80 ft., a large body of good ore was found.

Ore is now being taken from the St. Paul lode, near Banuock, and Merry's arrastra is supplied from the mine. Carhart's mill runs regularly on ore from Dakota No. 7, and hard ore from the St. Paul and other ledges.

PETROLEUM IN VENTURA COUNTY.—The production of petroleum in Ventnra county promises to become, at no distant day, one of the most important industries of that county. New and important discoveries are being made from time to time, and capitalists in San Francisco and other places are organizing for the development of the various oil springs. A few weeks ago some new springs were discovered in the north-eastern part of the county, on a branch of the Sespe, ahont twenty miles from the coast. They are situated on the bank of a gulch, and within a distance of three quarters of a mile there are at least one hundred flowing wells, from which tbe oil flows in such immense quantities that it stands in pools in the gulch, from one to three feet in deep. It is estimated that there are now at least 150 barrels of good oil in the gulch which could he saved without any trouble. By opening the springs, it is believed their capacity could he increased to 100 barrels per day. They have been taken up hy a party of gentlemen from San Francisco, who will commence operations at once.

THE NEW BOULDER DITCH.—We are informed that the grading and excavating on the new ditch on upper Boulder has been completed. There are 600 ft. of flume to be erected, when the ditch will be ready to turn water into; but the owners do not expect to more than get it into good running order this season. It is about three miles in length, five ft. wide on top, four ft. on bottom and two and a half ft. deep. It has a grade of one inch in twelve ft. It will carry all the water in the Boulder at ordinary stages. The ditch is constructed to carry water upon the high bars near the mouth of Alta gulch. The bars prospect well, and as there will be an ahundance of water during the entire mining season, it is confidently predicted they will pay largely. Mr. John McDermott is one of the lucky owners and is superintendent. We are pleaeed to learn that Johnny has a good thing in eight. He is a rustler and deserves success.—*Helena Independent.*

Is Mining a Legitimate Business?

We have often beard the assertion made tbat mining was not a legitimate business hut simply a speculation. We beg to differ with all who are inclined to entertain this belief. There is really no foundation for the assertion that mining operations are purely speculative. We have watched quartz mining almost from its incipiency in America, and we have seen less failures in that branch of business than any other, where experience, judgment, capital and business tact have been brought into requisition.

We are aware that there are idle mills and smelting furnaces throughout the entire mining regions of the Rocky mountains and Pacific coast, but before condemning mining as a legitimate branch of industry would it not be well to inquire why so many reduction works are lying idle? There is a cause and a good one too. Capitalists, and in many iustances men without capital, but with plenty of cheek, have erected mills and furnaces without regard to location, accessibility to mines, or other surroundings. Furnaces have been built remote from mines, charcoal, flux, etc. Mills bave been erected a great distance from mines; at points almost inaccessible to the mines of a district; at places where wood and water were scarce, and finally where there was not sufficient quartz in sight to justify the erection of an arastra. The result has been disastrous to the reputation of the mines and to the finances of a majority of the projectors of the works. Would a good business man anticipate a different result? We think not. We are of the opinion that a shrewd man would not build and furnish a first-class hotel in a locality where there was neither regular or transient patrons, and only a bare possibility that there ever would be any. No sensible merchant would build a fine wareroom and fill it with a large stock of goods, at a point where there were bnt half a dozen persons and no probability that there ever would be any more. Yet these are analagous cases.

But there are still other causes why many quartz mining enterprises have proven disasterous. Good mills and furnaces too have been erected where quartz was both rich and abundant, and all necessary adjuncts to successful reduction easily obtainable. Many of these have also proven an incumbrance to their owners. The explanation is easy. These works have been managed by men who had no knowledge, or at least but an imperfect knowledge of reducing ores. Another class of superintendents are those who lack business or financial ability. Surely no sane person would trust his life in the hands of a quack doctor, a litigant an important case to a numbskull lawyer, nor business man his affairs to a clerk whom he knew to be incompetent to discharge the duties assigned to him. Yet these identical persons will purchase a quartz mine, erect a mill or furnace and employ a man to run it who knows comparatively nothing about the kind of machinery required or the process necessary to make the ore pay. They give the mill a trial and in three cases out of five there is bitter disappointment. Without stopping to investigate where the fault lies, the stockholders meet, declare that the mines are worthless, appoint some man to look after their property, and there the matter rests.

But there are some thoroughly competent business men and experienced manipulators of ores who have charge of reduction works who fail. It is not their fault. It is the fault of miners. They mislead themselves by having picked specimens of ore assayed and upon that basis take out a few tons, have it reduced at a good mill, where it does not yield according to their exalted ideas, based upon the aforesaid assay, when they declare they have been swindled or that the mill is worthless, throw down their mining implements and wait for some one to buy them out. The result is there is no rock to crush and the mill stops.

One of the principal reasons why so many mines have not met the expectations of their owners is that they have been managed badly. Incompetent managers employ less competent men to work the mines, who go at it in such an unskillful manner that the cost of mining the ore is more than double what it should be. Notwithstanding the fact that there have been so many failures in mining, the cause thereof can generally be traced to mismanagement. In looking at the matter dispassionately we are surprised, not that there have been so many failures, but that there have been so few. We firmly believe that when men use the same calm judgment and business tact in mining enterprise that they do in other pursuits, mining will become as safe and profitable an investment for capital as merchandising or banking.—*Helena Independent.*

NEW MILL.—Col. Smith's new quartz mill at the head of Indian creek, Jefferson county, is being constructed rapidly. We understand that Mr. Smith intends having it completed by the 1st of October. He has a number of men at work taking out quartz, and has a large quantity of rich ore now on the dump, which is said to be the richest lot of gold quartz in the Territory. The first month's run, it is predicted, will yield sufficient bullion to pay the expenses of erecting the mill and all developments made on the mine up to this time. We trust that these anticipations may be realized. There are a number of lodes that prospect well on Indian creek, and the probabilities are that if Mr. Smith makes a success, others will be induced to develop their mines.—*Helena Independent.*

Mining vs. Farming.

In many sections of the valley the farmers are undoubtedly much injured by the settlement thereon of sediment from the mines. For a time the farmers seemed to regard this as a natural consequence — an injury directed against them by the hand of Nature, which was beyond their power to control. At last they seem to be waking up to the fact that it is not the direct hand of Providence which is sending this sediment down the rivers, to settle upon and destroy their ranches, but that it is a lot of miners—hard working men like themselves, who are shoveling away the mountain sides, and sending the sediment down to injure them. They no sooner, apparently, find out that human hands are the cause of their trouble, than they set about to find a remedy. The farmers of Linda township, in Yuba county, seem first to have conceived the idea of securing reparation for the damages they sustain; at least they are the most active in their endeavors to obtain either a remedy or a preventive. They have had much to say on the matter heretofore, and to-day, we understand, they hold a grand mass meeting in the City Hall, at Marysville, for the purpose of inaugurating a move for obtaining compensation for the amount of damages sustained. They may be successful, and they may not. It is a difficult matter. They may provide, or he the means of having provided, some measure, securing compensation for losses thus sustained, but they can never stop mining. The miners are not, as a class, desirous of injuring a single farmer, because they have sense enough to know, the more farms, orchards and gardens there are to produce food, the better off will be the mining industry. But, as the Grass Valley *Union* suggests: "The world wants gold, and more of it than is now ont of the ground, and to supply that want many mountains will yet be washed away, and thousands of quartz ledges will yet be pounded into sand."—*Placer Herald.*

A NEW FUME ARRESTER.—A portion of the iron for the new fume arrester at the furnaces of the Eureka Consolidated Company, now in course of erection, arrived yesterday, and will soon be put in place. The carpenters are now engaged in building a substantial trellis work leading from the furnaces to the side of the hill in the rear, a distance of 200 feet. On this the iron flue will be placed and continued up the bill to the stack, 400 feet distant, which will also he constructed wholly of iron. It will require 50,000 pounds of this iron for the flue, which has been manufactured at Pittsburg, Pennsylvania, to the order of the company, coming ready to be riveted and put in place. Although the building of the flue is accompanied with a large outlay, it will pay for itself in three months' time by the saving of hullion now wasted. The remaining portion of the iron will arrive next week, and the work completed some time in September. A considerable delay is occasioned by the action of the Central Pacific Railroad Company in refusing to unload the iron at Palisade until after it had been sent through to Sacramento and returned. What profit a railroad company can gain in so doing is beyond our ken, but it is doubtless owing to the through freight war now raging between that and the Union Pacific Company.—*Eureka Sentinel.*

TROY DISTRICT.—From Mr. Davies we learn that the recent developments on the Bine Eagle and Troy ledges are of the most enconraging character. The company, after years of diligent search and expenditure of nearly $500,000, had become nearly despondent, and were considering the question of abandoning the whole enterprise, when in the prosecution of some new work, a vast deposit of high grade ore was discovered in the lower workings. These disclosures have had the effect to restore confidence to the company, and an additional capital of $60,000 was at once subscribed with which to carry on operations. The fine 20-stamp mill and Stedefeldt furnace will probably be started this fall, but not until the accumulation of 3,000 tons of ore shall have been raised from the mines of a quality that will assure a profit. This has been one of the most solid and energetic mining associations which England has furnished to the Pacific slope. It is formed of wealthy men of Lancashire, who have been most liberal in arming the local management with the sinews of war.

GONE PROSPECTING.—The steamer "49" has been accured for the purpose, and a large number of men have left Colville in her for a prospecting tour in the Arrow lake country, situated up the Columbia river from 100 to 200 miles above old Fort Colville. The men are to be dropped along the route at different points, and the steamer will make occasional trips up and down to carry supplies of provisions and to bring the prospectors back to Colville when they wish to return home. It is expected that the country will be thoroughly prospected, and it is confidently hoped that good mines will be discovered, as it has long been believed there were rich mines somewhere in that country. It is the intention of the prospectore to remain in the field as long as the weather continues favorable, provided they do not "strike it" sooner. *Walla Walla Union.*

THE members of the Austrian Polar expedition, for whose safety fears were felt, have been heard from. They were shipwrecked, took to sledges, and succeeded, after a long journey, in reaching the Norwegian island of Wardoe.

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We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

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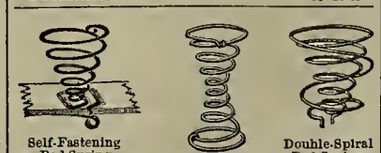

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Chromium.

Owing to the newand extensive discoveries of the ores of this metal in this state, public attention is becoming interested iu the matter, andwe are beset with inquiries as to what it is, wbat it is used for, etc. Chromium is one of the elementary substances of whioh our earth is composed, and receives its name from the property of imparting beautiful colors to its compounds. Like iron and lead, it is never found in nature in its metallic state, bnt always ohemically combined with some other substance. It unites with oxygen in several different proportions, and when so united the compound possesses the peculiar properties of an acid, and combines with various metals as bases, forming salts of different colors. Chrome-ironstone is the principal ore of chromium, and is a compound of oxide of iron end sesqui-oxide of chromium. The familiar bi-chromate of potassa of commerce is obtained by heating chrome-ironstone with chalk and carbonate of potassa in a reverberatory furnace; the product is digested in water, and the yellow solution separated from the insolnble matter; nitric acid added to the solution precipitates part of the sibca present, after which the liquid on evaporation yields crystals of bi-chromate of potassa, a salt tbet is extensively used in the arts. In photography it is the basis of most of the printing processes, on acconnt of its property of rendering gelatine insoluble by exposure to light. In dyeing it is used extensively as a mordant. It is the material from wbich chromic oxide, chromic acid and most of the metallic chromates are prepared. Chromic oxide is the most insolnble green pigment known, and is extensively used in printing bank notes, staining glass and painting porcelain. The chromates of lead, bismnth, baryta, strontia and zinc are employed as pigments, varying in tint from the vermilion red of the basic chromate of lead, to the pale yellow of the strontia salt. It is comparatively but a few years since the element chromium was discovered, and really hut a few years since its compounds have been of any value in the arts. The most interesting use to which it has been applied is in the manufacture of the celebrated

Chrome Steel,

To wbich we have before called the attention of our readers.

The St. Louis *Republican* of recent date, in a long article on chrome steel, says: "The introduction of crucible cast steel by Huntsman & Heath in England has revolutionized the steel-making bnsiness of the world. Blistered and shear steel which bad before held the market, had to yield to the steel made by the crucible process.

"The great desideratum to be achieved in steel-making is tenacity and hardness. Hardness alone is not a desirable quality in metal. Tests made with chrome steel sbow it to have the requisite qualities of the best metal, viz.: elasticity, tenacity, ductility, malleability, hardness and temper; indeed it can be tempered to almost any desired limit * * * * * * There is now but little doubt tbat the use of chrominm as an alloy with iron in the manufacture of steel will revolutionize the whole art and business of steel-making."

The St. Louis *Railway Register* in speaking of the great St. Louis and Illinois bridge says: "Some of the best engineers in this country and in Europe were engaged with Capt. Eads in testing the material which was to enter into the construction of the bridge. After the most thorough scientific tests it was found that chrome steel met all the requirements of the case, showing the highest tenacity under tension and ntmost refractoriness under compression. It was therefore selected as the best, most uniform, homogeneous and tenacious steel that could possibly be made for the purpose. All except 18 pieces, these some of the great anchor bolts, of the material used in the superstructure of the bridge is chrome steel, made by the Haughian process belonging to the Brooklyn Chrome Steel Company." To those who are interested in this new article, which is being rapidly introduced on' this coast, we would recommend the examination of the specimens now on exhibition at the Mechanics' Fair.

Inasmuch as we have chrome ores and iron and coal in this State, it would seem as thongh we ought to make our own chrome steel, as its importation will ere long be very great.

We nnderstand that there is a company already organized for making pigments from our chrome ores.

Matting Furnace. — Ground was broken yesterday for the erection of a Matting furnace, to be put up at the Hoosac smelting works, wbich, when completed, will enable the manager to receive and work all milling ore that may be brought to the furnace for reduction. By the use of the Matting fnrnace the heavy lead from the Hoosac mine can be worked advantageonsly with the rich quartz ores from Newark and Silverado districts, and the Geddes and Bertrand mines in Secret cañon. The furnace is to be constructed on the best approved plans, and by its use a perfect separation of all silicifernus substances will be obtained in conjunction with the present blast furnance with alkali from the Ruby bill ores. The Matting furnace will be completed about the 20th of September.— *Eureka Sentinel, Aug.* 28.

California peaches are selling in New Mexico at $1.50 per dozen.

Chrome Steel.

At the npper end of the Pavibon is a display of Chrome steel, made by Huntington, Hopkins & Co. It is only lately that this steel has been introduced on this coast; but it seems to heve filled a demand long felt, judging from the testimonials of prominent mechanics in its favor. We examined several bars of this steel which had been twisted while cold, and which were quite uninjured by the operation. This steel is an alloy of two metals, iron and chromium, and besides being far in advance of anything hitherto known for strength, durability, elasticity and nniformity, it possesses some features exclnsively its own. It bas been applied to almost every purpose known to mechanical ert, and has uniformly proved a superior article.

The steel, being an alloy, is capable of being graded for any special purposes. It can be made so hard tbat you can not soften it, and so soft that you c an not harden it. One grade is made for turning and planing tools; another for taps, dies and punches; and another for cold cbisels, ro k drills and tools for rock work, etc. It is not injured by being heated to a very high heat. If heated to nearly a white heat and allowed to cool gradually, it is the same as it was before being put in the fire Two grades of this steel will weld like wrought iron. The only way the steel can be spoiled is by being dipped in water or hardening mixture at too bigh heat, and even then it can be restored by being reheated and dipped at the proper heat.

The word "chrome" is not, es many suppose, a trade mark; bnt a metal which is alloyed with iron for tbe purpose of obtaining the different degrees of hardness, and, owing to its great affinity for iron, it can not be other than uniform. The steel for the spans of that great engineering work—the St. Louis bridge—is made by this cbrome process. This chrome cast steel has a tensile strength far exceeding that of any other. In a series of experiments, the bighest tensile s'rain obtained was 198,970 pounds to the square inch; the average result of 12 specimens was 179,980 pounds, whilst the highest strengtb of steel given in Percy's Metallurgy, page 870, is 132,909 pounds per square inch.

One grade of this steel, called Adamantine, wben forged into a tool and allowed to cool gradually is too hard to be worked with a file. "Gun steel" can be worked almost as easily cold as wrought iron when hot. There are several other grades running between these two extremes. We saw the other day at the Fair a cold chisel which had been heated to a welding heat, then split or spread apart and plunged into water and cooled. Then heated to a welding heat again, hammered together without a flux and brought to an edge in the weld, ground and made a first-class cold chisel. It shows the mark of having been sliced half way up the handle.

This steel is used on all the principal railroads of the East, and the Central Pacific company on this coast uses large quantities of it. In this city it is in use at all of the principal foundries, and they express themselves well satisfied with the results. It is being rapidly introduced in the mining districts of the coast for rock work, such as drills, picks, etc. Dynamic tests of this steel, made at the West Point foundry, the highest strength of the 12 specimens being 198,910 pounds; lowest strength, 163,760; average of all the specimens, 179,980, or about one-third more than Percy in his "Metallurgy of Iron and Steel" gives as the highest tensile strength attained by steel.

Death of A. Delano.—We learn that this old resident of Nevada county died at Grass Valley on Tuesday night, after an illness of several days. He was a banker at that place, was also interested in mining, and was known by reputation throughout the State as an author and a man of integrity. He was the author of a volume published in the East in 1854, entitled, "Life on the Plains and at the Diggings," being scenes and adventures in an overland journey to California; also of "Pen and Knife Sketches," "Old Block's Sketch-book," the two last published at this office; and likewise of innumerable newspaper articles, sketches and stories. He was a writer of much native humor and plainness of speech, abounding in facts, anxious to do justice to all and injury to none. His character was that of an upright citizen, just and honorable in his dealings, and his daily deportment was such as to command the respect and secure the regard of all with whom he had communication. He left b-hind him a family and a host of friends, who will long remember him as an affectionate relative and most valuable associate.—*Sacramento Union.*

The quicksilver discovery on Dry creek, being opened by Heushaws and others, says the Mendocino *Democrat*, is making a handsome showing. Two hundred tons of rock were taken out by five men in 10 days, and the pile has been estimated as likely to yield about $40,000.

The State Fair.—Applications for space in the State Fair pavilion, at Sacramento, and in the building for agricultural implements, at the park, are said to be coming in quite rapidly.

Academy of Sciences.

The regular meeting of the California Academy of Sciences was held on Monday evening last, Vice-President Hewston in the chair.

The following gentlemen, having been duly proposed, were ballotted for and elected to membership of the Academy: B. F. Sherwood, life-member; Charles M. Blake, Charlee Sonntag, Frederic T. Newberry, Abel T. Winn, Frank P. McLean, Charles W. Brooks, James A. Waymire and B. R. Swan, resident members.

The additions to the museum comprised a collection of shells from Tahiti, embracing 338 specimens, presented from Captain M. Turner; specimens of the porcupine fish, from the Society Islands, also presented by Captain Turner; curious deposi s from a mineral spring in Lower Cali ornia, received from David Turner, United States Consul at La Paz; a de-p-sea crab, of enormous size, from the office of the United States Coast Survey; jar of alcoholic specimens of fish, from Captain Lewson, of the Coast Survey; species of eel, from Captain Scammon, of the Revenue Service; two aquatic birds, mounted, from E. F. Lorquin; specimens of crustacea, from Mr. Burling; curious larva cases, collected in a creek at Sancebto, from John H. Turney. The usual quantity of regular scientific publications, for the library, was received from correspondents of the Academy.

The sixth and seventh of the series of valnable pepers on Pacific Coast *Lepidoptera*, by Henry Edwards, were received and referred to the publication committee. A paper from Stephen Powers, a corresponding member, entitled "Aboriginal Botany," was read by the Secretary. It described the various herbs used by the Indians of this coast for food and medicinal purposes, the method of prepering them, and the virtues they are supposed to possess as remedial agents. We shall give a synopsis of this interesting paper in our next week's issue.

Land Decision.—Copp's *Western Landowner* contains the following ruling from the General Land Office: An applicant for a patent nnder the mining laws may abandon from his application a portion adversely claimed by another party, and after the survey receive a patent for the part not in controversy. Examination of an application for a patent under the mining laws shonld proceed beyond the papers filed in the case, and into those general records of the General Land Office which are evidence of the final disposition made of the public domain; and if it is fonnd that any part of the premises applied for have been previously disposed of, an express exception thereof in a subseqnent patent. Land when once appropriated under the homestead law, is thereunto removed from pre-emption settlement and homestead entry, and can only be again subject to them by a cancellation of the homestead entry in the manner prescribed by law. Such cancellation becomes effective at the date of receipt of the order thereof, at the local office. To institute a valid right under the pre-emption law to a tract of land covered by a homestead entry, some act of settlement must be performed by the pre-emptor subsequently to the cancellation of said homestead entry.

Dried Potatoes.—Potatoes, cut and dried, are coming into favor East. They lose 84 per cent. of watery elements, consequently a ton is reduced in weight to 352 pounds. Thus dried, potatoes keep indefinitely. They are in demand for ship's stores and for inland places where freight is expensive, as in mining districts. By immersion in water over night they resume near'y their original bulk, without perceptible loss of flavor.

Improving the San Joaquin. — Lieutenant Weeden, of the United States Corps of Engineers, visited Stockton on Wednesday of last week, for the purpose of looking over the San Joaquin river from that place to Antioch, and of making a report to the Government on the probable cost of improving the navigation of the stream. He will probably put on a party of engineers to make a detailed survey before reporting on the matter.

The Sacramento beet sugar company are making arrangements to add to their works a distillery for the manufacture of rum, intending to thus use up a quantity of syrnp not desirable for the manufacture of sugar. A number of large vats and other material recently used at the Calistoga distillery have been procured, and it is expected that the works will soon be in operation.

Flour Mill Burned.—The Antelope flouring mills, situated about six miles from Red Bluff, owned by J. S. Coue, and rented by T. R. Ryan, were destroyed by fire on the 31-t ult. Loss between $40,000 and $50,000. The grain and flour were partially insured. There was no insurance on the mill.

Farm House Burned.—The residence of John Thompson, a farmer, living in Pajaro valley, was burned to the ground on Sunday morning last. The loss is about $5,000; no insurance. There were eight hundred dollars in coin in the house at the time of the fire which at last accounts had not been recovered.

Grapes for Wine.—Eberhardt & Lechman have purchased, for wine making in Sacramento, the vast crop of grapes on the ranch of Jeff. Nickerson, Placer county.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Aug. 25th, 1874.

For Week Ending Aug. 11th, 1874.

Extra Seat for Cars, Carriages, Etc.—Chas. E. Baldwin, San José, Cal.

Hydraulic Jack. — Edward Biddle, Carlin, Nevada.

Car Coupling.—Harrison E. Smith, Portland, Oregon.

Gold Leaf for Dentists' Use.—Chas. E. Blake, S. F., Cal.

Piano.—Christian Boerner, S. F., Cal.

Medical Compound or Bitters.—John Philip Edinger, Santa Clara, Cal.

Overalls.—Jacob Greenbaum, S. F., Cal.

Egg Carrier.—Joseph Perkins, S. F., Cal.

Traction Vehicle.—Clinton V. B. Reeder, San José, Cal.

Balance Slide Valve.—Andrew J. Stevens, Sacramento, Cal.

———"The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

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THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines and Agricultural Lands in Mining Districts of the U. S., printed in circular sheet, for sale at this office. Sample copies 25 cts

THE PACIFIC RURAL PRESS, a sixteen-page agricultural paper published in San Francisco, is alive to all interests pertaining to stock and agriculture.—*Appanoose Times, Centerville, Iowa.*

CAMPO, SAN DIEGO CO., CAL., July 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. GASS.

GENERAL MERCHANDISE.

WEDNESDAY M., Sept. 9, 1874.

Bags have steadily declined for some time past. Prices are now much lower than a few weeks ago. The demand this season has been great, but strenuous efforts have been put for th to meet it, and now the market is weak even at present rates. Wheat Bags would be more in request were the tendency to ship Grain greater. Offices are still slow of sale. Oils are weak. Tobacco is buoyant, at the advance

BAGS.			
Eng. Stand Wht..	12½	@	12½
Detrick's Machine			
Sewed, 22x36 E		—	@13
do 22x36, do E W		—	@13½
do 20x40, do do A		—	@14½
Flour Sacks ¼s..	9½	—	@11½
" ½s..	6	—	@ 7
Stand. Gunnies,			
double seam	15	@	—
single seam	13½	@	14
" Wool Sacks	65	@	—
Barley Bags 24x35	—	@	14
do 23x30	—	@	14½
do 24x40	—	@	15
do 28x36	—	@	16
Oat Bags, 21x40	16	@	16½
do 20x36	—	@	17
Hessian 40-in. gds	9½	@	10
do 42	10½	@	11
do 60	—	@	15
CANNED GOODS.			
Asst'd Pie Fruits			
in 2's, 3 cans	2 75	@	3 00
do Table do	—	@	2 75
Jams & Jellies 3	75	@	4 25
Pickles ½ gl	—	@	3 50
Sardines qr box	80	@	—
do half do	3 20	@	—
COAL—Jobbing.			
Australian, ton	10 00	@	—
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11 —
Cumberl'd, cks	22 00	@	23 00
do bulk	18 00	@	20 00
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	19 00
Liverpool	11 00	@	12 —
West Hartley	12 50	@	—
Scotch	9 50	@	10 00
Scranton	15 00	@	17 50
Wilson's Isl	11 00	@	14 50
Charcoal, ½-k	75	@	—
Coke, ¶ bbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Central America'n	20	@	21
Costa Rica per ℔	21	@	22
Guatemala	19	@	20½
Java	—	@	25
Manilla	20	@	21½
Ground in do	—	@	30
Chicory	10	@	—
FISH.			
Pac. Dry Cod, new	5	@	6
cases	8	@	7
do boneless	11	@	12
Eastern Cod	7	@	8
Salmon in bbls	9 00	@	9 25
do ½ bbls	4 50	@	4 75
do 2½ kegs	2	@	3 00
do 2lb cans	2 65	@	2 75
do 1lb cans	1 75	@	—
Do Col. R. ½lb	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No. 1, ½ bbls	8 00	@	8 50
" Extra	—	@	9 00
" ½ kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½ bbls	—	@	12 00
Sm'k Harr'g, bx	50	@	60
NAILS.			
Assorted size, ℔	5 00	@	7 25
OILS.			
Pacific Olne Co.			
Neat Ft No. 1	—	@	1 00
Parc	1 25	@	—
Castor Oil, No. 1	—	@	1 75
do do No. 2	—	@	1 60
Oceanaut	45	@	50
Olive Plagciol	5 00	@	—
do Possel	4 15	@	—
Palm	9	@	—
do Bagicalupi	—	@	—
Linseed, raw	—	@	1 02
do boiled	—	@	1 07
China nuts in cs	—	@	85
do bulk	75	@	80
Sperm, crude	—	@	1 40
do bleached	—	@	2 20
Coast Whales	35	@	40
Polar, refined	50	@	55
Sperm	1 40	@	1 50
Lard	1 00	@	1 10
Coal, refined Pot	37½	@	40
Gleophina	—	@	—
Devoe's Brill's	25	@	28
Long Island	—	@	34
Eureka	37½	@	40
Devoe's Petro'm	26	@	29
Barrel kerosene	20	@	25
Olive	4 00	@	9 50
Downer Kerose'e	35	@	40
Gas Light Oil	—	@	34
PAINTS.			
Atlan. W. Lead	12½	@	12½
Whiting	—	@	2
Putty	4	@	4½
Chalk	—	@	2½
Paris White	2¾	@	—
Ochre	4	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ℔	6¾	@	6¾
do 2, do	5½	@	5¾
Japan	5½	@	6
Siam Cleaned	7	@	—
Patna	—	@	6¾
Hawaiian	7	@	7¾
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	20 00	@	23 00
do coarse	16 00	@	20 00
SOAP.			
Castile ℔	10	@	11
Local brands	5	@	8
SPICES			
Allspice, per ℔	15	@	16
Olives	17½	@	—
Cassia	22½	@	25
Citron	—	@	30
Nutmegs	1 50	@	1 25
Whole Pepper	20	@	22
Pimento	—	@	15½
Gr'nd Allsp'rds	—	@	1 00
do Cassia do	—	@	1 50
do Cloves do	—	@	1 50
do Mustard do	—	@	1 25
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	2 10
SUGAR.			
Cal. Cube per ℔	11½	@	—
Parrz' Pro. Cube			
bbl or 100 ℔ bxs	—	@	11¾
do in 50 ℔ bxs	—	@	12
do in 25 ℔ bxs	—	@	12¼
Circle A ornehed	—	@	11½
Powdered	—	@	11¾
Granulated	—	@	11
Dry granulated	—	@	11½
Hawaiian	8	@	10½
California Beet	—	@	11½
Golden C	—	@	10½
do Reg'r grade	—	@	6½
Cal. Syrup in bls	—	@	2½
do ½ bbls	—	@	55
do in kegs	—	@	60
Hawaiian Molasses	25	@	27½
TEA.			
Oolong, Cantn, ℔	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imparial, Canton	25	@	40
do Pingsuey	40	@	60
do Moyune	60	@	1 00
Gunpo'der, Cant.	30	@	42½
do Pingsuey	50	@	90
do Moyune	65	@	1 25
Y'ng Hy, Canton	28	@	40
do Pingsuey	40	@	70
do Moynne	65	@	85
Japan, ½ chests, bulk	30	@	75
Japan, lacquered bxs, 4½ and 5 ℔s	45	@	67
Japan do, 3 ℔ bxs	45	@	90
do pl'n bx, 4½ ℔	35	@	65
do ½ ℔ bxs	25	@	55
TOBACCO—Jobbing.			
Bright Navys	50	@	60
Oark do	45	@	55
Ows ¢ Twist	57	@	62½
12 inch do	57	@	62½
Light Pressed	65	@	75
Hard do	60	@	70
Conn. Wrap'r	40	@	50
Penn. Wrapper	20	@	30
Ohio	7	@	15
Virgi'a Smok'g	60	@	95
Fine ot cbe'g, gr	8 50	@	9 25
Fine cut chewing, bu'ts & ℔s	75	@	90
Sanner fine cut	—	@	90
Eureka Cals	8 75	@	9 00
TURPENTINE.			
Eastern	60	@	65

METALS.

WEDNESDAY M., Sept. 9, 1874.

There is nothing new in the Metal market Pig Iron is weak, with Oregon selling at $14@$15 ℔ ton, as against $15@$17.50 for Scotch. Quicksilver is steady at $1.45 ℔ ℔.

American Pig Iron, ℔ ton	—	@	42 00
Scoten Pig Iron, ℔ ton	45 00	@	47 50
White Pig, ℔ ton	—	@	42 00
Oregon Pig, ℔ ton	—	@	45 00
Refined Bar, ead assortment, ℔ ℔	—	@	— 3½
Refined Bar, good assortment, ℔ ℔	—	@	— 4
Boiler, No. 1 to 4	—	@	— 5¾
Plate, No. 5 to 9	—	@	— 5½
Sheet, No. 10 to 13	—	@	— 5¾
Sheet, No. 14 to 20	—	@	— 6¾
Sheet, No. 24 to 27	— 08	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9½	@	—
Norway Iron	8	@	—
Rolled Iron	6	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Brazers'	— 31	@	— 32
Copper Tin'd	— 45	@	— —
O. Nail's Pat	— 50	@	— —
Sheathing, ℔ ℔	—	@	— 24
Sheathing, Yellow	—	@	— 25
Sheathing, Old Yallow	—	@	— 12½
Composition Nails	— 24	@	— —
Composition Bolts	— 24	@	— —
TIN PLATES.—			
Plates, Charcoal, IX ℔ box	13 00	@	14 50
Plates, I O Charcoal	12 75	@	14 50
Roofing Plates	11 50	@	14 00
Banca Tin, Slabs, ℔ ℔	— 31	@	— 33
STEEL.—English Cast, ℔ ℔	— 20	@	— 25
Anderson & Woods' American Cast	— 10	@	— 17
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC.	—	@	— 11½
Zinc, Sheet	—	@	— 11½
NAILS—Assorted sizes	— 5¾	@	— 8
QUICKSILVER, per ℔	—	@	1 45

LEATHER.

WEDNESDAY M., Sept. 9, 1874.

Leather is now in tolerably brisk demand, for local makes as well as imported. We have no further changes in quotations.

City Tanned Leather, ℔ ℔			25@28
Santa Cruz Leather, ℔ ℔			27@29
Country Leather, ℔ ℔			24@28
Stockton Leather, ℔ ℔			27@29
Jodot, 8 Kil., per doz	$9 00	@	54 00
Jodot, 11 to 19 Kil., per doz	6 00	@	90 00
Jodot, second choice, 11 to 16 Kil. ℔ doz	55 00	@	72 00
Cornellian, 12 to 16 Ko	57 00	@	67 00
Cornellian Females, 12 to 13	60 00	@	64 00
Cornellian Females, 14 to 16 Kil	66 00	@	74 00
Beaumerville, 15 Kil	60 00	@	— —
Simon, 13 Kil., ℔ doz	61 00	@	63 00
Simon, 20 Kil., ℔ doz	65 00	@	67 00
Simon, 24 Kil., ℔ doz	72 00	@	74 00
Robert Calf, 7 and 9 Kil	25 00	@	40 00
French Kips, ℔ ℔	1 00	@	1 55
California Kip, ℔ doz	40 00	@	8 00
French Sheep, all colors, ℔ doz	8 00	@	15 00
Eastern Calf for Backs, ℔ ℔	1 00	@	1 25
Sheep Roans for Topping, all colors, ℔ doz	9 00	@	13 00
Sheep Roans for Linings, ℔ doz	5 50	@	10 50
California Russett Sheep Linings	1 75	@	4 50
Best Jodnt Calf Boot Legs, ℔ pair	5 00	@	5 25
Good French Calf Boot Legs, ℔ pair	4 00	@	4 75
French Calf Boot Legs, ℔ pair	4 00	@	— —
Harness Leather, ℔ ℔	30	@	37½
Fair Bridle Leather, ℔ doz	48 00	@	72 00
Skirting Leather, ℔ ℔	34	@	37½
Welt Leather, ℔ doz	30 00	@	50 00
Stiff Leather, ℔ foot	18	@	21
Wax Side Leather, ℔ foot	17	@	19
Eastern Wax Leather	—	@	— —

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BY OTHER AUTHORS.

The Quartz Operator's Hand-Book; by P. M. Randall. 1871. Revised and Enlarged Edition. Cloth bound, 175 pages. Price, $2.

Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked; with a Chapter on the Blow-Pipe Assay of Minerals. By Wm. M. Barstow, M. D.; 1867; cloth bound, 114 pages. Printed and sold by DEWEY & Co. Price, $1; postage free. The best written work, and most complete work on the subject treated.

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All Policies issued by this Company, and the proceeds thereof, are exempt from execution by the laws of California. THE ONLY STATE IN THE UNION that provides for this exemption.

☞Policies issued by this Company are non-forfeitable, and all profits are divided among the insured.

Policies may be made payable in Gold or Currency, as the applicant may elect, to pay his premium.

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Subscribers for this journal can obtain our Patent Elastic Newspaper File Holder and Binder for $1.50—containing gilt title of the paper on the cover. It preserves the papers completely and in such shape that they may be quickly fastened and retained in book form at the end of the volume, and the binder (which is very durable) used continuously for subsequent volumes. Post paid, 25 cts. extra. It can be used for Harper's Weekly and other papers of similar size. If not entirely pleased, purchasers may return them within 30 days. Just the thing for libraries and reading rooms, and all who wish to file their PAPERS. lamhp

Cazin's Combination Ore-Sizer and Concentrator—One Plunger System.

[Covered by Letters Patent of July 2d, 1872, and recent applications.]

Containing a sizing apparatus, (revolving screen) delivering four sizes of ore to four rows of sieves, each row independent of the other, and each having 5 sieves, each row concentrating according to specific gravity the special size automatically fed unto it, resulting in the simultaneous continual delivery of separated materials, working 2d and 3d-class ores into 1st-class ores of perfect cleanness. It thoroughly separates native gold or copper from quartz or any other loda matter;—galena and silver sulphurets from pyrites, baryta end quartz; and pyrites from quartz.

Added to a battery of stamps this machine constitutes a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 12 or 15 tons per 24 hours.

For particulars apply to,

F. CAZIN, M. & C. E.

At Denver, Colorado. Lock-Box 2225, or 243 Sixteenth street. ag8-16p

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect July 1st, 1874, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Black Mountain Coal Mining Company.

Principal place of business, City and County of San Francisco, Cal. Location of works, Santa Cruz County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 28th day of August, 1874, an assessment of 5 cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 402 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 2d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

F. H. WELLS, Secretary.

Office—No. 402 Montgomery street, room No. 23, San Francisco, Cal. sep5

Eagle Quicksilver Mining Company.—

Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—Is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of July, 18 4, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 8, No. 302 Montgomery street, San Francisco, California. Any shares upon which said assessme t shall remain unpaid on Monday, the 21st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Saturday, the 26th day of September, 1874, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H WATSON, Secretary.

Office, Roome 5 and 8, No. 302 Montgomery street, San Francisco. jy-25

El Dorado North Mining Company---Location of principal place of business, 215 Sansome street, room No. 2, San Francisco, Cal. Location of works, Philadelphia District, Belmont, Nye County, Nevada.

Notice is hereby given, that at a meating of the Board of Directors, held on the 4th day of August, 1874, an assessment (No. 1) of fifty cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 215 Sansome street, room 2, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the 15th day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on sixth (6th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Directors. GEO. E. HOUGHTON, Secretary.

Office—No. 215 Sansome street, San Francisco, Cal.

NOTE.—Since levying the above assessment, the office of the El Dorado North Mining Company has been removed to room No. 4, Hayward's Building, No. 419 California street, San Francisco, Cal., and said assessment is made payable to the undersigned, who has been duly appointed Secretary of said Company. FRANK SWIFT, Secy.

Electric Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 3d day of September, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 4th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—No. 318 California street, San Francisco, Cal. Room No. 13. sep5

Germania Mining Company—Location of

principal place of business, San Francisco, State of California. Location of works, Tintic District, Juab County, Utah Territory.

Notice is hereby given that at a meeting of the Directors, held on the fifth (5th) day of August, 1874, an assessment (No. 2) of one dollar per share was levied upon the capital stock of the company, payable immediately, to the secretary, at the office of the Company, 408 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the twelfth (12th) day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the second (2d) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. W. TRIPP, Secretary.

Office—No. 408 California street, room 16, San Francisco, Cal. ag15

Kincaid Flat Mining Company—Principal

place of business, San Francisco, California. Location of works, Sonora, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 18th day of August, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 217 Sansome street, San Francisco Cal.

Any stock upon which this assessment shall remain unpaid on the 21st day of September, 1874, will be delinquent, and advertised for sale at public auction and unless payment is made before, will be sold on Monday, the 12th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office, 217 Sansome street, (up stairs,) San Francisco, California. ag22

Manhattan Marble Company of California.

Location of principal place of business, San Francisco, California. Location of works, Oakland, Alameda County, State of California.

Notice is hereby given, that at a meeting of the Directors, held on the 26th day of August, 1874, an assessment (No. 5) of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary of the company, at his office, No. 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 28th day of September, 1874, shall be deemed delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 20th day of October, 1874, at 12 o'clock M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. A. B. CLASON, Secretary.

Office—No. 212 Sansome street, San Francisco, California. ag29

Providence Gold and Silver Mining Company.

Location of principal place of business, San Francisco, State of California. Location of works, Leasen county, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 10th day of July, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
E C Brown, Trustee	128	47	$4 70
E C Brown, Trustee	161	50	5 00
B C Whiting, Trustee	159	100	10 00
B C Whiling, Trustee	160	100	10 00
B C Whiting, Trustee	161	100	10 00
B C Whiting, Trustee	162	100	10 00
B C Whiting, Trustee	163	100	10 00
B C Whitiog, Trustee	184	250	25 00
B C Whiting, Trustee	165	250	25 00
B C Whiting, Trustee	166	132	13 20
A D Hatch, Trustee	118	200	20 00
Jas McLaughlin, Trustee	57	500	50 00
Harvey S Brown, Trustee	189	67	6 70
F P Howard	116	14	1 40
Henry Raymond, Trustee	150	114	11 40
Henry Raymond, Trustee	177	1000	100 00
Henry Raymond, Trustee	178	500	50 00
Henry Raymond, Trustee	179	198	19 80
Heary Raymond, Trustee	180	255	25 50
J H Kingsley	181	28	2 80
Cornelius Cole	188	100	10 00
Cornelius Cole	169	100	10 00
Cornelius Cole	170	83	8 30
John R Spring, Trustee	157	1000	100 00
John R Spring, Trustee	158	1000	100 00
D W Frary	171	100	10 00
Jas McLaughlin, Trustee	103	1000	100 00
Jas McLaughlin, Trustee	104	500	50 00
Jas McLaughlin, Trustee	105	250	25 00
Jas McLaughlin, Trustee	106	250	25 00
Jas McLaughlin, Trustee	107	100	10 00
Jas McLaughlin, Trustee	108	100	10 00
Jas McLaughlin, Trustee	109	50	5 00
Jas McLaughlin, Trustee	110	50	5 00
Jas McLaughlin, Trustee	111	40	4 00
Jas McLaughlin, Trustee	112	37	3 70
Jas McLaughlin, Trustee	142	25	2 50
Jas McLaughlin, Trustee	143	25	2 50
Jas McLaughlin, Trustee	144	25	2 50
Jas McLaughlin, Trustee	145	38	3 80
M L Morrison	114	25	2 50
S A Stevens	121	13	1 30
W J Miller, Trustee	129	12	1 20
W J Miller, Trustee	130	500	50 00
W J Miller, Trustee	131	500	50 00
W J Miller, Trustee	132	500	50 00
W J Miller, Trustee	134	100	10 00
W J Miller, Trustee	135	100	10 00
W J Miller, Trustee	136	100	10 00
W J Miller, Trustee	141	100	10 00
Solomon Heydenfelt	188	566	56 60
W H Knight, Trustee	190	57	5 70
Henry Raymond, Trustee	191	14000	1400 00
James Mee, Trustee	192	1000	100 00
T E Marks, Trustee	113	142	14 20
A D Bell	147	14	1 40
L Visarla	116	28	2 80
H C Blake	117	200	20 00
S A Raymond, Trustee	120	1415	141 50

And in accordance with law, and an order of the Board of Directors, made on the 19th day of July, 1874, so many shares of each parcel of such stock as may be necessary, will be sold at public auction, at the office of Middleton & Son, Auctioneers, 310 Montgomery street, San Francisco, on Monday, the 7th day of September, 1874, at the hour of 2 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

WM. H. KNIGHT, Secretary.

Office—331 Montgomery street, Room 18, San Francisco, Cal.

POSTPONEMENT.—The above sale is hereby postponed until the fourteenth day of September, 1874, at the same hour and place. By order of the Board of Trustees. WM. H. KNIGHT, Secretary. ag29-2t

Saw Pit Flat Gravel Mining Company

Consolidated.—Location of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Plumas County, Cal.

Notice is hereby given, that at a meeting of the Directors, held on the 17th day of August, 1874, an assessment (No. 1) of five dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the 21st day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Thursday, the 15th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, California. ag22

Tuolumne Hydraulic Mining Company.

Principal place of business, City and County of San Francisco, State of California. Location of works, Tuolumne county, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 19th day of August, 1874, an assessment of twelve and one-half (12½) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, room 14, 302 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 21st day of September, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the twelfth (12th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. I. T. MILLIKEN, Secretary.

Office, 302 Montgomery st., San Francisco, Cal. ag22

Machine Builders.

THE RISDON
Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streete,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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LEWIS R. MEAD.....Secretary
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MANUFACTURERS OF

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RAILROAD AND OTHER IRON
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Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
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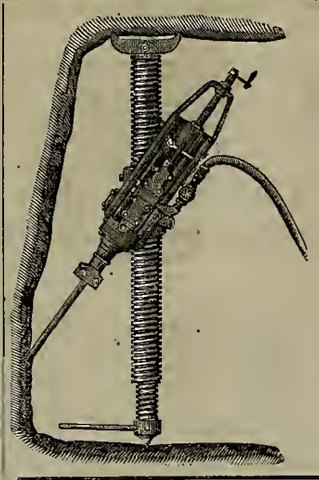

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Sample machinery can he seen and further information given, by applying to

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DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	5	6	6	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches	2	2½	3	3½	3½	4	5	6	7	9	10½	12
Stroke of Piston, in inches	6	6	7	7–10	9–10	1 1–6	2 1–6	3¾	4¾	5	6	7
Capacity per double Stroke, in gallons	1–6	⅜	⅜	⅜	1	1	1½	2	3	4	5	6
Capacity at ordinary Speed, per minute	10	15	25	35	46	60	80	110	140	270	335	400
Maximum Capacity	30	45	80	100	135	165	240	300	380	675	900	1200
Boilers in horse power they will supply	25	40	80	120	150	225	360	425	600	...	...	...
Size of Steam Pipe, in inches	⅜	½	¾	¾	1	1¼	1½	1¾	2	3	3	4
Size of Exhaust Pipe, in inches	½	¾	1	1	1¼	1½	2	2½	3	4	5	6
Size of Suction Pipe, in inches	1	1¼	1½	1½	2	2½	3	3	4	5	6	8
Size of Discharge Pipe, in inches	¾	1	1¼	1¼	1½	2	2½	3	3	4	5	6
Weight of Pump, in pounds	185	235	405	405	810	875	1150	1500	1919	2450	3375	4800
Length over all, in feet and inches	3–4	3–4	3–10	3–10	4–11	4–11	5–4	5–6	5–6	6–10	7–7	8
Height over all, in feet and inches	1–0	1–0	2–3	2–3	3–1	3–1	3–7	4–3	4–3	4–7	5–7	6
Width over all, in feet and inches	1–6	1–9	1–1	1–1	1–3	1–4	1–6	1–10	1–10	2–1	2–9	2–10

PRICE.....$ 25 40 80 120 150 225 360 425 600 ... ...

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS, No. 4, 24-in. Stroke, $
No. 5, 24-in. " $
No. 6, 30-in. Stroke, $
No. 7, 30-in. Stroke, $
No. 8, 36-in. " $

* These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

BAILEY'S PATENT ADJUSTABLE PLANES.

THIRTY DIFFERENT TYLES.

Smooth, Jack, Fore, Jointer, Block and Circular Planes.

MANUFACTURED OF BOTH
IRON AND WOOD.

OVER
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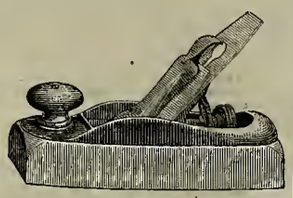
Already Sold.



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Machinery and Castings of all kinds.

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Manufacturers of Quartz and Amalgamating Machinery, Hoisting Machinery, Saw and Grist Mill Irons, House Fronts, Car Wheels, and Castings of every description made to order.
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John W. Quick, Manufacturer,

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Screen Punching of all kinds and qualities for

QUARTZ AND FLOUR MILLS,

AT EASTERN RATES.

I would call special attention to my slot cut and punched screens, which re attracting much attention and giving universal satifaction. I was the first manufacturer who introduced these Screens to the Millmen on this Coast. This is the only establishment on the Coast devoted entirely to the manufacture of Screens.
Mill Owners using battery Screens extensively can contract for large supplies at favorable rates.
☞ Ordars solicited and promptly attended to.
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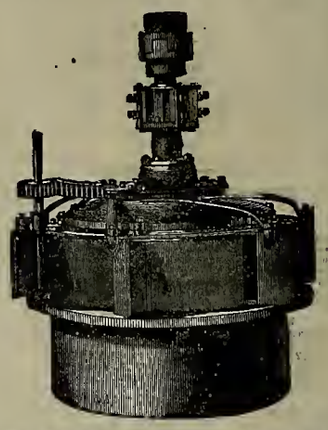
Machinery.

THE
AMERICAN TURBINE WATER WHEEL



Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ⅜ 69.64; ½ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whola gate, 83.14.

Mr. Emmerson says: "Theee are the best average reeulte ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

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Sole Agents for the Pacific States and Territories.
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BALL'S
SWEEPING DREDGE,

A NEW AND VALUABLE
CALIFORNIA INVENTION,
Hae been very lately well proven by per forming a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is but this one machine that bas ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported hy leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a *basis* of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus drodged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

Address, JOHN A. BALL,
9v28-tf Oakland.

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BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st., between Fremont and Beale, San Francisco

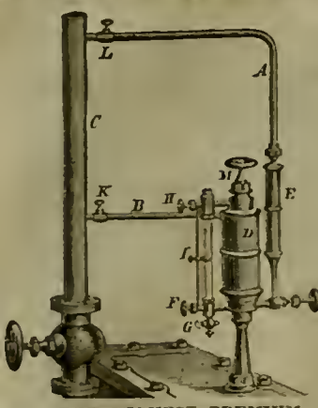
THEODORE KALLENBERG.
MACHINIST,

and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.
Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

STEAM ENGINES AND BOILERS

Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by
10v27tf J. HENDY, No. 32 Fremont Street.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe H into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted t give satisfaction. Patented February 14, 1871. Man factured by California Brass Works, 125 First street, S F. 24v23tf

EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)

The Cheapest and Most effective Furnace now in use Parties desirous of building above furnace, or for any information on same, address,

I. T. MILLIKEN,
a31 No. 302 Montgomery st., room No. 14, S. F.

STEEL SHOES AND DIES

FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are recognized for *Strength, Durability, and Economy.*

Die. Shoe

Will wear three times longer than any iron Shoes

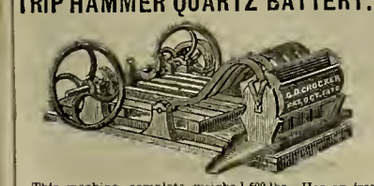
BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.

All orders promply filled.

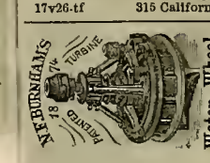
MOREY & SPERRY,
88 Liberty street, N. Y.
Examination solicited. 9v28-1y

CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 200 blows per minute, in a mortar provided with screens on both sides, and crushes FIVE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

G. D. CROCKER,
17v26-tf 315 California street, San Francisco.

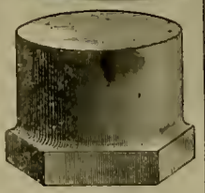


Water Wheel. The best in the Market, and sold at less price than any other first-class Wheel. ☞ Send for a Pamphlet and be convinced.

WM. F. BURNHAM,
York, PA.
6v29-4m

Improved Cast and Forged STEEL SHOES & DIES FOR QUARTZ MILLS.

[PATENTED MAY 26TH, 1874.]



To Superintendents of Quartz Mills and Mining Men Generally.

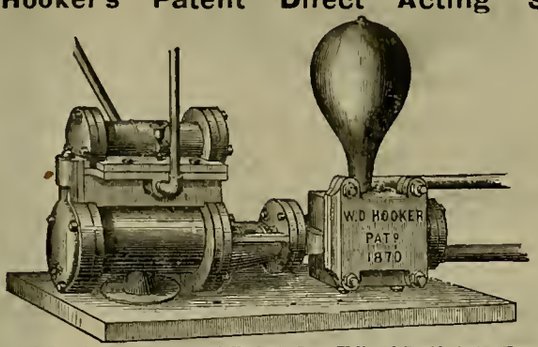
We guarantee these SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper. They are gradually coming into use in all of the principal mills on this coast.

Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by abscuce of iron dust and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.

Address all orders, with dimensions, to

CAST STEEL SHOE & DIE CO.,
Room 1, Academy Building, San Francisco.
1v29-3m

Hooker's Patent Direct Acting Steam Pump.



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Cor. Fremont & Natoma streets, S. F.,

Sole Proprietor & Manufactnrer for the Pacific Coast.

SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.

The Best Pump in Use.

☞ SEND FOR CIRCULAR

N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump. Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco. 18v27-2am3m

THE SELDEN

DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.

Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

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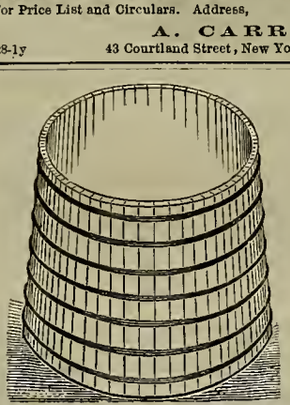

WATER TANKS of any capacity, made entirely by machinery. Material the best in use; construction not excelled. Attention, dispatch, satisfaction. Cost less than elsewhere.

WELLS, RUSSELL & CO.,
Mechanics' Mills, Cor. Mission & Fremont Streets.
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NONPAREIL OIL.

140 Degreee Fire Teet, for Family Uee.

OWNERS OF MILLS AND MANUFACTORIES, your attention is particularly called to this beautiful and safe ILLUMINATING OIL. Its use is urgently recommended by the New York Fire Commissioners and Insurance Companies. For sale to the trade in lots to suit. A. HAYWARD, 224 California St.
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Glasgow Iron and Metal Importing Co.

Have always on hand a large Stock of
Bar and Bundle Iron, Sheet and Plate Iron
Boiler Flues, Gaeand Water Pips, Cast Steel, Plow and Shear Steel, Anvils, Cumberland Coal, Etc.

WM. McCRINDLE, Manager, 22 & 24 Fremont St., S. F.
m6-m2

Metallurgy and Ores.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

ASSAYERS' MATERIALS

Chemical Apparatus and Chemicals.

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We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Proepsctors, etc., to our large and well adaptsd stock o

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Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at diffsrent degrees of finenssa, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

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Orss worked by any process.
Ores sampled.
Assaying in all its branches.
Analysis of Ores, Minerals, Watsrs, etc.
Plans furnished for the most snitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

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Important to Miners and Mill Men.

Silver-Platsd Coppsr Amalgamating Platss, for Saving Gold.

Of all sizes and in any quantity, furnished to order. Full instructions sent for operating. Particular attention given to plating goods for Builders, Plumbers, etc. Hotel and Restaurant work replated.

SAN FRANCISCO GOLD AND SILVER PLATING WORKS,
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PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc

For all Laboratory and Manufacturing Purposes
H. M RAYNOR,
25 Bond street, New York.
Platinum Scrap and Native Platinum purchased.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Opsratss as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphsry into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street,
San Francisco

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF ORES.
4v16-3m

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical CHEMIST,

No. 611 Commercial Street,

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G. W. STRONG. W. L. STRONG.

STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

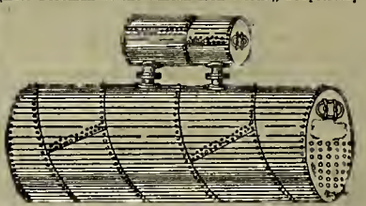
We purchase bigh grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Coppsr, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

San Francisco Boiler Works,

123 and 125 Beale Street.....SAN FRANCISCO

F. I. CURRY,

(Late Foreman of the Vulcan Iron Works,) Proprietor,



High and Low Pressure Boilers of all Descriptions.

SOLE MANUFACTURERS OF THE CELEBRATED

SPIRAL BOILER.

SHEET IRON WORK of every description done at the Shortest Notice.

All kinds of JOBBING and REPAIRING promptly attended to. 17v25-3m

FRANCIS SMITH & CO.,

MANUFACTURERS OF

HYDRAULIC PIPE

AND

Artesian Well Pipe.

Having the Latest Improved Machinery, we can make it an object to

Mining & Water Companies

OR

WATER WORKS,

TO CONTRACT WITH US FOR

SHEET IRON PIPE.

ALL SIZES MADE AND ALL WORK GUARANTEED

OFFICE AT 112 BATTERY ST.,

SAN FRANCISCO. ja3-tf

FRENOH MUTUAL PROVIDENT SAVINGS AND LOAN SOCIETY.

TWENTY-NINTH SEMI-ANNUAL DIVIDEND.—A dividend of nine per cent. per annum, net (9 per cent.), upon the operations of the French Savings and Loan Society for the six months ending June 30th, 1874, has, in conformity with the report of the Committee of Verification appointed by the members of the Society, been declared by the Board of Administration, at the semi-annual meeting held on the 15th instant. This dividend will be payable on and after the 17th instant, at the office of the Society, 411 Bush street. GUSTAVE MAHE,
ag15-4t Director of French Savings Bank.

THE KNOX & OSBORN QUICKSILVER FURNACE.

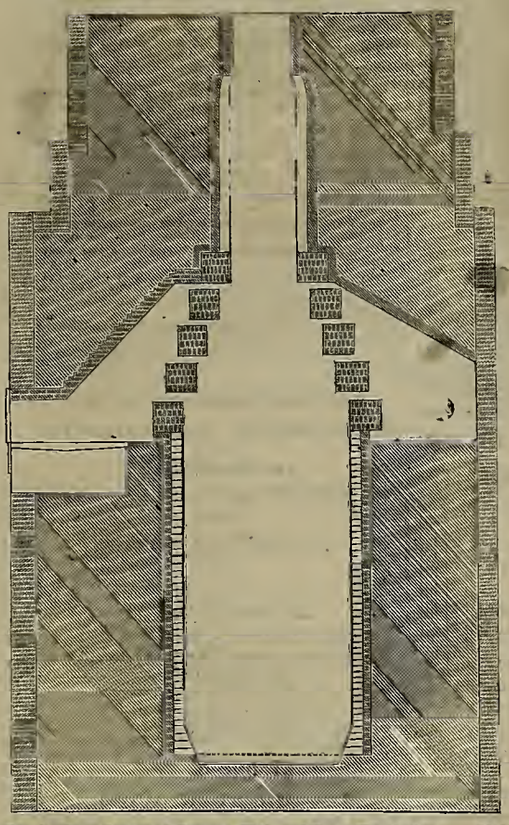


Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches. 16v28-eow-3m-16p

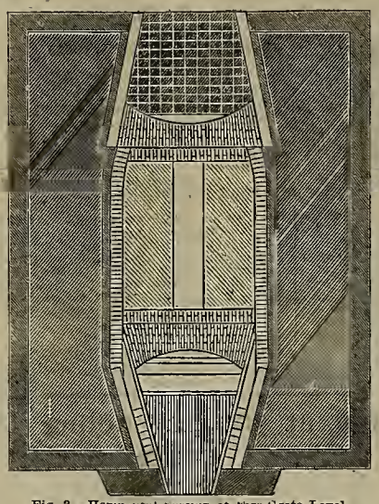


Fig. 3.—Horizontal Section at Fire-Grate Level.

THIS FURNACE REDUCES CINNABAR, AND

WORKS CLOSER TO AN ASSAY

And at **LESS COST** per ton than any other furnace. It will work continuously Twelve to Twenty-four months without stopping.

No Man Has Ever Been Salivated

Or otherwise affected by the mercury about the furnace, either in operating it or making repairs. For full particulars, plans, etc., apply at

19 AND 21 FIRST STREET, SAN FRANCISCO,

TO **KNOX & OSBORN.**

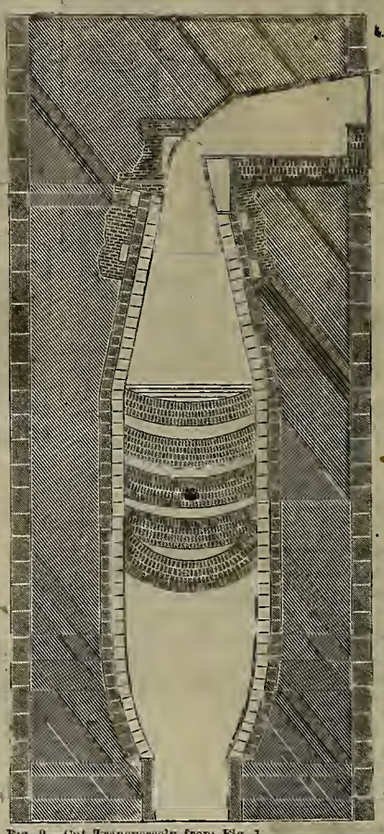


Fig. 2.—Cut Transversely from Fig. 1.

GIANT POWDER.

Patented May 26, 1868.

THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,

For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.

GIANT POWDER, NO. 2,

For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.

☞ The only Blasting Powder used in Europe and the Eastern States.

BANDMANN, NIELSEN & CO.,
General Agents, No. 210 Front Street.

v22-3m16p

W. T. GARRATT.

CITY

Brass and Bell Founder,

Corner Natoma and Fremont Streets,

MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Meta

CASTINGS,

Church and Steamboat Bells,

TAVERN AND LAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

N. W. SPAULDING,

Saw Smithing and Repairing

ESTABLISHMENT.

Nos. 17 and 19 Fremont Street, near Market.

MANUFACTURES OF

SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect.

Particular attention paid to construction of

Portable & Stationary Saw Mills.

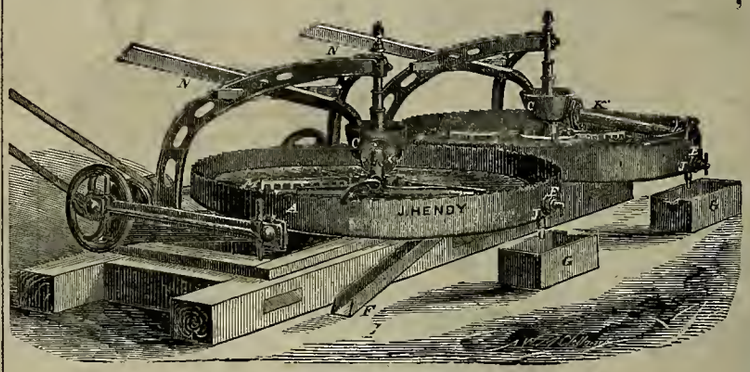
MILLS FURNISHED AT SHORT NOTICE

At the lowest Market Prices.

OVER $3,500 PER MONTH SAVED

BY THE USE OF

Hendy's Improved Amalgamator and Concentrator,



Can be seen at the Manufactory, No. 32 Fremont Street, San Francisco.

SAN FRANCISCO, April 27, 1872.

JOSHUA HENDY, Esq.—*Dear Sir*:—As a practical miner and millman, I take pleasure in recommending the use of your Concentrators in all mills where gold or silver ores are reduced. No mills should be without them, for the following reasons.

1st. They are good sizers (no perfect concentration in pulverized ores can be effected without first sizing).

2d. The best Concentrator I have ever known—(the concentrated stuff only containing 5 per cent. of sand).

3d. They are good amalgamators, light (feathery) particles of amalgam and particles of coated gold by attrition are brightened, and from their specific gravity and the action of the pan, fall to the bottom and adhere.

4th. They require but little power and attention to run them, and with ordinary care will last for years.

I have been familiar with the workings of your Concentrators for four years past; have run them myself in the North Star Mine, Grass Valley; am familiar with their practical workings on the Empire Mine, Grass Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this testimonial. For further information you are at liberty to refer to,

Yours respectfully,
JAS. H. CROSSMAN, M. E.

409 California street, or Cosmopolitan Hotel.

SAN FRANCISCO, February 10, 1874.

OFFICE SUPERINTENDENT OF KEYSTONE CON. M. CO., AMADOR, AMADOR COUNTY.

MR. J. HENDY—*Dear Sir*:—In answer to your inquiries as to your Concentrators furnished our company last July, I would say that I am more than pleased with them; and the saving to the company has been over $3,500 per month more than with the blankets and huddles formerly in use.

O. C. HEWITT, Supt.

OFFICE SUMNER MINE, KERNVILLE, April 27, 1874.

J. HENDY, Esq.—*Dear Sir*: Having four of your Concentrators in use at our Mills for four or five months, which for saving Amalgam and for concentrating Sulphurets, are a success, beyond a doubt, I feel it a duty due you and those interested in Quartz Mills, to recommend them.

As further evidence of their worth, I now order TWELVE more of your Machines for our new Mill, now in course of erection.

E. R. BURKE, Superintendent.

For description send for Circular.

JOSHUA HENDY, San Francisco.

Office and Works, 32 Fremont street. 9v28-1m-tf

PULLED RAWHIDE

BELTING, LACING, ROPES & CHORDS.

Made by H. ROYER,
437 Brannan Street, S. F.

19v27-eow-16p

FOR SALE.

One 20 and one 10-Stamp Quartz Mill with Hoisting and Pumping Engines, Pumps, Columns, Tubs, Cars, &c., good as new.

A. L. FISH,
tf 9 and 11 First St., S. F.

MINERS write for your paper.

MAGAZINES.	P. An.
Harper's	$4 00
Atlantic	
Godey	
New York Ledger	
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Hours at Home	
Good Words	
Peterson's	3 00
Arthur	
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Harper's Weekly	5 00
Chimney Corner	
Literary Album	
London Society	6 00
All the Year Round	
London Ill. News	15 00

W. E. LOOMIS,

News Dealer

AND STATIONER,

S. E. corner of Sansome and Washington streets,

SUPPLIES ALL

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PURCHASERS please say advertised in Scientific Press.

THE PACIFIC REDUCTION WORKS.

GUIDO KUSTEL, - - - Superintendent.

WILL PURCHASE GOLD AND SILVER BEARING ORES, CUPERIFEROUS SILVER ORES, GOLD SULHHURETS, ETC., AT THE HIGHEST RATES, OR WORK THE SAME FOR ACCOUNT OF OWNERS.

Office, 210 Front Street, San Francisco.

4v29-6m-16p

MINING AND SCIENTIFIC PRESS

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, SEPTEMBER 19, 1874.

VOLUME XXIX Number 12.

Improved Condenser for Quicksilver Fumes.

Quicksilver mining in Oallfornia hae within the past year assumed a poeition of great importance. The scarcity and high price of quicksilver has stimulated prospectors to renewed exertions, and hundreds of new mines have been found. The great queetion with all these mines is, which are tho best of the many furnaces and condensers in the market, as eo much depends on the appliances for working the ore. Several new forms of condensers and furnaces have been brought forward hy inventors since the "quicksilver excitement" began, bnt none of these have brought about any radical change in the method of working ore. More fault is found, probably, with the condensers in nee than with the furnaces, and any improvement which will make these articles more effective in their operation, is a boon to all miners.

We illustrate thia week an improvement in this direction, recently patented through the MINING AND SCIENTIFIC PRESS Patent Agency, by James B. Randol, enperintendent of the New Almaden quicksilver mines, and Ferdinand Fiedler, foreman at the aame mines. Both of theae gentlemen have had extensive experience in the reduction of cinnabar ore, and have experimented in every direction, with a view to improve aa far as possible the appliances and methods employed. They have discovered that the condsneation of mercurial fumea is very much accelerated when they are brought in contact with the inside of a glass plate, when the outside of the plate is exposed to tbe outaide atmosphere. Ths glass is arranged in a wooden tank hereafter deecribed. The wooden tank will last longer than metal, as the fumes do not act npon and destroy it.

The tank or vessel for condensing the fumea can bs made in any deaired form, that ehown in the engraving being quite convenient. It is made of wood and numerous openinge are loft in its sides and ends, which are covered with windowe or panea of glaea set in a frame The openings, B, all except thoee in immediato contact with the floor of the condenaer, are coostructed as shown in Fig. 2; a frame, L, is made large enongh to receive the window aash or platea of glaes. The four outaide edgee of the frame are grooved, as at O, to receive the planka which form the aiding of the condeneer, thus atrengthening the condeneer and preventing the planks from warping.

The upper rail of thia frame haa one or more openings, i, leading from the groove to the ineide of the condenser, thus providing a roadway for the quicksilver, which condenaes on the inner side of the tank, and which will naturally follow down the wall and drop through eaid opening to the floor of the tank. The inner edges of this frame have on their upper and aide edgeaa flange, against which the window sash or pane of glasa rests, and into the upper edge of the lower eill of the frame a groove, S, is cut, in which the window eash sets. This groove has one or more openinge, i, eimilar and for the eame purpoee ae the openinge, i, above described. A cross har, T, which ie eecnred on one eidge of the frame by an open mortise, and on the opposite side by a similar mortise, with the eide of tho frame haveled to make said bar slide easily, faatena the wiudow sash in its place; or any other snitable fasteniug can be ueed.

The framea which rest on the floor of the condenser are construoted in the eame manner as those already described, with the exception that the lower rail or sill of the frame is leit out and the wiudow sash reets directly on the floor of the condenser. The lower edge of the saeh is perforated with two or more openings through which the quicksilver condeneed in the tank makes ita exit into a euitable gutter, which conducts it to the receiving tank.

The floor of the tank is built on an incline, having its apex in the center of the same, and aloping to hoth sidee on an inclination which ahould not be less than two inchee to the foot. The tank is provided with interior wooden partitions, which are eo arranged ae to provide alternate openings or passagea above and below, in the ordinary manner of arranging the partitions of a condenser. The outside edges of the partitions and end sidings of the tank are fitted into upright grooved timbers; and if tongued and grooved hoards are used for forming the partitions and ends of the tank, the nails which fasten them together are driven into the tongne of each plank and covered hy the groove of the next plank.

The sides of the condensing tank are fastened to the onter edge of the grooved timbere, and the whole is hound together by strong scantlinge, W, placed vertically against the different divisions or partitions outside of the tank, and eecnred hy metallic rods or holts, e, and nnts, f. The holte or rods pase transversly acroes the tank from side to eide throngh each partition, and are protected from the action of the fumes hy a grooved timber through which they pass, and which is covered again hy the plank of the partition. The rods which secure the corner timbera pass along the outeide ends of the tank. The fumes enter the tank at the rear end and pass ont through the opening, G, to anothor tank, or to other condeneing apparatns.

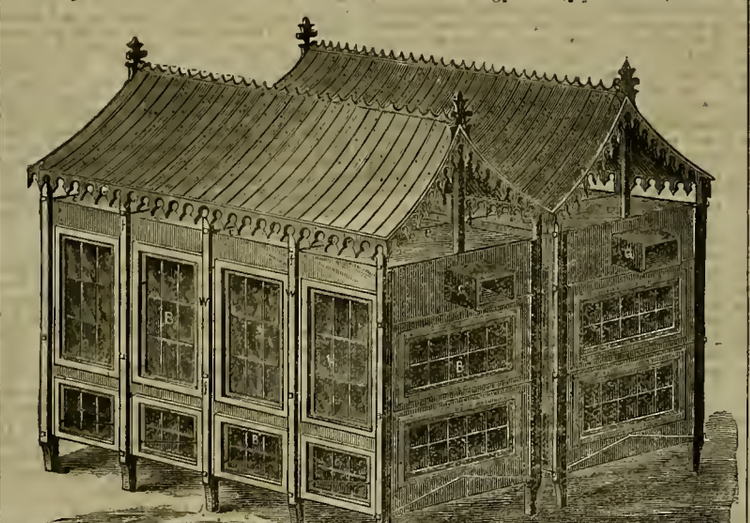
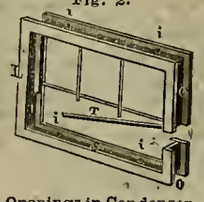


FIG. 1. RANDOL & FIEDLER'S QUICKSILVER CONDENSER.

A wooden tank of this character will last longer than a metal tank, aa the fumes do not act npon or deetroy it. Theee condenaere can he made at very emall coat when compared with the metallic tanks now in uee; and condensation ie very thoroughly accomplished in in it without the necessity of any water ae a hath or cooling agent.

Fig. 2.



Openings in Condenser.

Aa to the well proved value of wooden coudensers we extract the followiog from "Notes of a Metallurgical Journey in Europe," by J. A. Church, M. E. Writing of the condensation chambers at Valalto, Italy, he says: "Theee chambers, which are placed beyond the tnbes, are lined with wood. The wood not only forme a perfectly tight lining, hut it afforda cleaner mercury, and also more of it during the campaign, from the fact that less metal and soot cling to the emooth wooden snrface than to a cemented wa'l. After many experiments with oements, bricke, etc., thia material hae been found the best."

Of the tubea leading from the chambers he says: "The tnhee are of wood. Iron tnbes were formerly used, but they made a great deal of trouble, being rapidly eaten hy the enlphnrons acid vapore. They had to be turned every 12 or 18 months, and entirely renewed in 2 or 3 years Though the wood tubes are kept constantly wet, their durability is much greater than that of iron, and I believe they have been renewed only once in twelve yeare. A main fault of the iron tnbes is that the soot obtained from them is contaminated with iron dnst and iron oxides, which makes the eeparation of the mercury from the soot more difficnlt, and aleo introduces a certain amount of iron into the feet of condeneing epace, and 4,784 square fect of condensing surface, all erected at a cost of only $1,500 for materiala and constrnctiou.

At New Almadan the condeneers of wood and glass, snch as we have described, require no water for cooling, as the glass performs that service in a more satiefactory manner. For some time they have had in nee the patented coudeneers of Messrs. Fiedler and Randol, and find them to he enperior to all others in the efficiency of their working and the leseened cost of construction. Four condensers lately erected there have each a condeneing space of 2,640 cubic feet, and 1,196 square feet of ontside coudensing surface, a total of 10,560 cubic feet of condeneing epace, and 4,784 square fect of condensing surface, all erected at a cost of only $1,500 for materiala and constrnctiou.

HERMANN SCHUSSLER, chief engineer of the Spring Valley Water Works Co., accompanied by his wife and family, started for the East and Europe by the overland traiu one day this week. During his trip Mr. Schuesler will visit all the chief Easteru cities and thoso of England, Ireland, Scotland, Germany, France, Italy, Austria, Turkey and Egypt, for the purpoee of inspecting all the great engineering achievements in those countries. Particular attention will be paid to the departments of hydraulics and drainage. The tour will extend over a period of six months. Mr. Schuesler is well known in the mining districte from bis connection with several ditch enterprises. He waa engineer of the Virginia and Gold Hill Water Worke, an engineeriug enterprise of great difficulty.

A MEETING of the Nevada Pioneers was held Tuesday evening at National Guard hall, Virginia city. A constitution and by laws were adopted, and the following permanent officere were elected: President, Jacob Young, Jr.; Vice Presidents, Thomas Careon, G. L. Hawkee and John Dohle, of Virginia City; J. A. Winterhaner and C. Cook, of Gold Hill; Secretary, E. W. Kuster; Treasurer, Geo. Mann; Marshal, Thos. Kelly; Board of Directors, C. J. Fogg, William McQuirok, A. J. Smith and Wm Coryell.

CINNABAR diacoveriee continne to be made in Sonoma county with encouraging frequency. A company is prospecting on Malone'a ranch, Sonoma mountain, about ten miles from Petaluma. There are good indicatione.

THE Liberty mine at Eureka, Nevada county, is about to be sold to San Francisco partiea. New hoisting works are soon to be erected so that the mine may he thoroughly opened.

Work at the Foundries.

For the past three yeare the husiness depreesion generally has been severely felt at the foundries and machine shops in this city, and business has been comparatively dull. Of course they have all been running, hut have seldom been crowded with work. Of late, however, they have hed their hands full, and are as husy as possible. This summer hae been an exceptional one among them, and the nnivereal answer about work is, "very huey."

There has been a large increase of late in substantial huildinge, which require iron in their construction, and thie item alone furniehes conaiderahle work. Mining machinery, which forms the bulk of the orders at our large foundries, ie heing made in greater quantities then ever hefore. Hoisting worke and mills are of a much heavier character than heretofore, and this has caused a marked increase in the amonnt of fonndry work. A few yeare ago a 20-stamp mill was considered a large one, while now they receive orders for complete milla of from 40 to 60 and even 80 stamps, with pans, eettlers, etc. Tho hoisting and pumping works are of a more substantial character, consequent npon the increased depth to which mines are worked, and miniug machinery of all sorts is of a much more expensive kind than nsed to he ordered.

While more extended mining operations are the cause of hoavier orders, there are other circumstancea which lend their aid to this increase of husineee. More factoriee of different kinds are being established throughout the coast from year to year, most of which require machinery of different kinds. Marine work, also, has increaeed of late and is becoming quite an important hranch of the foundry husineas. The many eteamships and eteamers at this port require continual overhauling and repaire, while new tugs and coasters are heiug built every year.

Few of the fonndries among ne are restricted to any special clase of work, unlees it is the small one, which lack the neceseary facilitiee for all kinds of work; this heing the case work ie pretty generally distributed among the larger iron worke, which are all nenally husy at tho same time.

It is a matter to be noted by thoee who are always crying out ahont the asseasments levied hy the mining companies of the coaat, that this money ia distributed in just the channele where it is needed. Theee asseasmonte draw money from the pocket of the capitalist who invests in suoh securities as mining stocks, and is pnt within the reach of the minere who work the mince and the mechanics who make the machinery. If these croakere would take the trouble to call at aome of the foundries and see from 100 to 300 men at work in each on mining machinery, they might be made to nnderetand that the trnsteee do not steal *all* the money received from aseesemeuts, hut that it is spent in such a manner that hard working men are benefitted,

We are glad to note this renewed activity among our foundrymen, and hope that it will continue next year, as it promises to do.

SENATOR Stewart and John P. Jonea heve made contracts in San Bernardino to tranaport freight, lumber and machinery from Spadra, the railroad terminns of the Southern Pacific Railroad, to Snrprise Valley and Panamint, and for return freights of ore, and a pony express is to be etarted at once hy the freight contractore. Jones has also contracted for 100 mulea with equipmente, to pack ore, etc., through the canons of Panamint.

THE directors of the Nevada State Agricultural, Mining and Mechanical Society have determined to hold a State fair this fall at Reno, on October 20 h, 21st and 22d. The Central Pacific railroad company have agreed to tranaport free of charge over their road all articles and animals exhibited hy exhihitore in Nevada.

COAL, it is eaid, haa heen found in Santa Oruz county, notwithetanding the report to the contrary of a San Francisco coal sharp.

A BLAST of seven hundred kegs of powder was set off at the American diggings, at Sebastopol, Nevada county, a few daye ago.

CORRESPONDENCE.

Cloud Bursts.

EDITORS PRESS:—The recent disastrous local floods that have partially destroyed the towns of Enreka and Austin, Nevada, and have done a vast amount of damage to property in other portions of tha State, have probably directed public attention to the somewhat singular natural phenomens popularly known as clond bursts, water spouts, etc. The idea seems to be generally prevalent that the phenomena are nothing more than very violent thunder showers, and such indeed they truly are. But the causes that precipitate such immense falls of water over extremely limited areas are very olosely allied to those which form water sponts on the ocean, or other extended bodies of water, i. e., air thoroughly eaturated with moisture, meeting with cooler counter curreuts, and moving in circles of small radius. Water spots are caused by currents of air moving in opposite directions, meeting and sucking up or raising the water in the vortex. They usually form a double cone; the upper one, with spex downward, consists of a very deusa clond. The lower one, with its apex turned npward, consists of a columu of water sometimes several hnndred feet in hight. They occur moet frequently in regione subject to alternate atorms and calms, and owa their origin to miniature circular storms or whirlwinds.

But to return to our Nevada watar sponts, for such they really are, or would be, did a body of water exist for tha formation of the inferior cones. We find in tha Nevada basin all the conditions most favorable for their formation. Dnring ths summer and autnmn months, miniatnre sand spouts cau be seen almost any day on any of the eand or alkeli plains so common in tha interior basin. Sometimes several of them will be in sight at the same tima, all moviug in different directions, sometimes in right lines, more frequently in circles. The same canses operating in the upper curreuts of air form the so-called cloud bursts or water spouts.

About the middla of July, or perhaps in some seasous as late as tha first of Augnst, the raiuy aeaeon sets in iu Arizona aud Northern Mexico, aud the warm southern current of air, only partially deprived of its vapor, followiug the course of the valleys, is carried to the uorth far into the "Great Besin." In its whole coursa it passes almost altogetber over bare alkali plaina aud valleys destitute of verdure and intensely heated; consequently, its temperature is constantly iucreased, and its capacity for moisture in a corresponding degree, until it becomes thoroughly satnrated, when, meating with the cooler currents from the north, it is suddenly condeused and precipitated in violent showers of rain and hail, often accompanied by wonderful electrical dieplays. Such storms are of almost daily occurrence during July and August. In early morning the sky is very clear—not a cloud from zeuith to horizon; about 10 o'clock light, fleecy clonda begin to gather over tha mountain ranges, and ao qnick ia the coudensation of vapor, that in lesa than 30 minutes the whole heavans will be covered with dark masses of thunder clouds (cumuli).

Most of these atorms, however, pasa off without doing any damage, hnt occaeionally the conditions are favorable for the formation of cloud-bnrsts or water-spouts. The southern currents of moiature-laden air meet with cooler counter currents and the atorm, inatead of passing qnietly on ita couree, ia deflected into a circle sometimea less than a mile in diameter, where it appears to remain etationary, sometimea for houre, apparently colleoting and condeusing all the vapor iu the air for milea around, and iu some cases actually pouring it through the vortex of the aerial maelstrom in a solid column to the earth below. Most usually, however, the discharge takes place in the form of hail atonee, or rather lumpa of ice sometimes more than au inch in diameter, intermingled with raiu drops of woudarful eize.

The sudden coudenaation of such immense qnantities of vapor develops an unnaual amount of electricity, aud as a oonsequence all suoh storms are accompanied with violent electrical dieturbances; vivid flaehes of lightuing quickly followed by loud peals of thunder aucceed each other with great rapidity; at the eame time innumerable eleotrical sparks shoot frnm cloud to cloud iu quick aucceesion, attended with a sharp orackling noise, plainly audible to a close observer. The rapidity of the fall of water is somethiug remarkable; even tha alopes of eteep mountains appear covered with a aheet of moving water, aometimes more than an inch in depth, which, gathering in the bottom of aome narrow cañon, movea forward with irreaistible force, presentiug a solid front 5, 10 or even 15 feet iu hight, tearing np and sweeping befora it giaut trees, maasive boulders, in fact, auything and everything that happens to he in ita course. Bnt auch atorms are not confined to the mountaina alone; they occur quite aa frequently in the vallaye, but the conditions of lavel land protect property from the diaastrous effaots of a moving flood.

The writer waa an aye-witnaas to a atorm of the kind which took plaoe on tha 4th of August, 1873, in the valley near the south end nf Pancake mountain. For at least four honrs the storm soemed to center around ona spot, from all poiute of the oompass. The principal fall of water, or rather ice, covered a circular area not more than a mile in dismeter, and must have been extraordinary, as the ground remained as white as in mid-wiuter for at leset sixty hours, under a burning August sun. During the past summer one of theee storms took place in the vicinity of Currant creek, where, from the testimony of relisble eye-witnesses, the fall of water must have approximated one-half inch per minnte. Indeed, so great was it that the grond, a gentle declivity, wss covered to a depth of 10 inches in less than thirty miuutes. Another most prolific cause of these storms is a lack of verdure in the valleys, aud of forests on the mountains. A. J. B.

Hamilton, Nevada, Sept. 10th.

Manufacturing Machinery at the Mechanics' Fair.

Wood Working.

In coutinuing our review of manufacturing machinery, at tha Mechanics' Instituta Exhibition, we come now to that deeiguated wood-working. Prnminent among the industries ou this coast is the lumber interest. We have not the statistics at hand to give its value; but it is immeuse, and givee employment to thousands of people and many millions of capital. For this reason it might reasonably be expected that the clasa of machinery employed in that husiuess would occupy a large apace in a geueral exhibitiou of the producing and manufactnring interests of California. The exhibits iu this line consist of two shingle machines, a portable saw mill, a patent self-feeding gang edger and lath mill, gang bolter, a scroll saw machine, a hand saw machine and a turning-lathe. These, at least, are all that wa have noticed up to this presant time of writing.

The shingle machines appear to attract muoh attention, even from the ladies, who ara not generally supposed to take much interest in such matters. Perhaps to add to the interest from this sonrce, or possibly because the aupply from the gallery has run ont, we notice that the gentleman in charge of the scroll sawing machine often busies himself and amnses the crowd by sawing shingles up into the form of fans, much after the form of those supplied for a while in one of the galleries. Huntiugtou's shiugle machine, shown in operation, is a California invention. invented by Mr. H. himself, and for aimplicity, durability and precision of action it probably has no euperior. It is conetructed with a siugle, upright carriage, and is so devised as to hold the block eecurely to its work, thus securing a perfectly formed shingle. It delivers its work so that the operator can pick up the ahiugles as fest as they come from the machine and pass them directly to the edger, betweeu which and tha machine he stands. This arrangement is of great convenience, and adds largely to the speed with which work can be turned off and finished. Some fifty or sixty of these machines are now in use on the Pacific coast, giving the most perfect satisfaction wherever they have been employed. This machine has lately been introduced into the Eastern States.

Mr. Huntington also exhibits a portable saw mill. These milla, as well as his ahingle machines, are built in the atrongest and most durable manner. The saw mills are capable of driving sawa up to 64 inches in diameter. They are furniahed with improved head-blocks aud feed works, of Mr. Huntington's own iuvention. Oue of the head-blocks is placed on exhibition near the mill.

Valentine'a double-carriage shingle mill is also shown iu operation. It is quite a uovelty in its way, and attracts much observation by its singularity of motion. As its name implies, it ia constructed with a double carriage, and fed at both ends, by which the saw is made to cut on both sides, thus utilizing both time and apace. It delivere its work at each end, aud appears to do good work. Thia machine is largely used in the northwestern States, where it was iuveuted and firet placed in operation. The machine on exhibitiou was constructed in this city, with a view of iutroducing it upon the Pacific coast.

Mr. A. Potter exhibita a Mackey, Walter & Co.'a patent eelf-feeding gang edger and lath mill. Thia edger will take lumber from 3 to 36 inches in width, with a thioknese of from one-half to six inches. It has four saws—the two center oues of which ara readily adjuatable while in motion by a orank at the frout of the machine, where a lever ia also fixed to adjust the feedere to the varying thicknesses of the lumber which is being dreesed. The operator haa uo occasion to leave his position to adjnat either of the saws or tbe feeders. The lath mill ia aupplied with au attachmeut, by the nse of which only that portion of the bolt to be converted iuto laths is cut which will admit of being worked up iuto perfect atrips. The balanoe of the bolt is rejected in a aingle piece, thus aaving a uaeless expenditure of power and waate of material.

Mr. Potter aleo exhibits a gang holter, running from eight to twelve sawa, and which can work anything from four feet to any desired langth. Thia machine has heeu placed in tha Pavilion to-day. All this machinary is in motion, so that tha principles of working oan ha folly shown; but, for manifeat reaaons, but little work can ba doue in the Pavllion.

Hansen's improved scroll saw machine attracts much attention from the skill with which it is manipulated, and from the intricate and beautiful work which it is capable of doing. In this machine the old-fashioued sash arrangement, which was considered indispeusable for keeping up equal tensiou, is here dispensed with, and by a peculiar combination a spring saw is made to work, with perfectly equal teneion, either up or down. The finest kind of eaws can be used, thereby doing the finest kind of work. It can also be run at a much higher rate of speed than can be applied to the sash or ordinary apring saws. It has an adjustable table, the only one that csn be tipped either side-ways or end-ways; hence it is peculiarly adapted for pattern work. The same is manufactured in this city.

O. Bonney axhibits a patent adjustable band sawing machine, which, however, we hava not seen at work. Theee saws, we learn from a circular attached, are made in this city, in three different styles—large size for mill work; bracket or medium size, with stationary top, or with a tipping top, like the one on exhibition. The introduction of band saws, and especially thosa of large dimensions, is a very important mechanical improvement in the ecouomy of mannfacturing and working lumber, to which wa propose to refer in a future issue.

The only other wood-working machine in the Pavilion, so far as we have observed, is the smell turning-lathe, employed by Mr. Brehm in the production of fsucy articles from California woods. This lathe ia au elegant and most perfect piece of workmanship, as is sufficiently shown by the character of the work which it turns out.

Minerals in Monterey.

The mineral resources of Monterey county, which have so long lain dormant, are now attracting considerable attention, and mining bids fair to become one of the leading industries of our people. With the legends that have been handed down from the lest oentnry, which mysteriously meution the working of fabulously rich silver mines, we will not deal in this article; hut from the remoteet period within the memory of the oldest inhabitant, these legends have been rapeated, and numerous have been the exploring expeditions fitted out for these hidden or lost minas, but they have as yet met with uo success. But while some have sought for lost mines, others have found

New Mines,

Many of which are proving to he of great promise. The recent discoveries go to show that our couuty is rich iu valuable minerals and plumbago; cinnabar, coal, silver and gold are proved to exist in several sections of the country, and the

Sand and Gravel

Deposits of Monterey are noted the State over, for their superiority to any fouud elsewhere on the coast. The existence of thie sand will yet lead to the establishment here of large glaes works; and the granite quarries of Monterey and Carmel will in time give employment to several hnndred workmen. The

Crystal Lime Quarry,

Near Natividad, is probably the best paying mine in the couuty, (except the Sand-bank, if it ia proper to call it a mine). This mine is worked by Messrs. Barbour & Brand, under laase from the owners, and ie producing the fineat quality of lime.

Cinnabar Leads

Have heeu discovered in abont twenty differeut places in tha county recently, and experienced miners have had uo hesitancy about taking hold and opening them for interesta in the mines, a thing they would not do if they didn't show croppinga of undisputed richuess.

Silver.

We were shown apecimeus of silver ore from the Robert Emmet mine, situated in the southern portion of the county, a day or two since, which is said to have assayed $400 to the tou. Thie mina waa originally taken up for quicksilver, but the ledga has chauged to silver. Several others that were taken up for quicksilver give evidence of tha exiatence of silver.

Gold and Coal

Are also known to exiat in thia county. The former is found near San Antonio Missiou, where placer diggings have been known to exiat since before the diacovery of gold up uorth. And the latter is represented by Carmel, where vigorous meaaurea are be taken to develop several very promising mines.

Plumbago and Marble.

Recent discoveries have added these two valuable articlee to the mineral wealth of the county. A oompauy was formed this week to work a quarry of the latter, and samplee of the former have been sent to San Francisco for aaeay, and probably the company will be formed thia week.

The Prospecting

That is now going on, both by our citizens and miners from other aections, will eventually, we believe, prove thia oonnty to be one of the richeat mineral districts in the State.

TEMPIUTE OAE.—Thirty-five hundred pounds of ora from tha Inca mine, Tampiuta Diatriot, waa worked at the Floral mill and produced $616. Tha averaga aaaay waa $408. The bullion was quita fine, viz.: 930. Mr. McMaatera ocntinuaa to euperintend thia mill and is securing very good reaulte.—*Pioche Record.*

Mining near Placerville.

A correspondent of the *Bulletin*, writing from Plscerville, says: The halcyon days of placer digging are gone forever, hut "the honest miner" still lives and flourishes about Piscerville. At least 20 drifting-claims are being worked. In some the gold is extracted by simply washing in an ordinary sluice box; in others, whera the gravel is more cemented, it requires crushing hy stamps before the process hy washing is commenced. The auriferous gravel belt, lying about Plecerville, covers au area of 12 milss in length with two in width. The depth of the gravel lying npon tha ancient river bed ia abont 150 feet. Tha great bnlk of this is lava-capped, varying from a few feet to several hundred feet in depth. This requires to he worked by the hydranlic system—the precipitation of the vast oolumns of water from a high elevation upon the gravel bed. I saw one of these monsters in operation at the Excelsior mine. The water, ejected through a 6-inch nozzle, rushed in a mighty torrent against the hard, gravelly hillside, plowing huga furrows through it, sending a shower of stones whizzing through tha air, detaching large boulders, and eating ita way like a hungry cormorant into the very vitals nf the mountain.

The compeuies working iu this viciuity are "close corporations." They manage their owu affairs and keep their own counsels. They do not appear ou California street. They do not ask the geueral public to share their profits or help them pay the r assessmeuts. They are close-mouthed men, bnt hy dint of considerable pumping I gained some scraps of knowledge. I learned, among other thinge, that a single company—the El Dorado Water and Deep Gravel mining company—au association of Sau Francisco capitalists—employ at least oue thousand men in hydranlic mining, the construction of flumes and ditches, and the building of reservoirs. The main ditch, commencing at Sportsman's Hall and ending at the confluenca of Alpine creek with the south fork of the Amarican river, will he 26 milee in length. It will be about five ft. wide at the bottom, thirteen ft. wide at the top, and six ft. deep. It rnns through a dense forest of pines nearly all the way, ovar a terrible rough conntry, across deep cañoua, over precipitous bluffs, along the sides of almost bottomleea ravines. There are tnnnels to out, and chasms to bridge and wild gorges to carry flnmes across, and a thoueand nbetacles of natnre to overcome. Bnt with the best engineering talent and plenty of money the work is pnshed vigorously forward and will be ou toward its completion before the winter snows set in. When this is done the company will be in a position to commeud the enormous volume of at least 2,000 inches of water for the washing of the auriferous beds. Aud this water will then be available for the irrigation of a large section of conntry now consumed hy the long summer droughts.

Hydraulicing at La Porte.

On Wednesday of lest week, says the Plumas *National*, in company with Mr. O. Gowell, of the firm of Conley & Gowell, we paid a visit to their celebrated hydraulic claim near La Porte. The water seaeon is now over and the company have about finsihed cleaning up for the year, one gaug of men being still at work in the lower cnta. Mr. Gowell uses two monitors, running through each pipe seven hundred inchea of water; and during the flueh part of water seaaon a very larga stream is turned in to carry off the tailings. The bank is from 50 to 80 feet deep—all qnartz graval—aud proapects "from tha top down," and with surprising regularity, too, for Mr. Gowell informed us that he could meaaure the grouud, and calculate cloaely the amount of gold which he would clean up. Ahout aix acres have been atripped this year, but only half of the bed-rock wae cleaned, as tha water gave out two or three weeka sooner than was expected. Their large flume is 6,000 feet in leugth and part of that diatance has a grade of only four inches to 16 feet. The preseut year's work has uncovered a large baaiu that haa proved to be a very rich portiou of the claim. The sum cleaued up is never made puhlio by the company, but it certainly haa been large, and we imagine that $100,000 would not be much above the figures. One of the peculiar features of the claim is the heavy deposit of black sand. It is saved "by the ton," and after heing worked over until all tha gold ia saved, that can be extraoted hy ordinary means, it is shipped to the Bay, and sold at $560 per tou, and from there sent to Swansea, Walea. The claim has been worked for the paat twenty years, aud always with good results. Mr. Gowell saya that after next year they will commeuce at the foot again, and come up with the strip, taking all that is left of the channel ou tha side next to town. It will take fifteen yeara—averaga water seasons—to work out the claim; and aa the owners oan oonnt on big pay all the tima, it is certainly valnahle property.

MILL FOR JEFFERSON CANON.—F. H. Smith ahipped, this waek, for the Jefferson mine, in Nya oonnty, the machinery for a 10-etamp mill. The castings are heavy, and oomprise the iron work of a 10-stamp battery, with four pana, three aettlera and a roasting furnsce; and the outfit mada a load for nina larga teame. Tha Jefferaon, ona of the most promising mines in Nya county, is owned by Lew. Hanohett and A. H. Rutherford. Both hard working, up-and-down good fallows, deserving of this success.—*Measure for Measure.*

MECHANICAL PROGRESS.

PAPER BAGS.—Not many years ago these articles, so necessary in every description of retail business, were generally made by the consumer, and were but rarely purchased. Now the reverse is the case. They are but seldom made by the person using them; and, in consequence, a great trade is done in them, many persons being wholly employed in the business. Many patents have been taken out to produce them by machinery. They are thus made not only of the ordinary old-fashioned shape, but also with square bottoms, with rounded bottoms, with gusset sides. They are also made in endless tubes, and cut off in lengths. Perhaps the latest invention is a mechanical device for making paper bags in one piece from a roll of paper. The paper is folded in the direction of its length from the two sides, so that the edges overlap each other about an inch in the center, the edges being pasted together. The paper is drawn through a folding-machine, with the seam on the upper side, centrally, by a pair of rollers, which feed it along to the devices for forming the bottom of the bag. The feed-rollers then stop until the bottom is formed and the bag cut off the required length, when they again feed it forward, pushing out of the machine the bag already formed; and so on, making a bag at every revolution of the machine.—*Technologist.*

RAIN GAUGE.—The success of Professor G. W. Hough, of the Dudley Observatory, in constructing self-recording barometers and thermometers, lends additional interest to his announcement of the successful construction of an automatic evaporometer and rain-gauge. The apparatus consists of a vessel two feet square and one foot deep, suspended on levers, and held in equilibrium by a small spring, the amount of change in the weight of the mass either from rainfall or evaporation being indicated on the scales of a delicate balance. In order to secure the mechanical record of the hourly variations in the weight of the vessels and of its contents, the professor causes the lever to vibrate between two platinum points, so placed that whenever a change in the weight of the vessel by a given amount (say ten grains) takes place, a magnetic circuit will be established, passing through an electro magnet. A micrometer screw will then be operated by means of clockwork, thereby tracing a curve on a revolving drum, precisely as in the case of the self-recording barometer and thermometer. —*College Courant.*

WOODEN PNEUMATIC DISPATCH TUBE.—The former dispatch tube which was laid between the Capitol and the government printing office, in Washington, proved a failure. It was a cylinder of wood, bound together by iron bands, and covered with tar. It was placed so deep that the superincumbent earth crushed the tube. A new tube is now being laid which, on the outside, is a rectangle twenty inches wide and twenty-three inches high. On the inside, the corners being cut off, the cross section is octagonal. The inside hight is nineteen inches. To make this tube air-tight, it is first covered with tar. The carrier, which is to move through the tube, is made of zones of wood riveted together. There is an exhaust engine at one end of the tube. The carrier has traveled one thousand feet in one and a-half minutes. The average grade as far as the construction has proceeded is about six feet in one hundred.

RUBBER HORSE SHOES.—The invention of a rubber shoe for horses promises much. The new form of shoe is designed as a substitute for the iron shoe, and as a means of preventing the many maladies to which horses' feet are subject. The inventor claims that horses suffering with cracked or contracted hoof, and similar painful hurts, are quickly cured by the substitution of the rubber covering for the unyielding metal shoe. The elasticity of the former allows the hoof to remain in its natural shape while protected from abrasion against pavements by the heavy rubber sole beneath. As compared with iron shoes, the cost of the rubber ones is about one-third more, and their weight is some 40 per cent. less. Sixteen sizes are manufactured, so that accurate fits may be obtained. With reference to wear the durability, owing to the fine quality of rubber used, is very great.

SHEET METAL BOXES.—The features of novelty of a recent invention consist in making certain parts of thin sheet metal boxes, namely the hinge and the spring catch: First, by bending the edge of the back of the box and cover over a piece of wire so as to form a hinge, and, secondly, in bending over the front edge of the lid or cover and also bending the top edge of the front part of the box, so that when the lid is forced down it forms a secure spring fastening.

A DISCOVERY of interest to wood engravers is the fact that plates of polished slate may be used as substitutes for box wood for engraving. These plates will furnish over 100,000 impressions without loss of detail, do not warp, and are not effected by oil or water.

A NEW FABRIC.—Cotton and wool are first carded separately on separate carding engines, and then mixed by passing them together through a third carding engine, and the sliver obtained is subsequently formed into yarn.

Consuming Smoke.

Seven or eight of the glass factories in this city have an apparatus, the invention of a Bostonian, for feeding coal to the furnace that is a great improvement in this respect on the usual method of throwing the coal on top of the fire. This machine is situated underneath the furnace, and its principal feature is the bucket for conveying the coal to the fire, the other parts simply serving to manipulate it. This bucket, which is cast iron and has a movable bottom, is about the size and shape of a half-bushel measure and has a fan attached to one side of the brim that projects about 20 inches. The bucket and hat somewhat resemble a hat of the fashion formerly worn by firemen, provided the hat be inverted and the visor the rear bent at a contrary angle. When the bucket is in position with the fireman to shovel coal into it, its fan fits into a circular opening in the furnace grate; when the bucket is filled it moves upward and forward, the fan receding as the bucket advances, until the latter rests equally under and against the opening in the grate; the bottom then rises and discharges the contents into the hot bed of coals resting on the grate bars; when the bucket recedes to its old position, ready to be filled again. The machine is operated by the fireman, by simply turning a wheel that closely resembles the pilot wheels on our river steamers. The coal being thus discharged under the hot coals instead of thrown on top of them, the smoke is almost entirely consumed, and what little escapes is of a light color and does not appear to carry any soot with it. If all our manufacturing establishments and dwellings were provided with fire-places and furnaces that would come even as near to consuming their own smoke as the apparatus we have described, there would be a vast improvement in our atmosphere.—*American Manufacturer.*

THE INVENTOR OF STEREOTYPING.—William Ged, the inventor of stereotyping, was a Scotchman. He was a jeweler in Edinburg. So long as he adheered to his original vocation he was permitted to prosper. When he ventured to exercise his ingenuity by facilitating the printer's art, he was doomed. On his making known his discovery of block printing, the trade deemed their craft in danger, and formed a combination for his destruction. Master printers, journeymen and apprentices united against him as a common enemy; they loaded him with invectives; they reproached him with ignorance and assumption. The arrows of calumny hit him on all sides. Who could long stand such an array of hostilities? Poor Ged, who ought to have made a fortune by his discovery, sunk under the load of persecution, and died of a broken heart.—*Newspaper Reporter.*

MACHINE WANTED.—A correspondent of the N. Y. *Tribune* says: Farmers generally require a machine, I think, such as I have never seen or heard of, but of which I have especially felt the need, as it will save labor and utilize forage. It is this: Say a machine that will pulverize, or crush, or grind, with once handling, our corn crop, that will reduce the entire growth, cob, shuck and stalk, as fine as ordinary meal. After the corn is cut and put in stooks (twelve hills square is the habit generally prevailing in the West); then as soon as the stooks are dry enough feed them entire into the machine, which might be similar to a grain thresher, and propelled by steam or horse-power. My object is to place the corn-stalks as well as the corn in condition for the cattle to properly masticate, digest and assimilate.

STREET WATERING.—An estimate founded on private inquiry, tells us that the cost for labor in watering the streets of London averages about £135,000 per annum, the cost of water being additional. It is contended that the whole of this watering can be accomplished in a far more effectual and advantageous manner, by a system of permanently laid pipes, for an expenditure of less than £3,000 per annum in labor; while the interest upon the plans necessary for the purpose would not exceed £20,000, making the total yearly cost of watering (exclusive of the water itself) only £23,000, instead of £135,000.—*Builder.*

STOPPING RUNAWAY HORSES.—A novel apparatus for this purpose is arranged by attaching to the cross strap of the bridle of a carriage or saddle horse a light tube, inside of which is a small roller; attached to this roller is a curtain of macintosh or other light and flexible material wide enough to reach across the animal's eyes, and long enough to cover the nostrils. This curtain is held in its place by springs, and is lowered when released from springs by a counterpoise or cord. It is returned to its place by another spring attached to the roller.

CLEANING GRAIN.—English exchanges describe a machine which has for its object the cleaning of wheat and other grain, by passing it between two discs, one rotary the other stationary, on the adjacent sides of which are set wedged-shaped projections on knives having roughened sides; when the disc is made to rotate the wheat grain is agitated and cleaned by contact with the roughened sides of the wedge-sheped projections.

PROPOSED FOG-SIGNALING APPARATUS.—This consists of a whistle actuated by air compressed into a reservoir by a hand pump. The signals are given either by a cock opened and closed by hand or by a cam operated from the hand lever or crank shaft and fly-wheel used to operate the pumps.

SCIENTIFIC PROGRESS.

The Microscope as a Criminal Detective.

The annals of criminal jurisprudence furnish an abundance of cases in which the microscope, in the hands of an expert, has been the means of eliciting missing links in the circumstantial evidence pointing to the guilt of the accused. Instances are cited where the instrument has shown hairs, clinging to the edge of an ax, to be those of a human being, in direct contradiction of the statement of the prisoner, ascribing them to some animal; and similar scrutiny of fresh blood upon clothing has proved the origin of the stain beyond a reasonable doubt.

When blood, however, has once become dry, several authorities assert that it is impossible to distinguish it from that of the ox, pig, sheep, horse or goat. It is urged that the differences between the average sizes of their corpuscles are too irregular to measure accurately, and that a man's life should not be put in question on the uncertain calculation of a blood corpuscle's ratio of contraction in drying. In opposition to these views are some recent experiments, made by Dr. Joseph G. Richardson, of Philadelphia. This investigation disposes of the first objection above mentioned by pointing out that, while it may be valid as regards feebly magnified blood disks, it becomes void when these bodies are amplified 3,700 times. Regarding the second, he stamps it as incorrect, and cites a case in which seven human blood disks, whose mean diameter had been accurately determined at 1-3236 of an inch, were subsequently computed to average 1-3266, or only 1-352292 of an inch less than their magnitude. Dr. Richardson also points out, with reference to the last objection, that all the blood disks likely to be mistaken for those of man being normally smaller, instead of contracting they would have to expand to become conformed to those of human blood. This expansion does not occur, so that the only possible mistake in diagnosis would be to suppose that ox blood were present when man's blood had actually been shed; so that at the worst we might contribute to a criminal's escape, but never to the punishment of an innocent person.

In order to afford a positive demonstration of the facts, Dr. Richardson obtained, from each of two friends, three specimens of blood clots, from the veins of a man, an ox, and a sheep, respectively, selected without his knowledge. By microscopical examination alone, he was able to determine, with perfect accuracy, the origin of each sample. The corpuscles of human blood averaged 1-3430, with a maximum of 1-3174 and a minimum of 1-3636 of an inch; those of the ox blood gave a mean measurement of 1-4662, with a maximum of 1-4347 and a minimum of 1-4874; while those of the sheep's blood afforded a mean of 1-5952, with a maximum of 1-5405 and a minimum of 1-6451 of an inch.

From these and other experiments, Dr. Richardson concludes that, since the red blood globules of the pig, ox, red deer, cat, horse, sheep and goat "are all so much smaller than even the ordinery minimum size of the human red disk, as computed in my investigations, we are now able, by aid of high powers of the microscope and under favorable circumstances, positively to distinguish stains produced by human blood from those caused by the blood of any one of the animals just enumerated; and this even after a lapse of five years (at least) from the date of their primary production."—*Scientific American.*

TAR FOR FUEL.—Messrs. Hay & Sugden, of England, have patented means or apparatus for treating and utilising gas tar for heating purposes. The tar is deposited in a still, to which they apply a steam pipe; the heat of the steam renders the tar so sufficiently limpid that it flows readily from the still into a pipe to which a second pipe supplied with steam is connected, the pressure of steam forcing or discharging the liquid ter in the form of a spray or gas, whereon it is fired. On the bars chalkstone is deposited for retaining heat. In some cases they add to the tar in the still common soda, lime-water and ammonia water in about the following proportions: To one ton of tar, one tenth common soda, one-tenth lime water and ammonia water.

CHANCE FOR INVENTORS.—It has been claimed that paper manufactured from wood pulp is more liable to become yellow stained under the influence of light and heat than that made from other ingredients, and that for books or other publications of an expensive nature no paper made from wood pulp should be used. It cannot be, however, that this is due to any quality of the pure fibers, which are the really valuable constituents of the paper; and the removal of the matter which causes the discoloration is a good subject for investigation.—*Industrial Month.*

A BIT OF EXPERT TESTIMONY.—When Orfila, the celebrated French chemist, was on one occasion a witness at a trial for poisoning, he was asked by the president if he could state the quantity of arsenic requisite to kill a fly. "Certainly, M. le Président," replied the expert; "but I must know beforehand the age of the fly, its sex, its temperament, its condition and habits of body, whether married or single, widow or maiden, widower or bachelor."

Ammonia Ice Machines.

It is a well-known fact that when a liquid is converted into gas it abstracts a certain amount of heat from the surrounding objects, and hence liquids which volatilize readily are said to produce a certain amount of cold. Ether, when placed on the skin, evaporates so rapidly as to produce the sensation of extreme cold. Gases, like sulphurous acid, nitrous oxide, carbonic acid, and ammonia, which may be liquified by pressure, produce very intense cold if allowed to evaporate rapidly, which is done by removing the pressure. The apparatus invented by O. F. Carre, of Paris, for freezing water by means of ammonia, consists of a generator and a receiver made of iron boiler plate, and connected by means of a strong iron tube. In the generator is placed a solution of ammonia saturated at 32 deg. Fahrenheit, which is heated by means of a suitable furnace, while the empty receiver is immersed in cold water. On heating the solution of ammonia the gas is driven off and collected in the receiver, where it is condensed to a liquid as soon as the pressure passes ten atmospheres. The receiver is constructed with a cylindrical space, into which a closely fitting vessel filled with water is now placed, and the apparatus is reversed, the generator being immersed in the water. The liquified ammonia, having the pressure removed, passes again into the gaseous state, and is re-absorbed by the water in the generator. By this means large quantities of ice are produced in tropical countries at a reasonable price. None of the gas is wasted, and the only expense is for labor, apparatus and fuel.—*Jour. of Ap. Chem.*

NEW ALLOYS.—A patent has been recently obtained in France for obtaining alloys of iron with manganese, titanium, tungsten, silicium, etc. According to the *Revue Industrielle*, scrap iron and iron turnings and filings, or iron sponge coarsely pulverized, are mixed with minerals containing the manganese, tungsten, titanium or silicium, also pulverized, in suitable proportions, and moistened uniformly and completely with an ammoniacal or an acid solution, after which the mass is compressed in molds. Great evolution of heat takes place, and in a few hours a hard, compact mass results, which is broken into fragments with a sledge. These fragments do not disaggregate at the temperature of melting iron. They are used in a peculiarly constructed high furnace, and when reduced yield excellent alloys. The ferro-manganese contains at pleasure from 20 to 75 per cent. manganese, and in the same way ferro-silicium containing 22 per cent. of silicium has been obtained. Alloys of titanium and tungsten, or of all combined, are readily procurable. The temperature required is very high.

CAOUTCHOUC SOLUTION.—It is often necessary to dissolve rubber, for the purpose of mending rubber articles, etc., and the process is thus given in an exchange: The crude gum is put in clear water and boiled an hour, then cut with wet knives, or circular saws without teeth, into thin strips, which are then passed between strong rollers, and dried in a warm room; 26 parts of gum are dissolved in 50 parts benzole and 70 parts oil of turpentine free from grease. This thick solution is not homogeneous, and must be passed between polished rollers to crush the lumps.

INCONVENIENCES result from the preservation of calomel mixed with certain substances in powder. According to M. Vulpius, corrosive sublimate will in some cases form, but not when the mixture is with white sugar, milk-sugar, magnesia, calcined or carbonated, or with sodium bicarbonate. A mixture with cane sugar and sodium bicarbonate gave rise to the formation of much corrosive sublimate in three months. The change was assisted by moisture.

ANOTHER PATENT INDICATOR.—A novel apparatus has just been patented which will, it is claimed, receive the tickets and conductors' checks of railroad passengers, indicate the destination of each traveler while he is in the car, and keep a record of all the trips made, inaccessible to any trainman, or to any one except the proper agent—presumably a representative of the general ticket agent, at the end of the trip.

CARBON PHOTOGRAPHS.—According to Marion, if a bichromate picture printed in the sun is brought in contact with a plate covered with chromatized gelatine in the dark, a similar impression will be made on the second surface, and even more than one prepared plate can thus receive an impression, provided that the original plate had been exposed long enough to the action of sunlight.

DITAINE is proposed as a new substitute for quinine. This alkaloid obtained from the bark of the "Dita" has been found to be as good as quinine, and in some cases superior. The method of abstraction is the same as that for quinine. The bark yields on an average about two per cent. of the alkaloid.

WATERTIGHT PATCHES FOR BOILERS.—They should have a lip turned all around it, so that a good quantity of cement may be introduced. The cement should be made of red and white lead and iron borings, and should be very stiff.

FINE MACHINE OIL.—To prepare an excellent machine oil, mix 60 parts of oleine with 40 of olive oil; or 50 of oleine, 40 of clear paraffine oil and 10 of olive oil.

Weekly Variations in Stocks.

(Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Sept. 16, 1874.

NAME OF COMPANY.	IN MINE. FEET	IN MINE. SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo						
Alpha Con	300	6000	15¾w	13¾w	1¾	
Alta	3600					
American Flat		30000	8¾w	7¾F	⅜	
Bacon M. & M	65	24000	9½w	4¾F	½	
Baltimore Con		54000	9¾	8F	2¼	
Belcher	1040	104000	70T	65w		2½
Best & Belcher	224	22400	34T	31TH		
Bowers	20	5000				
Buckeye		16000	2¾w	2⅝TH		¼
Bullion	2500	25000	11T	9⅜8	2	
Caledonia	5000	20000	22¾w	20½TH		⅜
California			45T	38⅝F	6	
Chollar-Potosi	2800	28000	58¾T	53⅜F		1½
Confidence	130	24960	26w	14¾3H		10¾
Con. Gold Hill Quartz	3434	20000	8w	4s	4	
Con. Virginia	1160	103000	84¾T	80⅝F		1¼
Cook & Geyer	1600	24000				
Crown Point	830	100000	68⅝F	61T		1½
Daney	2000	24000	3⅝w	3T	2	
Dardanelles	1200	24000	14w	13½T		½
Dayton			5½T	5w		
Eclipse	10	25000	11¾w	7¾F		3⅜
Empire M. & M	75	50000	10¾w	9¾F		¼
Exchequer	400	8000	105w	80TH	20	
Fairmount						
Flowery	3000	12000				
Franklin			3w	2¾T		¼
Globe		20000	1⅝TH	1¾w		
Gould & Curry	1200	48000	2½T	20M		1½
Hale & Norcross	400	16000	43¾T	40⅝F		½
Imperial	184	100000	11⅞w	8¾F	1⅞	
Indus						
Insurance	2000	30000				
Jacob Little						
Julia	2000	30000	4⅜T	3⅞w	⅜	
Justice	3000	21000	11¾w	9¾TH	1½	
Kentuck	35	30000	17¾w	15⅝F	1½	
Knickerbocker	1200	24000	6w	5½T	½	
Kossuth			1w	⅞F		
Lady Bryan						
McMeans	3600	36000				
Mint	1600	50000	15cF	14cF		
Nevada	3000	40000	1¼w	1⅛w		
New York Con	3600	36000	3⅝w	3F	⅜	
Occidental	800	10000	2¼F	2TH		
Ophir	1400	16800	29w	22F	5½	
Overman	1200	57400	43¾TH	41⅝s		2¼
Phil. Sheridan	1200	24000				
Picton	2000	30000				
Rock Island		24000	5w	4½TH		⅜
Savage	800	16000	88T	91F		
Seg. Belcher	180	6000	105F	90M		
Seg. Caledonia		10000				
Seg. Rock Island			1 80T	⅞T	92½c	
Senator		24000	2¼M	1¾w		
Sierra Nevada		100000	7¾T	6½F		¼
Silver Hill		24000	8w	7F		½
South Comstock						
South Overman		24000				
Succor M. & M	7600	22800	2⅝F	1⅝w		⅜
Sutro		24000	1T	⅜8		
Trench	20	6000	10w	8s	1	
Tyler	2200	33000	1w	⅝M	3	
Union Con	803	20000	20¾w	19M	1	
Utah		20000	3½w	3T		
Woodville	400	24960	10½w	8¾8		
Yellow Jacket	1200	24000	111w	80TH	27½	
NEVADA.						
Adams Hill		50000				
Alps	800	30000				
Amador Tunnel						
American Flag M. & M		30000	2⅛F	1⅞w		⅛
Arkansas	300	30000				
Belmont			7⅞w	7M		1½
Bowery		30000				
Chapman M. & M		30000				
Charter Oak	1000	30000	½F	¼F		
Chief of the Hill		30000	35cw	35cw	22½c	
Chief East Extension		36000				
Columbus M. & M	10000	50000				
Condor		25000				
El Dorado South			3w	2⅜8		⅛
Eureka Con		50000	11¾w	11TH		⅜
Excelsior		12000				
Harper		30000				
Hayes						
Hermes	1000	30000				
Home Ticket						
Huhn & Hunt	3600	30000				
Ingomar	1000	40000	20cTH	20cTH		
Ivanhoe		30000				
Jackson		50000				
Josephine						
Juniata Con	5000	50000				
K. K. Con			3½M	3w		½
Kentucky	1000	30000				
Kinston	1000	30000				
Lehigh	1000	30000				
Lillian Hall	1000	15000				
Louise	2400	30000				
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24725	60000	6¾w	5¾T		2½
Mocking-Bird	1200	30000				
Monitor-Belmont			2¼TH	2w		¼
Murphy	2000	60000				
Newark	800	32000	70cTH	¾T	7½c	
Pacific Tunnel						
Page & Panaca	2400	40000				
Peavine	1000	30000				
Phœnix		50000				
Pioche	1000	20000	6½T	6½T		½
Pioche West Ex		35000				
Pioche-Phœnix		40000				
Portland						
Raymond & Ely	6000	30000	10¾TH	9½w		¼
Rye Patch			2T	1½M		
Silver Peak		30000				
Silver West Con						
Standard M. & M						
Star Con	18000	50000				
Startight	6000	25000				
Sterling		30000				
Spring Mount		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole	200	20000	1¼w	1F		½
Watson						
Yellowstone						
CALIFORNIA.						
Alpine	1200	12000				
Bellevue	8000	20000	¾T	20cw		⅛
Calaveras	3200	20000				
Cederberg		24000				
Charnot Mill			10w	9⅞T		⅛
Con. Amador						
Cottonwood Creek		20000				
Dunderberg M. & M						
El Dorado						
Eureka	1680	20000	10s	10s		
Gillis		24000				
Independent	1800	25000				
Keystone		10000				
Mt. Jefferson	1500	25000				
Oakville						
St. Lawrence M. & M						
St. Patrick	1800	20000				
Tecumseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000	1F	¾T		¼
Golden Chariot	750	30000	6TH	5¼w		1¼
Ida Elmore	1300	10000	1¾TH	1⅝w		
Managany	720	10000	5¼F	4w		¼
Red Jacket						
South Chariot	660	20000				
War Eagle	1000	10000	1⅛w	1M		⅛
WHITE PINE.						
General Lee	1000	20000				
Mammoth	1800	36000	¾w	20cw	5c	
Noonday	1000	20000				
Orig. Hidden Treas	800	21333				
Silver Wave						
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Alpine Gold M & M Co	Amador Co Cal	7	1 00	Aug 10	Sept 14	Oct 5	J F Lightner	438 California st
American Flag M & M Co	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney	320 California st
Arizona & Utah M Co	Washoe	10	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Bellevue M Co	Placer Co Cal		50	Aug 18	Sept 21	Oct 15	D F Verdenal	409 California st
Chief of the Hill M Co	Ely District	5	25	Aug 11	Sept 11	Oct 1	C S Neal	419 California st
Daney G & S M Co	Washoe	10	75	Aug 6	Sept 8	Sept 30	G R Spinney	320 California st
El Dorado North M Co	Belmont Nevada	1	50	Aug 4	Sept 15	Oct 6	G E Houghton	215 Sansome st
El Dorado South Cons M Co	Nevada	4	1 00	Aug 7	Sept 14	Oct 1	W Willis	419 California st
Empire M Co	Idaho	7		Aug 26	Sept 30	Oct 24	Wm Willis	419 California st
Empire Mill & M Co	Washoe	15	50	Aug 13	Sept 17	Oct 8	G R Spinney	320 California st
Globe M Co	Washoe	8	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Globe Con s M Co	Washoe	3	50	Sept 12	Oct 18	Nov 4	J Maguire	419 California st
Gould & Curry S M Co	Washoe	23	2 00	Sept 1	Oct 6	Oct 27	A K Durhrow	438 California st
Hale & Norcross G & S M Co	Washoe	44	5 00	Sept 8	Oct 13	Nov 3	J F Lightner	438 California st
Ida Elmore M Co	Idaho	13	1 00	July 20	Aug 24	Sept 19	W Willis	419 California st
Julia G & S M Co	Washoe	19	1 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Justice M Co	Washoe	11	2 50	Sept 4	Oct 7	Oct 29	F Swift	419 California st
Mahogany G & S M Co	Idaho	13	2 00	July 17	Aug 22	Sept 14	C B Higgins	402 Montgomery st
Mint G & S M Co	Washoe		2 00	Aug 25	Oct 2	Oct 28	D A Jennings	401 California st
Newark S M Co	Ely District	8	1 00	Aug 18	Sept 23	Oct 15	J W Clark	418 California st
New York Cons M Co	Washoe	10	50	Aug 26	Oct 1	Oct 19	H C Fibbe	419 California st
North Bloomfield Gravel M Co	Cal	33	1 00	Aug 11	Sept 15	Oct 5	Thos Derby	320 Sansome st
Page & Panaca S M Co	Ely District	7	50	Aug 4	Sept 8	Sept 23	H F Bush	Merchants' Ex
Pioche S M Co	Ely District Nevada	7	1 00	July 29	Sept 7	Oct 2	C E Elliot	419 California st
Portland S M Co	Ely District	5	25	Aug 21	Sept 23	Oct 22	B J Gray	438 California st
Raymond & Ely M Co	Ely District	1	3 00	Aug 17	Sept 23	Oct 16	T W Colburn	418 California st
Rye Patch Cons M & M Co	Nevada	3	25	July 21	Aug 21	Sept 19	D F Verdenal	409 California st
Savage M Co	Washoe	15	10 00	Sept 1	Oct 5	Oct 23	E G Holmes	419 California st
Segregated Caledonia M Co	Washoe	2	30	June 22	Oct 14	Nov 2	A C Ryce	308 California st
Silver Peak M Co	Ely District	5	50	Sept 3	Oct 10	Nov 2	G T Grimes	240 Montgomery st
Sierra Nevada S M Co	Washoe	39	1 00	Aug 5	Sept 8	Sept 29	R Wegener	414 California st
South Chariot M Co	Idaho	10	1 00	Sept 2	Oct 3	Oct 26	Frank Swift	419 California st
South Comstock M Co	Washoe	1	50	Aug 18	Sept 22	Oct 12	J M Buffington	Merchants' Ex
St Patrick G M Co	Cal		50	July 22	Aug 24	Sept 19	D F Verdenal	409 California st
Succor M & M Co	Washoe	9	1 00	Aug 18	Sept 22	Oct 14	W H Watson	302 Montgomery st
Sutro M Co	Washoe		60	Aug 14	Sept 18	Oct 12	G W R King	434 California st
Tyler M Co	Washoe	6	25	Aug 15	Sept 18	Oct 8	O D Squire	539 California st
War Eagle M Co	Idaho	7	1 00	Aug 21	Sept 26	Oct 17	L Kaplan	Merchants' Ex
Yellow Jacket S M Co	Washoe	18	5 00	Aug 11	Sept 16	Oct 16	G W Hopkins	Gold Hill Nev

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

California Cons M Co	Cal	1		Aug 26	Sept 23	Oct 19	B J Gray	438 California st
Cons Channel M Co	Nevada Co Cal	1	20 00	Sept 7	Oct 12	Nov 6	H Cordes	44 Stewart st
Consolidated Reforma	Lower Cal	1	50	Sept 1	Oct 5	Oct 28	A D Carpenter	605 Clay st
Cunel & Tiger S M Co	Arizona	2	50	Aug 12	Sept 14	Oct 2	C J Eaton	Express Bldg
Edith Quickeliver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart	113 Liedesdorff st
El Dorado W & D Co	Cal		10 00	Sept 15	Oct 15	Oct 31	H Elias	416 Montgomery st
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 27	Chas S Healy	Merchants' Ex
Germania M Co	Cal	2	1 00	Aug 5	Sept 12	Oct 2	J W Tripp	408 California st
Gold Mountain G M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Cavallier	513 California st
Gold Run M Co	Nevada Co Cal	7	25	Aug 7	Sept 15	Oct 7	C C Palmer Cor	Market & Spear sts
Greenhorn G M Co		4	70	Aug 10	Sept 15	Oct 6	J F Lichtner	438 Montgomery st
Hayes G & S M Co	Nevada	5	20	Sept 4	Oct 6	Nov 3	G R Spinney	320 California st
Independence Cons M Co	Cal		15	Sept 4	Oct 10	Oct 29	F J Hermann	418 Kearny st
James Point Gravel M Co	Cal	2	10	Aug 12	Sept 15	Oct 3	D C Ferris	223 Montgomery st
Kossuth M Co	Washoe	2	25	Aug 25	Sept 25	Oct 14	E V Stone	419 California st
Mosquito Gdraulic Quartz M Co	Cal		15	Aug 12	Sept 15	Oct 3	G S Healy	Merchants' Ex
New York M Co	Washoe	1	50	Aug 28	Oct 1	Oct 19	H C Kibbe	419 California st
Oneida M Co	Amador Co Cal	8	75	July 23	Aug 31	Sept 19	L Kaolan	Merchants' Ex
Phœnix Tunnel & M Co	Utah	6	25	Sept 6	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Prussian G & S M Co	Nevada	2	50	Sept 1	Oct 5	Oct 26	R H Brown	402 Montgomery st
Red Jacket M Co	Idaho	4	1 00	Sept 2	Oct 9	Oct 31	W Willis	419 California st
Sanderson G M Co	Cal	12	30	Aug 12	Sept 8	Sept 26	W Stuart	113 Leidesdorff st
Silver Cord M Co	Idaho	5	1 00	Sept 11	Oct 12	Nov 2	Frank Swift	419 California st
Silver West Cons M Co	Eureka Nev	2	10	Aug 19	Oct 6	Oct 31	F R Bunker	606 Montgomery st
"Sixty-three" G & S M Co	Cal		25	Sept 2	Oct 5	Nov 1	J R Reim	411½ California st
Starr King S M Co	Nevada	7	25	Aug 6	Sept 11	Sept 30	L Kaplan	Merchants' Ex
Table Mt Alpha M Co	Cal	5	25	Aug 20	Sept 29	Oct 20	T F Cronise	438 California st
Tecumseh G S & O Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Umpire Tunnel & M Co	Utah	3	5	June 29	Sept 2	Sept 21	P A Eakins	220 Kearny st
Ward Ellis S M Co	Rohinson District	2	10	Aug 21	Sept 28	Oct 19	J M Buffington	Merchants' Ex

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Atlantic & Pacific Cons M Co		A Noel	419 California st	Annual	Sept 26
Baltimore Cons M Co		D T Bagley	401 California st	Annual	Oct 1
Best & Belcher M Co	Washoe	Called by Trustees	419 California st	Special	Sept 21
Bovada M Co	Mexico	G Hohwiesner	510 Battery st	Annual	Sept 21
Coquille Black Sand G M Co	Oregon	F P Reynolds	111½ Liedesdorff st	Special	Sept 23
Esta Buena S M Co		A Noel	419 California st	Annual	Sept 28
Eureka M & Smelting Co	Nevada	T P Beach	424 Montgomery st	Annual	Sept 29
Imperial Cons G & S M Co		W E Dean	419 California st	Annual	Sept 21
Kelsey G & M S Co	Idaho	J H Savre	331 Montgomery st	Annual	Sept 29
Lady Washington M Co		Called by Trustees	419 California st	Special	Oct 17
McMahon S M Co	Nevada	G R Spinney	320 California st	Annual	Sept 21
North Star M Co	Grass Valley Cal	D A Jennings	401 California st	Annual	Sept 25
Segregated Belcher M Co	Washoe	G D Edwards	414 California st	Annual	Oct 6
Star M Co		Wendell Easton	419 California st	Annual	Sept 28
Woodville G & S M Co	Washoe	Called by Trustees	401 California st	Special	Sept 28

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe.	419 California st.	4 00	Sept 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Sept 10
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 00	Sept 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	Sept 12
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener.	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

Since last Friday, on which day the lowest sales for the week were made, the general market rose rapidly and steadily up to Tuesday afternoon, when a temporary weakness was shown. On Wednesday, although the market as a whole was weaker, a marked advance took place in several of the prominent Comstocks.

Pioche, Eureka, Idaho and California stocks continue very dull, in spite of more favorable news from the mines than has been received for many months.

In connection with the Comstock mines the *Enterprise* of Saturday says: Those who have their money invested in mines which are already paying have little to complain of, as good dividends are again being paid by these, with no indication of any decrease, but rather of an increase in the amount. Not only are the old levels of our ore-producing mines yielding well, but the explorations made show that the new levels yet to be opened up are likely to prove still richer. New mines are steadily being added to the list of those that are milling ore, and if they are not able at once to pay dividends it is still a comfort to know that they are doing much toward paying for the work which is being done for their further development. Quite a number of mines are just now in this stage. All that is required to make them dividend-paying is a lucky discovery or two, or a constant and steady increase of richness—and perhaps in size—of the ore bodies already discovered. Our prospecting companies—even such as have yet no ore at all—are all in excellent spirits and are doing a vast amount of good work—are everywhere going down to depths never before attained, and, at suitable intervals, are sending out drifts for the thorough exploration of their ground. From the Utah on the north to the Daney on the south, the greatest possible activity prevails; as also in the direction of American Flat, where a number of companies, each provided with first-class machinery, are doing excellent work.

BLANKET SLUICES.—The Woodworth mill, running on Dayton ore, says the Virginia *Chronicle*, situated near the mouth of Gold Cañon, have completed a set of blanket sluices 1,700 feet in length. The string is made up of twelve compartments or separate sluices, each 19 inches in width. The bottom of each compartment is covered with blankets for catching sulphurets. It is estimated that the whole string of sluices will catch about forty tons per day of concentrated tailings. All the water and tailings passing down Gold Cañon will run through the sluices.

GOOD AIR.—The 1,200, 1,300 and 1,400-ft. levels of the Consolidated Virginia mine now have good air throughout, with the exception of one or two places. This is a great relief to the miners, who have been working on these levels during the last three months when it was hot enough to roast them alive.

MINING PATENTS.—In the case of the Cash lode, of Colorado, the Commissioner of the General Land office rules that in applications for patents under the mining laws proof of citizenship is not required of the original locators or intermediate owners of mines, but only of applicants for patents.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

OWN WORK.—*Chronicle*, Sept. 12: We understand that no more custom ore will be worked at the M. and N. W. mill, as it will be strictly confined to ore from the Silver Glance mine.

EXCHEQUER.—The Monitor and Northwestern mill produced a 980-fine brick from the Exchequer ore. It was roasted in the McGlew furnace.

SILVER CLOUD.—The shaft of this mine is down 80 ft., and progressing finely.

TARSHISH.—Ore from this mine paid $30 per ton. It was worked at the M. & N. W. mill.

AMADOR COUNTY.

MCKAY & LOVE MINE.—Work on this mine is progressing finely, and the prospects continue to be more flattering as the work of development progresses. The lower tunnel is now in 180 ft., and from the mouth of this tunnel rock can be landed at the road ready for transportation to the mill. It is expected that they will commence taking out rock in large quantities for milling purposes in a short time.

CONTRA COSTA COUNTY.

QUICKSILVER.—*Gazette*, Sept. 12: It is some eight or nine years since anything has been done with the quicksilver mine at Mount Diablo; and we learn that a San Francisco gentleman of ample capital has made arrangements to resume work there, and eystematically open the mine. This mine has afforded good prospects, and has actually yielded some quicksilver for market. There is much reason to believe the mine will prove handsomely remunerative with judicious working, and the employment of sufficient capital to open it properly.

EL DORADO COUNTY.

THE MANSFIELD.—*Republican*, Sept. 10: Is it a hilk? We know nothing of this mine personally, but made favorable mention of it recently on the statement of the superintendent. Since then we have been shown rock purported to be the best produced from that mine, and was certainly not creditable. We hope the owners of this mine are not putting up a job, as the interests of the county have already been jeopardized to too great an extent by tricksters.

RUSHING THINGS.—Capt. Woodworth is just making things hum over on the Young Harmon. It is scarcely three weeks since he made the first move to get his machinery and lumber on the ground, and about another week will suffice to finish up construction, and get everything in working order. We were over there on Saturday, and found the batteries and ten stamps all set and well enclosed; the boiler and engine being put in place—the mill is to be run by steam—and a large amount of wood cut and piled up, taken from the claim. There is a large amount of milling rock now out, but as to its richness we are not able to state, though out of a number of pieces picked up indiscriminately we could see gold in all but two. The mill will be started up in a few days on this ore, and at the same time the ledge will be worked at three different points, from all of which the ore is conveniently accessible to the mill, which is admirably situated for both receiving and discharging.

INYO COUNTY.

SYLVANIA.—*Independent*, Sept. 12: The Marotte Bros. and Kincaid, in Sylvania, expect to fire up their little furnaces for a brief run the coming week. No new developments of importance have been made in that camp, yet the general look out is more encouraging than ever as regards the value and ease of working the ores. If reasonable expectations are realized, and large quantities of the ores are developed, which can only be done by considerable expenditure of money, Sylvania would at once loom up as one of the very best mining camps in this whole country. There are no ores any easier of reduction or richer, nor any camp with better natural facilities generally. The only question is as to the extent of the bodies of the ore. At Pine mountain about the same condition of affairs exist. Moffatt & Co. are running three shafts constantly on their tunnel, but do not expect to strike the ledge for some weeks yet. Albert & Berry are taking out quantities of splendid ore, and have a mine considered worth not less than $30,000.

FROM BENTON.—The mills are running steadily and making their regular shipments of bullion every week. Mr. Wetherill shipped nine bars last week, weighing 100 lbs. each, and worth $12 per lb. The mines are all looking very well, except the Yellow Jacket, and that is looking better. Mr. Mitchell, superintendent, informs us that they have struck quite a large vein of ore, and that it is rich is understood as it is Yellow Jacket.

KLAMATH COUNTY.

SAWYERS' BAR.—Cor. Lake Co. *Bee*, Sept. 10: Gold Hill would be an appropriate name for the mountain which contains within its bosom such mines as the Black Bear, Yellow Jacket, Klamath, Evening Star, Star of the West—and recently discovered Monitor. The old Live Yankee, cut off short and moved by gigantic natural forces, appears to have swung round on its axis and the main ledge shall some day be discovered by following the well defined

foot wall which still remains. The Humphack is thought to be an extension of the Live Yankee, but there is not enough known by development to speak with certainty. I think that the Klamath mine, under the management and close supervision of Mr. John Daggett, will do much to develop the worth and stability of this district. The mine never looked better than at present, nor offered more substantial proofs of its sterling value. The ledge is steadily increasing as they follow it down, both in width, extent and richness. Should this development continue and its prospects be as good as at present, the milling capacity (32 stamps) will be doubled next year. The track from the mouth of the tunnel and incline to mill is 3,000 ft. long; yet quartz can be carried the whole distance and delivered in mill for 35 cts. per ton. Should the milling powers be increased, it is thought that the ore can be delivered for 30 cents per ton. Should this ledge continue to develop as it is doing at present, in less than two years there will be 100 stamps in motion. The district is young and its resources are not fully tested. If the Klamath ledge should prove a success, as I have no doubt it will, this will be one of the busiest mining regions in the State.

MENDOCINO COUNTY.

IRON.—*Dispatch*, Sept. 12: Messrs. Burgers & Wortenberg have discovered and are now testing the extent of a lead of iron ore on the western extremity of our town. As they progress the prospect is favorable. The ledge enlarges and the character of the ore improves. Taking the cue from this discovery, some young men have traced the ledge something near a mile and a-half to the northwest of the original discovery; and, as we are informed, have made some superficial prospects which indicate even a better prospect than the original discovery. It is said the metal is of that peculiar character from which the finest steel is made.

ABOUT a month since William Shoemake, of Point Arena, discovered a gold ledge on his place. On last Thursday he found a rock with gold in it that could be seen with the naked eye. Who can tell what our county may yet prove to be?

NEVADA COUNTY.

OMAHA MINE.—*Union*, Sept. 12: Work in sinking the shaft at the Omaha is progressing very favorably, and the shaft is going down through a ledge which is from two and a half to three ft. in thickness. The walls of the ledge are perfect and beautifully defined. The rock in the shaft shows well, and the experienced miner who has the job of sinking the shaft would be very willing to take the quartz which comes out of the shaft for his pay in doing the sinking.

N. S. MUCHMORE has made a discovery of a very rich quartz ledge on Deer creek, near the Dikemau dam, four or five miles northwest from this place. He has located 1,500 feet on the ledge, including dips, spurs and angles. The location commences at a point about 150 ft. from the creek and on the north side of it. The rock of the ledge has been tested by panning out some of the croppings, with these results: Six pans of the quartz gave gold to the value of $106, and a subsequent two pans gave $60 worth of gold. The ledge is from 18 ins. to 2 ft. in thickness on the croppings.

SEVEN-THIRTY MINE.—*Union*, Sept. 16: This mine is looking well, and rock with plenty of gold in it is being taken out.

IDAHO.—*Transcript*, Sept. 12: Owing to extra expense now being incurred by this company in building and putting in pumps for deeper sinking, the monthly dividend paid this week by the banking house of Findley & Co. was only $5 a share. Ten is the usual amount. The foundation of the new pumping works is a model for strength and permanency, showing that the management have no fears regarding the capacity of the mine to furnish bullion for many years to come.

THE Manzanita gravel claim near Nevada City temporarily stopped piping last week on account of scarcity of water, and a clean-up is being made which it is thought will turn out over $50,000.

THE Providence mine continues to be the largest vein of ore in the county, and we think in the State. It carries enough gold to make the whole of the immense body of quartz pay for working at a profit to the owners. As it is sunk upon it grows better.

NAPA COUNTY.

PINE FLAT.—Cor. *Register*, Sept. 12: The Fleetwood mine is situated about half a mile above Pine Flat on the Pine mountain road. This mine was worked some eight years ago, by Gran Thompson, who, after expending a few thousands on it, abandoned it. Two years ago it was re-located by W. R. Williams and others, who, until recently, have done but little work upon it. About one month ago it was incorporated, and the company put a force of men to work, running two tunnels in order to tap the main ledge at right angles. At the Georgia a large force of men are at work taking out very rich ore. This company has an immense amount on their dumps, and are now making arrangements to build a furnace. Next above this is the Bacon mine. Mr. Pasco is the superintendent, in the absence of Mr. Bacon, who has gone to England. Passing over Pine mountain we soon come to the American mine, owned by Messrs. Wright Bros. This mine was first owned by John Pershbaker, then by Cross & Co., who sold it to the present owners. An old furnace was on the ground, but the present owners concluded to erect new works, which they did, in the shape of a 10-stamp mill and 4 benches of retorts, each bench containing 3 retorts; but as the iron was either very poor, or the men who had charge of them knew nothing about the business, in a short time almost every retort busted, and Capt. Wright informed me that he was confident that they had lost $20,000 by these retorts. They intend to erect a large furnace immediately.

ETNA COMPANY'S MINES.—The company are now running their furnace with good results. A strike of splendid ore has just been made in the Silver Blow mine, which is said to be superior to anything hitherto found in that claim.

PLACER COUNTY.

THE ORLEANS.—*Argus*, Sept. 12: We were shown the other day several pieces of ore from the Orleans mine that for richness excel anything we have ever seen taken from a Placer county mine. The gold was very evenly diffused throughout the rock, and was visible in large quantities. Every portion was covered with the glittering particles, and one small piece, weighing not more than two or three pounds, was estimated to contain over a hundred dollars' worth of the precious metal. The whole ledge is showing free gold in large quantities. The prospect in this mine is growing better every day.

THE RISING SUN MINE.—Over $300,000 have been taken out, and fully $100,000 of this has been clear profit. Heretofore the mine has been worked on rather a small scale, there being but a single battery of five stamps, and a single shaft. A new shaft has been sunk about 100 feet east of the old one. It is down 500 feet, in good paying ore, the ledge being fully two feet in thickness. The shaft is 12 ft. by 4½, giving a double hoisting shaft, and a compartment for the pump and ladders. A new building, large and well designed, has been erected, in which a new engine, in addition to the two now in use, will be erected, furnishing ample power for hoisting, pumping, and driving the stamps. A battery of 10 stamps is likewise being erected. The entire cost of the improvements this season will be about $30,000. We examined the ore that is taken out, and find it to be uniformly rich. There are no "specimens," the gold being diffused quite evenly through the rock, but the whole ledge pays well for working, and with the amount now in sight gives solid assurance of paying well for an indefinite length of time. Every piece of rock we examined showed free gold, evenly distributed, and in satisfactory quantities.

NEW COAL DISCOVERIES.—*Herald*, Sept. 12: Various parties were prospecting for additional coal beds in the vicinity of Lincoln. The result has been most satisfactory, as appears from the following, which we have received from a friend who knows of what he speaks: Mr. Scott, a San Francisco capitalist, with a party of men has been prospecting for coal around here for the last two weeks. After several unsuccessful borings, lignite coal of a superior quality was found upon the lands of J. D. B. Cook, of this place. It was found 55 ft. below the surface, and was 20 ft. thick.

PLUMAS COUNTY.

GOOD PAY.—The North Fork Co., on Dutch hill, are running three eight-hour shifts in one tunnel, and the gravel is paying at the rate of an ounce to the car-load. When the ditch is finished and the company commence working that kind of ground with monitors, there will be some "big pay" to record.

RICH STRIKE.—M. A. D. Hallsted informs us that a discovery has recently been made on Rich gulch, by Capt. Corser and others, which bids fair to be a very important one. This gutch was immensely rich when first worked, years ago, and at a certain point the lead was lost. A number a new claims have been located, and work will be pushed ahead briskly. We hope thet it will prove as good as anticipated.

BADLY SOLD.—Quite an excitement was kicked up among the La Porte-ites, last week, over the discovery of a cinnabar deposit, near Little Gress valley. Specimens of the ore showed quicksilver in prodigions quantities, and claims were located—some of the parties showing wonderful strategy in getting to the ground without being observed. One lucky (?) owner remarked, that "if worth a dollar, it was worth a million," and stock was "high up" for a short time. Some prospecting revealed the fact that the specimens had been "salted," and the gilded dreams of the millionaires dissolved into thin air.

SISKIYOU COUNTY.

BLACK BEAR.—*Union*, Sept. 12: There are now on the pay roll of the Black Bear mine 104 men. Besides there is a considerable number chopping wood and getting out timbers, whose names do not appear on the pay roll. The whole number of men now employed at the Klamath mine is 50. The new batteries which are being brought up for the Black Bear mill—for the sixteen new stamps that are being put in—are four in number, and weigh 2,000 pounds each. Deacon Lee hauls them over from Callahan's by the South Fork route. Two of them are already over, and two have yet to be taken.

GOOD PAY.—Collins, Pullen & Co. are taking out of their claim on Oak Bar splendid pay, some days as high as 18 ounces. We learn also that they have offered Ship & Gregory, with whom McConnell & McManus of this place are interested, $1,000 for twenty feet of the upper end of their claim.

ELIZA MINE.—Rock of excellent character is being taken out. The company we believe have had it in contemplation to put the mill in good repair and commence to crush at an early day. The ledge is now about 18 inches thick.

SONOMA COUNTY.

QUICKSILVER.—Petalnma *Argus*, Sept. 11: Cinnabar discoveries continue to be made in this county with encouraging frequency. A company is prospecting on Malone's ranch, Sonoma mountain, about 10 miles from Petaluma. There are good indications.

SANTA BARBARA COUNTY.

STRUCK IT RICH.—Reese River *Reveille*, Sept. 8: We are informed that John F. Cassell, formerly superintendent of the Belmont mine, has struck it rich in the vicinity of Santa Barbara. He leased for a term of ten years, with the privilege of purchase, a Mexican grant, on which there has been discovered an immense ledge of cinnabar, containing a 3-ft. pay-streak, averaging 30 per cent. of quicksilver.

TUOLUMNE COUNTY.

THE MORSE MINE.—*Independent*, Sept. 12: Owned by Thomas J. Evans, situated near the Riverside, is now turning out some splendid rock, showing free gold all through, which pays $100 per ton. The vein varies from two ft. in width to an average of 18 inches. There are several chutes developed, some of the rock looking as if burned—being of a deep blue-black color, showing black crystals and carrying lead and other minerals. There is no difficulty experienced in saving the gold, which amalgamates readily with the quicksilver. The five-stamp mill runs night and day, and there is enough pay ore in sight to keep the mine running for a year.

NEW MINING ENTERPRISE.—Thos. Morris, of Jeffersonville, contemplates opening the Boston claim in Table mountain, this winter, with hydraulic, which has hitherto been worked as a "drill claim" with good profit. This claim lies between the Buckeye and the Slate claims, the channel having been broken out at the lower end of the Buckeye and run outside, spreading out some 600 ft. and running down to within 500 ft. of the State of Maine—the bluffs taking a crescent shape, and leaving in all about 40 acres of gravel on the outside—the channel again enters the mountain bluff and runs down the mountain to the Blue Gravel, etc. They propose to lay a bed-rock flume with a grade of 7½ inches to the rod, and will get water at the Peppermint Falls, from the Hydraulic mining company's ditch. They will use a stream of 250 inches of water, which will be conveyed in a 10 inch pipe to the mine, with a pressure of 250 feet. To get the water from the falls to where it enters their pipe will cost about $500.

TULARE COUNTY.

MINERAL KING.—Cor. *Times*, Sept. 12: Ore has now been found on six adjoining claims on White Chief lode, namely: Discovery claim; claim No. 1, south; Nos. 1, 2, 3 and 4, north; and in each case near the line of granite on the west lode, and the phospbate of lime on the east. This assures us of the fact that a continued line of galena pre-exists on said lode on the surface for three miles, and the tunnel now being run on the Loop claim reached ore at the depth of 85 or 90 ft. below the surface. We think the evidences good for a lively camp in Mineral King next season. We also learn that certain parties from Visalia and New Jersey have recently purchased interests in said districts, and design to commence running a tunnel immediately 300 ft. in length, which, when completed, will tap the ore vein 250 ft. deep; name of the lode withheld by request.

Nevada.

WASHOE DISTRICT.

CROWN POINT.—Gold Hill *News*, Sept. 10: The main incline is down to the 1,600-ft. level, at which point a station is being put in preparatory to drifting for the ledge. The main south drift, on the 1,500-ft. level, is still vigorously driven ahead without change of value to report. The only cross-cutting done on this level yet, is an east cross-cut run 250 ft. north of the Belcher line, which cut through a body of rich ore 35 ft. wide and was then stopped for want of proper ventilation. As soon as that is obtained the development of the level will be continued at once. The connection of the new air shaft of the Belcher mine with the upraise will already produce a favorable effect, and will no doubt greatly benefit the entire mine. Prospecting operations on the 1,000-ft. level have also shown that the ore body on that level extends 75 ft. further to the northward than had ever been looked for, and is of a quality second to none in the mine. This is a valuable discovery, and will add greatly to the wealth of the mine. The ore bodies being worked on the 1,400-ft. level are extending further to the northward than on the levels above. The machinery is all working finely, the mills are all running steadily, and the future prospects of the mine are good for many months to come.

CONSOLIDATED VIRGINIA.—The completion of the north drift on the 1,500-ft. level from the Gould & Curry shaft and its connection with the north winze has greatly cooled the different levels of the mine and increased the facilities for the extraction of the ore and the comfort of the miners. The ore breasts both north and south on the 1,300 and 1,400-ft. levels are yielding finely, and never looked more promising than at the present. The ore extracted is all of high grade, none of the car samples during the past week running below $108—average assay value. The pocket of water struck a short time since in the main south drift on the 1,200-ft. level is about entirely drained. The south drift on the 1,500-ft. level made the connection with the north drift from the bottom of the north winze this morning, forming a complete ventilation of the 1,500-ft. level. The erection of the new mill is progressing finely. All the frame timbers, the foundation timbers for the machinery, and the battery blocks are finished, ready to be put in place. The frame work of the ore house and battery rooms is already erected, and nearly the entire machinery is on the ground ready to place in position.

DAYTON.—The extraction of ore is again being vigorously prosecuted on both the second and third station levels. Some excellent ore was found in a winze a short distance further to the northward, in the early workings of the mine, and it is confidently expected that when this drift reaches a point under the former workings, that some good ore developments will be made. Daily yield, 50 tons of ore, keeping the Woodworth mill steadily running.

WOODVILLE.—The ore in both the northwest and southeast drifts from the main north tunnel on the 200-ft. level still continues of a fine quality. Sinking the winze from this level to connect with the level below is making good headway, the rock in the bottom working finely, and the north side of the winze occasionally cutting bunches of fine ore. The ore development in the north drift on the 300-ft. level still continues of a fine character and an excellent quality. The body is widening as the drift progresses to the northwest, and promises a good development by the time the drift reaches a point perpendicular with the ore development on the level above.

SUTRO.—Clay slips and streaks of quartz are frequently encountered and there is a strong increase in the flow of water from the face of the drift. This seems an undoubted indication of an approach to a ledge, although it remains to be yet determined as to whether it is the main ledge.

UTAH.—The flow of water still continues so strong that no effort whatever has yet been made to resume sinking the main shaft. The north drift on the 400-ft. level is still driven vigorously ahead, following the ledge and occasionally encountering some very promising streaks of quartz.

KOSSUTH.—Sinking the main shaft is making fine progress, the rock in the bottom working well. The new machinery is all working splendidly, and only about six strokes of the pump to the minute are required to keep the water out.

INDEPENENT AND OMEGA.—A contract has been let to sink the new shaft of the company 100 ft. deeper. In the old tunnel, run near the surface some years ago, the ledge proved to be 80 ft. in width, assaying from $6 to $10 per ton. The chances of finding something valuable at a greater depth are certainly promising, and of sufficient inducement to warrant the further prospecting of the mine.

GOULD & CURRY.—Work has been temporarily suspended in the north drift on the 1,700-ft. level. Cutting out for a station in the north drift on the 1,500-ft. level, for the purpose of sinking a winze near the north line to connect with the north drift on the 1,700-ft. level, has just been commenced. Prospecting at the fourth station level is still continued without change of interest to report.

CHOLLAR-POTOSI.—Daily yield 100 tons of ore, the assay value of which is $31 per ton.

FLORIDA.—Excellent progress is being made in sinking the shaft, which is down already 200 ft. Numerous stringers or seams of quartz are met with, some of them carrying a small quantity of metal.

JULIA.—Most of the new machinery is on the ground ready for erection, and will be placed in position as fast as the foundations are completed.

OVERMAN.—Driving the north drift on the 1,200-ft. level is making steady progress, with no material change to note. The face of the drift is still in ore and quartz of a very promising character. Sinking the main shaft is making steady progress.

CALIFORNIA.—The north drifts on both the 1,400 and 1,500-ft. levels are still driven vigorously ahead to connect with the corresponding drifts now being run on the same levels from the Ophir.

SAVAGE.—Sinking the south winze from the 2,000-ft. level, to connect with the south drift on the 2,100-ft. level, is making good headway. Sinking the main incline, for a new level, is making fine progress.

IOWA.—Work will be resumed on this mine next Monday. The old Iowa tunnel, in a distance of 130 ft., will be repaired and then driven forward to cut and prospect the ledge, which it will do several hundred feet below the surface.

SIERRA NEVADA.—The ore breasts in the old upper workings are still giving a good yield of ore. The mill is kept steadily running on ore from the mine.

OPHIR.—Daily yield, 50 tons of ore, keeping the Empire State mill steadily running, and gradually accumulating a large surplus of ore. The ore breasts on both the 1,300 and 1,400-ft. levels are looking well and yielding splendidly. The ore extracted is of a high grade, and there seems no longer a doubt as to the Ophir soon becoming again a dividend paying mine. Winze No. 1, on the 1,300-ft. level, is still in rich ore, also the north winze from cross-cut No. 2, on the same level. The east cross-cut from the south drift on the 1,465-ft. level is expected to soon tap the east ore body.

NORTH GOODMAN.—The tunnel is now in 200 feet, the face in hard blasting rock. Occasional streaks of quartz assaying as high as $30 to the ton have been passed through, and the tunnel is expected to strike the ledge at a distance of 300 ft. from the mouth and 500 ft. from the surface.

HALE & NORCROSS.—The main incline is down 123 ft. below the 2,000-ft. level, the rock

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Collom's Separating Works.

A brief trip to the Collom Sepsrating Works this morning convinced us, says the Central City (Col.) *Register*, that without any exception this is the busisst establishment in the country. It has more pulleys, wheels and shafts; more dancing jigs and revolving cylinders, and keeps a larger quantity of water in motion than all the quartz mills in the land. Everything denotes active industry. The men go about their work silently, for amid all that wilderness of machinery there is neither time nor opportunity for conversation or story telling. Looking upward from the ground floor, the eye is both amazed and bewildered by the vast combinstion of forces employed in the process of crushing, distribution, sepsration and concentration of minerals carried on by John Collom's invention. Away up on the mountsin side, almost as far as the eye can reach, sre men, jigs and cylindrical machines, and crushers innumerable, all operating like clock work, in perfect harmony snd with wonderful force and efficiency. At the very top the ore is delivered from the wagons into the mill. It goes first into a funnel shaped chute, slides thence down to the Blake cracker, from that to different sets of improved Cornish rollers, thence into sizing machines, thence into rotary sieves, thence through a series of jigs and dressing tables, propelled from the start by small streams of water, until the final deposits of the different minerals and metals are made in the concentrstion tanks, at the very bottom floor of the huge building. From the time the ore is passed into the crnsher, no hand touches it, or direc'sits progress, until it is ready for delivery to the ameltera. Each grade of minersl finds its way, with invariable precision, to its appropriate receptacle. The machinery is so arranged as to carry on the material through a vast multitude of changes to its final delivery, without the interposition of msnual labor at any point, and no mistske is made, no matter what the character of the ore may be.

Situated on north Clear creek, on the ground formerly occupied by what is familiarly known as the "Keith Process," it has grown, under the skillful direction of the inventor, into vast proportions. No one who has not visited the place can form any proper conception of its magnitude. It reminds the beholder of some great Eastern manufactory, upon whose wares half a continent is depending. Notwithstanding its newness snd its experimental character, it is already largely pstronized by the miners. A steady stream of wagons, freighted with ores of different kinds and gradea, except the highest—which always go to the smelter—is passing up and down the Clear creek road to and from this mill. Prof. Behr, a well known chemist and assayer, is in charge of the scientific department. He is thoroughly confident of the utility of the process, pronounces its work excellent, and is sanguine that it will grow into one of the most useful institutions ever established in this Territory.

Dry Canon Mines.

A correspont of the Salt Lake *Tribune*, writing from Jacob City, says: I have just been visiting some mines upon which considerable work and expenditure of capital has been made, placing them in a position where, in the next 60 days, they may be classed among the leading mines of Dry cañon.

The Daniel Webster lode, which is located on the northeast side of Snow Storm hill, is engaged in sinking an incline on the vein, which is now in 35 feet, showing ore on both sides and overhead averaging three feet, two feet of which is good ore. The vein in the face of the incline is four feet in width, three feet of which is good ore, the character hsing yellow carbonate, galena and black snlphurets, the assays of which vary from $60 to $80 in silver, and 45 per cent. in lead. There are about 15 tons of ore on the dump, some of which is fine yellow carbonate ore which has been sacked. A good trail is being built from the sag of Lillie hill to the mine. There is also a large quantity of timber close at hand, and several springs of water within 400 yards distance. This prospect is one of the finest we have seen in the district for the amount of work done and the distance attained.

The Silver Crown is looking remarkably well; an incline is in about 70 feet, showing a large body of ore all the way down to the face, where it takes a dip into the hill. The owners, Kirk, Converse & Co., are vigorously engaged in developing this mine.

The Enreka, located on Treasure hill, still continues to take out good ore, and is making regular daily shipments without interruption.

The Gisborn toll road is nearly completed, and in the short space of ten days ore teams will be seen wending their way along the new road with precious ores from Dry cañon. There is a rumor that the stage company will run over the new road when completed.

The suit of ejectment against the Cambria mine, by the agent of the Jupiter miue, resulted in a verdict by Judge Bethune in favor of the Jupiter company. The case, however, is not fairly settled; the Cambria folks propose to see it clear through.

Cleansing Wool.—A recent English patent is for a method of cleansing wool and the disintegration of vegetable matters by the successive action of acid and alkaline gases, such gases being those obtained in any industrial process, but particularly in the manufacture of chemical products and manures.

Bingham Canon.

A correspondent of the Salt Lake *Tribune* writing from Bingham Cañon says: Bingham's great minersl belt, which is unparalleled, and second to none in the world in quantity and quality of ore, for over four miles in length, and is producing over two hundred tons of ore per day. There are some 25 or 30 mines located on this mineral belt. Only nine or ten of these mines are being worked at present, among which sre the Jordan and Galena, Neptune, Kempton, Lsst Chance, Nez Perces Chief, Spanish Utah, Yosemite, Wssatch and Sampson. These mines are producing immense quantities of ore, and yielding rich returns to their owners.

There are nearly 20 valuable mines on this belt which are lying idle for want of capital to work them, among which may be mentioned the Gentile, Telegraph, Revere, Captain Jack, Giant, Montreal, Star of Utsh, Aahlsnd, Snltan and others. These are all excellent mines, and with a little capital to develop them, and proper management, would return large incomes to their owners.

The average valne of ore produced by these mines is $50 per ton, for lead and silver. The few mines mentioned above, although not worked to half their capacity, are shipping 200 tons of ore per day, or in s year of 365 days 73,000, which at $50 per ton would be $3,650,000. And as there are about 250 men employed in the mines, it would average $14,600 per man.

Considering the present undeveloped condition of the mines, this is certainly very encouraging to owners of mining property. What the returns will be when these mines are developed to the extent of the Comstock lode of Nevada, it is impossible to estimate.

Miners and owners of mining property should not be discouraged on account of the small amount of capital that has been invested in mines during the past year, which has no doubt been owing to the unsettled condition of the financial world since the panic. There is no doubt that before snother year the unlimited mineral wealth of these mountains will induce a large amonnt of capitsl to be invested, and the mines more fully developed and worked to their capacity.

Owing to many schemes and frands perpetrated on the puolic, by a class of scoundrels with which the country is infested, mining as a business has been brought in disrepute, but in the face of facts and statistics of mining in this country, as well as every other, it is easily proved to be as legitimate as manufactnring or mercantile bnsinesa, and when properly and legitimately managed, to be the most remunerative of any business carried on in the world.

American Steel.

In my travels throughout the conntry I am repeatedly asked, why not make as good steel in this country as in England? I admit that such a question might have been pertinent ten or twelve years ago. The steel trade of this country was then in its infancy—inexperience had to battle against a country of a century's growth in the trade, and we may add that there has been improvement in English steel for more than half a century, while in America the short space of fifteen years has raised her to a standard of success surpassed by none in the world. We assert, and that fearlessly, that America cannot at present be surpassed in her manufacture of steel. Why should she? Her artisans are as intelligent as any on the globe, quick to see and ready to act, in fact the personification of true business, while her process is the same as in England, and the stock used equally as good. To raise the country to an equal popularity with Sheffield only requires the destruction of a needless and nnwarranted prejudice, which is happily fast dwindling away. I have had twenty-five years' experience in the steel trade in Sheffield and in this country, and know whereof I speak, and I predict ere long Engliab steel will be unknown in American markets. Let us encourage, then, the industries and support the productions of home, and thereby give our mechanics a fair chance in the great battle of life, and the result will be the envy of surrounding nations and the astonishment of a gazing world.—*Cor. Chicago Times.*

Tapped a Pocket.—A few days since a drift which is being run by the Consolidated Virginia Co. on the 1,165-foot level tapped quite a large pocket of subterranean reservoir water. The spot where the water was found was in the "east country" on or near the Best & Belcher ground, and is in no way directly connected with the Consolidated Virginia proper. The water flows along the drift on the 1,165-foot level til it reaches a winze near the Gould & Curry line, when it falls to the 1,300-foot level and flows into the last named mine. The Gould & Curry folks have a good deal of water of their own; besides, they have of late had not a little trouble with their pump, therefore a considerable portion of the water is allowed to flow down to the Savage, where it is pumped ont. The pump of the Gould & Cnrry was working well yesterday afternoon, and was rnnning at a very lively rate—apparently about its fastest stroke. It is supposed that the pocket will be drained in a few days. There are deep workings all about the spot where the water was found, which are quite dry, therefore it is supposed that the pocket is snrrounded on all sides by clay; indeed, they passed through clay before they tapped it.—*Enterprise.*

Iron in Utah.

A correspondent of the Salt Lake *Tribune*, writing from Tintic, says: We have heard considerable concerning the iron ores, etc., of the southern part of this Territory, and the probability of another Pittsburg existing there some day, but from indications that part of the oouutry will, eventually, be the proper supply point for the south generally, for Arizona and New Mexico, etc.; yet before that can be, there must be a railroad from the north there, and of necessity much time and capital be expended in ntilizing these now distant resources. Meanwhile, the northern demand for railroad iron and iron products is enormous; the Utsh southern railroad and all the narrow-gauge railroads in esse and in posse for Utah want iron, and there is no need to wait and get the gold to send East for it, if we will only utilize the resources at our feet, for, be it known, that there is an extensive belt of accessible ore in Tintic, of various grades, and immense quantities already in sight, of a quality and grade that competent judges pronounce equal to the best Pittsburg orea, and say cannot be excelled, so that all that is needed are the furnace means and appliances to turn out unlimited iron pigs, bars, or whatever is wanted.

The resources for water power in Provo, unequalled by any other place in the Territory, are handy, and should now be utilized for rolling milla, etc. There is money and reputation for those who are willing to take hold of this matter and help develop this great resource and basis of material prosperity—iron manufacture.

It should be observed that coke of A 1 quality can be procured from the neighboring coal mines of Sanpete. Tintic can hold her own for charcoal and building rock, and first-class brick material is abundant and handy.

We will willingly give such information as we possess on this subject to those seeking it, and mail herewith a specimen of iron ore from a recent 50-feet location. It is self-evident that if good and cheap iron can be produced here, it will marvelously forward the material growth and prosperity of Utah.

Mind and Brain.

Dr. B. G. Wilder, in a paper read before the American Scientific Association, criticises the methods of studying the relations between brain and mind. The phrenological method is defective, because anatomy does not show any definitive correspondence whatever between the folds and fissures of the brain and the outer surface of the skull, and because the most expert phrenologists often fail to define character by the head. As for the psthological method, which compares brain-lesions with mental phenomena observed during the life of the individual, there is good reason for supposing that peculiar mentsl conditions may exist without recognizable brain-lesion, and *vice versa*. And Brown-Sequard says that all parts of the brain may, under irritation, act on any of its other parts, modifying their activity so as to destroy or diminish, or to increase and to morbidly alter it. The experimental method, which irritates or destroys certain cerebral regions in living animals, merely demonstrates the existence in the brain of centers of action for different sets of muscles; it necessarily produces abnormal action, and fails to show the relation between brain and mind. Dr. Wilder would follow the example of phrenologists, but employing the brain itself for comparison, instead of the skull, using large numbers, and comparing the two sides. He would also employ canine instead of human brains, because of their simple fissural pattern, and the possibility of an accurate knowledge of the mental characteristics of dogs. Better results might be expected from the study of the brains of persons with whom we were acquainted in life, but that is impracticable. Dr. Wilder does not believe in the localization of faculties in different portions of the brain, and inclines to the opinion that a cerebral hemisphere acts as a unit either singly or with its fellow.

Coal Areas.—Coal is still the prime source of anxiety. In Europe the coal area in square miles stands approximately thus: Great Britain, 5,500; France, 1,000; Saarbruck, 900; Belgium, 500; Bohemia, 400; Westphalia, 350; Spain, 200; Ireland, 150; Russia, 100. The British possessions occupy 7,000. The United States 200,000. But quantity is one thing and value by accessibility another. Great Britain commands the sea-board, and holds available coal, ironstone and limestone in juxtaposition, besides convenient appliances, which is scarcely the case elsewhere; so that, let labor-value fluctuate as it may, her furnaces will of necessity hold their own against the world for a long time to come. The world's yield of coal is about 200,000,000 tons annually.

Quick Work.—One week ago last Monday evening an order was received at the Gold Hill Foundry, George Emmet proprietor, from the Sierra Nevada Mining Company, for a suction pump to be used in the bottom of their shaft as a sinking-pump. Work was begun on the pump the next morning after the order was received and last evening the pump, completed and ready to set up, was delivered at the mine. The pump is ten inches in diameter (10-inch bore) and is a fine specimen of workmanship. The completion of the pump in the time mentioned, is about as quick work as we have heard of in that line of business.—*Enterprise.*

Quicksilver Road.

In our article last week we neglected to give the distance from Woodland to the mines, or rather the extent of road the county would have to build. From Woodland to the point where mountain grading will commence is thirty miles. This point is at the farm of Henry Rhodes. From that point to the mines is six miles—one mile of which is level ground across Casey's flat. The summit is the point to which the county will be required to build, which is three miles—the two miles beyond will be built by the California Quicksilver Mining company. It is therefore but thirty-six miles from Woodland to the Knoxville mines. The report of the viewers is very flattering, and the surveyor, Mr. Nurse, tells us that, although he did not venture to give any estimate as to the probable cost from the meager time occupied in taking observations, he did not think it would cost the county over $5,000. He says the grading will be very easy, and that the road-bed will be of material sufficiently durable to admit of constant wear by heavy wagons for years.

The demand for this road is one which the county makes. It is not alone for the benefit of the people living in Capay valley, but for the people of Yolo county. This is the view that ought to be taken of it by the board of supervisors, and the most prompt action should be taken to commence the work. We understand that the grading of the road from Knoxville to Calistoga is dragging heavily, and that the contractors are becoming disheartened. They feel that it is not the outlet demanded by the people in the mines, and fear that it will suffer the same from wear snd washing that the road from Napa has suffered, and thus be half the time impassible, and a constant tax upon the people to keep it in order. These representations suggest activity on our part.—*Yolo Mail.*

The Booth Mining Co.

In speaking of the incorporation of this Co. the Placer *Argus* says: The object of the company is to work the Orleans, or Gordon gold mine, situated within a mile of Auburn. We are gratified at being able to announce that such a powerful combination of capital has taken hold of this valuable mine, as it will open up a new era in the mining and business interests of Auburn. The Orleans has been sufficiently tested to demonstrate that it is one of the richest mines in the State. Its original owners, though thoroughly convinced of its immense value, were unable for the want of adequate capital to properly work it. We do not know on what terms the new company has acquired the property, but suppose that Mr. Gordon and his friends have retained a large interest, and understand that he will be the superintendent. With ample means to develop the property, and erect the necessary works, we are confident that it will soon take rank as one of the important mines of the coast. Its development cannot but be of great advantage to Auburn. A reliable, permanent, dividend-paying mine, as it is almost sure to prove, will not only give stability to our present business, but will add largely to it. The incorporation of this company means business. It will bring to us capital and workmen, infuse life into every branch of trade, and set things to moving after the fashion of the flush times, when Auburn was the headquarters of thousands of prosperous miners.

Ogden Iron Works.—An Ogden correapondent writes the Salt Lake *Tribune* a letter descriptive of a visit to the site of the Ogden Iron Manufacturing Co.'s works. The company have purchased a piece of land, between 30 and 40 acres in extent, in the northwestern portion of the city, contiguous to the Utah Northern and Central Pacific railroads. A large amonnt of machinery is already on the ground, and a strong force of builders and laborers, including 50 Chinese, are at work on the building. The blast furnace is to be erected under the direction of a Mr. Tait, an experienced and reliable English furnace builder. The manager and his assistant are spoken of as being eminently fitted for their work, and are forwarding the process of construction as rapidly as possible. The value of this industrial enterprise can not be over estimated, as the raw material exists in this Territory to an incalculable amount, and the supply of cheap iron nnderlies all industries. The people of Ogden may be congratulated upon having secured to themselves so important an enterprise, and we look to see growth and profit result to all.

New Air Chimney.—The Consolidated Virginia Mining Company are having a new air-chimney built. It commences at the third set of timbers below the top of the shaft, and extends 20 feet above the roof of the main building. Its dimensions are 4x8 feet in width and about 80 feet in hight. When completed, the hot air and steam from the mine, which now escape from the top of the shaft, causing great inconvenience and preventing the engineers from seeing the station-marks on the cable, will be got rid of, and better ventilation will be insured.—*Chronicle.*

New Engine.—The Julia mining company have received their new hoisting engine from San Francisco. It is 36-inch stroke, 20-inch cylinder and 100-horse power. The excavation for the foundation is completed, and as soon as the masonry work is finished, the new engine will be set up. The hoisting engine now in operation will be used to drive the new pump, which is being put in the mine.

Useful Information.

Value of Iron Waste.—A very important, but until quite recently neglected, constituent of the waste-heap, is the old iron, battered saucepans, old pails, rusty hoops, horse shoes, and nails from the road. All soldered articles have the solder extracted from them, as it is more valuable than the iron, and the cheaper metal is then melted. The horse-shoe nails are not mixed with the common cast-iron, as they are much sought after by gun makers, for the purpose of making stub-twist barrels. Scraps of iron, it is found, may be made very useful in securing the copper in the streams washing veins of copper pyrites. Pieces of battered iron are placed in tanks, into which these are collected; the copper, under these circumstances, incrusts the iron, and in process of time entirely dissolves it, so that a mass of copper takes the place of the iron, and the residuum, in the shape of a colored deposit, is at times taken out, dried and smelted. Thus, from the merest and apparently worthless waste, a large value is realized. — *Railway Register.*

M. Werdermann's Process for Reshaapening Files.—Well-worn files are first carefully cleaned with hot water and soda; they are then placed in connection with the positive pole of a battery, in a bath composed of 40 parts of sulphuric acid and 1,000 parts of water. The negative is formed of a copper spiral surrounding the files, but not touching them; the coil terminates in a wire which rises towards the surface. This arrangement is the result of practical experience. When the files have been in the bath 10 minutes they are taken out, washed and dried, when the whole of the hollows will be found to have been attacked in a very sensible manner; but should the effect not be sufficient, they are replaced in the bath for the same period as before. Sometimes two operations are necessary, but seldom more. The files, thus treated, are to all appearances like new ones, and are said to be good for 60 hours' work. M. Werdermann employs 12 medium Bunsen elements for his batteries.

Leaf and Flower Impressions.—Oil a piece of white paper on one side; hold the side that is oiled over a lamp or pine knot smoke till quite black; place the leaf on the black surface, as the veins and fibers of the leaves show plainer on the under part; now press it on all parts of the leaf with the fingers; then take up the leaf and put the black oiled sides on the page of a book (made for leaf impressions) with an extra piece of nice paper on the top to prevent smutting the opposite page; press it a few moments; they remove the green leaf, and the impression will be left on the page as beautiful as an engraving. Flowers of single corolla can be pressed in like manner. Many of the geranium leaves make beautiful impressions. The impression book can be made still more interesting by giving botanical classifications of each leaf and flower.

Indelible ink intended to be used with types or stencil plates, are generally made without nitrate of silver. The presence of a silver salt in a marking ink would necessitate the use of silver or silver-plated types and plates. The two following are recommended; 1. Sulphate of iron, 1 drachm; vermilion, 4 drachms; boiled linseed oil, 8 drachms. Triturate together until the mixture is perfectly smooth. 2. Sulphate of manganese, 2 parts; lampblack, 1 part; sugar, 4 parts, with water sufficient. The manganese, lampblack and sugar are first rubbed together into a fine powder and enough water is added to form a thin paste. When this ink is used, it should be allowed to dry on the cloth and then be well rinsed in water.—*Druggists' Circular.*

Cleaning Bottles with Fragments of Iron. Attention has been repeatedly called to the danger of cleansing bottles with shot, as is commonly done, many cases of lead poisoning having been caused by a stray shot left after the process. M. Fordos, in the *Comptes Rendus*, advocates the use of clippings of iron wire instead of the shot. They are easily got, and clean the bottles quicker and better than lead does. The iron is attacked by oxygen, but the oxide does not cling to the glass and is easily removed by rinsing. In cases where even the minute trace of iron left behind would be objectionable, clippings of tin may be used.

Disinfectant and Mouth-Wash.—A very weak solution of permanganate of potash will destroy instantly any taint from diseased teeth or imperfectly-cleaned plates, and should always be used to rinse the spittoon in hot weather every time it is made use of. It is cheap, satisfactory, almost tasteless, not poisonous, and quite free from smell. It may be satisfactory to some to know that this will remove the taint of smoking from the breath, if need as a month-wash.—*Hints for the Laboratory.*

Chloroform vs. Petroleum.—The addition of one part of chloroform to five of petroleum renders the latter incapable of combustion until the former has evaporated. In an experiment, a litre of burning petroleum spread out over a surface of ten square centimetres was extinguished by throwing upon it fifty cubic centimetres of chloroform.

Cured soap is made by using tallow for the grease and soda for the alkali.

Testing Milk.

Since it has become customary for milk dealers to endeavor to palm off on their customers a minimum quantity of real milk, mixed with a maximum quantity of water, under the name of milk, it is sometimes interesting to compare different samples of such milk for the purpose of determining the amount of water added. English chemists have devoted considerable attention to this subject, because there a law exists punishing adulteration in food and medicine, and we shall frequently have occasion to refer to their observations. The specific gravity of milk, as indicated by hydrometers made for the purpose, does not serve to detect carefully-conducted watering. The average density of good pure milk is about 1.032. Since milk fat is lighter than water, the more cream the milk contains the lower its specific gravity, while skimmed milk has a higher specific gravity than unskimmed milk. Hence it is possible to preserve the normal density in watered milk by first removing a portion or all of the cream, and then adding just enough water to bring it back to its original density. To ascertain the amount of water added, it is necessary to determine by analysis the quantity of fat present in the milk. John Horsley, F. C. S., accomplishes this in the following manner: A glass tube, 11 inches long and three-fourths of an inch in diameter, is graduated from ten inches down, one-fifth of its length, into ten per cent., or hundredths. A tablespoonful, 15 c. c. or 250 grains, of milk is first poured into the glass tube,; a similar bulk of ether is next poured in, and the tube closed with a thumb or cork, and agitated for four or five minutes. An equal measure of alcohol is next added and the whole well shaken for at least five minutes more, when, on placing it in an upright position on a stand, the oily or fatty matter will rise to the surface and can be easily read off. Each line will correspond to 4.15 grains of solid butter, as proved by experiment. Milk which has 10 per cent. of cream will show two lines of butter oil, or 8.3 grains, for 250 grains of milk. If desired, the butter may be drawn off and weighed in a small platinum capsule.

Mr. Wanklyn prefers to evaporate 5 c. c. of the milk to dryness in a weighed platinum dish over a water bath. The operation requires at least three hours. The residue equals the total milk solids, and averages, with example of good country milk, 12.45 per cent. This residue is treated with ether and heated to boiling, and the solution poured through a small filter, the operation of boiling and pouring off the ethereal solution being repeated three times. The solution of fat is placed in a larger weighed dish, and the ether gently evaporated by placing it in warm water. When, toward the close, it becomes turbid, the dish is placed on a water bath and heated to 100° C. for a short time, until it is dry, when it is weighed. The weight of the fat, subtracted from that of the total milk solids, gives the amount of milk solids not fat, a very important datum, as it is the most constant quantity in milk analysis, and gives, by a very simple calculation, the extent of watering to which the milk has been subjected.

The determination of casein is usually unnecessary, but may be made to prove that the milk was adulterated with skim instead of water. The portion insoluble in ether is extracted with strong alcohol, then with boiling water, dried up in a water bath, weighed, ignited, the ash weighed and its weight subtracted from the previous weight of casein and ash. The result is crude casein, including, of course, the albumen. The use of skimmed milk is shown by the presence of more casein than the natural quantity, and less butter or fat.

The determination of the total ash is made by simply evaporating 5 c. c. of milk to dryness and igniting over a spirit lamp or Bunsen burner. If less ash is found than usual, chalk or or other mineral adulterant has been employed. —*Journal of Applied Chemistry.*

Corn Husk Frames. — An agricultural exchange has the following: Corn husk frames may be made very prettily and simply by taking pasteboard or thick paper to sew the husks on. Then select your husks; take fine white ones, but not the finest. Take a husk and cut into strips three-quarters of an inch wide and three inches long. Then double it together in a bow as in tape trimming. Put two rows of these around the inside of the frame. Next cut a piece the length of the bows and the width of the husks and bend the two ends together. Now take your needle and slit it very fine through the center, and then sew the two ends that you hold in your hand on the frame overlapping the row of bows; then take some more pieces of slitted work, and turn end go lengthwise of the frame—not crosswise as before. That forms the outer edge of the frame. Take a thin piece of board and make a frame. Place your glass between your paper frame and your board frame, and tack or paste your paper frame down smoothly. You will thus have a nice rustic frame. Beautiful little card baskets and lamp mats may be made in nearly the same manner.

Cleansing Bronze.—A dilute solution of caustic alkalies removes overlying dirt, and allows the green patina to become visible. Where the metal was not originally oxidized the alkali simply cleanses it, and does not promote any formation of green rust.

The incompatability of iron and quinine in wines, on account of their precipitating one another, is shown by a German chemist.

Good Health.

The Transfusion of Blood.

At a meeting of the New York Medical Association, Dr. Frederic D. Lente read a paper on the "Transfusion of Blood." He said transfusion would be more successful if confined to appropriate cases. So far the operation had not been oversuccessful. Yet, notwithstanding this fact, it should not be abandoned; for, it even one case was successful, it should be regarded as a triumph of science. There were circumstances in which nothing short of transfusion would save a patient.

In the discussion which followed, Professor Fordyce Barker said that if transfusion was a resource which could be made helpful, by which a certain number of lives could be saved which would terminate fatally under any other circumstances, it was very important that the medical man should avail himself of it. Since his former researches upon the subject, he had been able to add to the list of recoveries after transfusion, so that the number now amounted to about one hundred and twenty-five authentic cases. Now the question is, as to the effect of transfusion in assisting recovery—whether the cases would have terminated fatally if this measure had not been resorted to? Those who advocate transfusion were not bound to become partisans for it. While the fact is not ignored that there was efficacy in other measures, yet transfusion might add an additional resource to our list of restorative measures—one which might prove successful when no other would.

The fact of failure in seventy-five per cent. of the cases did not militate against the propriety of using the means in the other twenty-five per cent. The question how transfusion was effective in preserving life, he would leave for physiologists to answer.

Dr. J. C. Dalton discussed the question of the real value of transfusion as a curative agent. In the case of an animal, or patient, exhausted by hemorrhage—so far exhausted that the pulse is imperceptible, intelligence very much diminished, and all the symptoms present of impending death—blood had been transfused, and the patient or animal had recovered. The apparent connection of the recovery with the transfusion was so direct, that he was led without question to conclude that transfusion was the cause of saving life. Dr. Dalton did not think it strange that, when patients had lost large quantities of blood, two or three ounces added would be sufficient to save life. There was in the human system from fourteen to eighteen pounds of blood. When one-fourth of the amount had been lost, it seemed almost impossible that life should be saved by the injection of so small a quantity. It did not strike Mr. Dalton in that way. In explanation of his reason, he likened the human system to a machine, in which latter there was a balance-wheel, the object of which was to carry the piston over the "dead point;" otherwise, if there be considerable resistance, the engine would stop. The injection of a very small quantity of blood after hemorrhage might be somewhat analogous to that.

Treatment of Chronic Dysentery by Milk-Diet.—The advantages of a milk-diet in diseases which leave anæmia and general debility in their course, have been often extolled by various authors, more especially by MM. Tocholies and Leclerc. Dr. Clavel, in his turn, in his inaugural dissertation, reports favorably concerning this treatment in chronic dysentery. He had observed this in warm climates, but believes that the same effects may be attained in colder regions. While the milk, by its nutritive properties, effectually combats the anæmia and general debility, it also favors the cicatrization of the intestinal lesions. Asse's milk, which is lighter and contains less butter than cow's milk, agrees better than any other, especially with those patients who also have an hepatic lesion, as in this latter case the bile, which plays so important a part in the emulsion of the fatty matters, is secreted and discharged in less abundance into the intestine. The milk can be administered pure or with the addition of a small quantity of lime-water. Treatment is commenced by giving one pint in 24 hours, which is increased in a few days to two or three pints.—*Revue Therapeutique.*

Respiration.—In our atmosphere the oxygen is diluted with very nearly four times its amount of nitrogen, and all the air-breathing animals, including men, have become adapted to these conditions. If the amount of oxygen became less, a corresponding change would occur in the respiratory system, as is illustrated in the high lands of South America, where, by reason of the rarefied atmosphere, the amount of oxygen inhaled at each respiration is less than near the ocean level; and as a consequence, the human lungs are more developed there, and the inhabitants are remarkable for their largely developed chests, allowing them to make up by quantity for the quality of the inspired air. The reverse is also the case; it has been found that the effect of the compressed air (on those workmen whose constitutions allow them to withstand the pressure and labor for some length of time in the caissons for the foundations of the Mississippi bridge, at St. Louis, Mo., and the East river bridge, New York) was to narrow the volume of the chest, while deep respirations of the highly compressed air were painful.—*Sci. Am.*

Washing the Inside of the Body.

The following ideas of Dr. Jackson are good in a measure, but it should not be forgotten that extreme dosing with water is a decidedly weakening process. The principle is about the same as that involved in the Turkish bath—a little of it goes a great ways:

There is no cavity in the body which water is not fitted for, if you can get it in properly. Why, one of the very best things you can do is to wash your blood; and the great folly we commit in going through our lives from childhood to grave simply is that we do not wash our blood as we ought. Infusions of coffee, tea, chocolate or cocoa, or older or beer do not wash the blood, because with the fluid so taken in, something is taken in also which befouls and defiles the blood. Just let a man say to himself, it is Saturday night, I have worked hard all the week, and Sunday shall be a day of rest to me. I am now going to give my whole system, between this and Monday morning, a good thorough washing. So he begins to drink and drink, and drinks but little at a time; yet between Saturday night and Monday morning a healthy man can drink, without producing any disturbance, a gallon of water. Now, let this come into and go through his circulation, through lungs and skin, and kidneys and bowels, the waste materials are carried out, and when Monday morning comes, if he jumps out of bed and gives his external skin a good washing, the water that he washes in will be foul. Or, if he prefers to test that question even more thoroughly, all he has to do is to take a clean sheet, and wetting it in good, soft, pure water, he wrapped up in it, and lie forty-five or sixty minutes, and then have the sheet washed in a tub of water, and it will color the water so that it will look dirty. The man has been washed inside; his blood has been washed. When you have washed his blood, tissues, bones, nerve, muscle, sinew, membrane and brain, and everything in him, he can defy all pestilence for that week. The washing of a person's inside is as necessary as the washing of a person's outside, and the washing of a person is twice as necessary as the washing of a person's clothes, and yet there are those who are very particular to have their clothes washed with great care who are not at all particular to wash themselves.

Symmetry. — The following proportions are those usually given in works on statuary and painting, and are generally known, but will bear repetition: The whole human figure should be six times the length of the feet. Whether the form be slender or plump, the rule holds good; and deviation from it is a departure from the highest beauty of proportions. The Greeks made all their statues according to this rule. The face, from the highest point of forehead where the hair begins, to the chin is one-tenth of the whole stature. The hand, from the wrist to the little finger is the same. From the top of the chest to the highest part of the forehead is the seventh. If the face, from the roots of the hair to the chin, be divided into three equal parts, the first division determines the place where the eyebrows meet, and the second the place of the nostrils. Right from the feet to the top of the head is the distance from the extremities of the fingers when the arms are extended.

New and Convenient Method of Cauterizing. The eschar produced by nitrate of silver is often too superficial, even though the applications are frequently repeated. Del Greco recommends the use of a small cylinder or pencil of polished zinc. After applying the nitrate of silver the zinc is to be passed several times over the surface already whitened by the caustic. The parts immediately assume a blackened hue, and the cauterizing action is seen to gradually become deeper. The eschar is detached in from 12 to 24 hours. The degree of destruction produced depends upon the thoroughness of the applications and the nature of the tissues to which they are applied.

Life.—We live literally by dying, and perpetually change every atom one by one. Life consists in perishing and renewing, and we are sustained by giving and taking. Every meal is a rescue from death, an instrument by which we stave off the inroads and waste which heat, cold, atmospheric effects and exercise make on our organic life. Dr. Beard puts it thus: The golden decade is from 30 to 40; the silver decade, 40 to 50; the bresen, 20 to 30; the iron, 50 to 60; and from 60 to 70 we learn whether the iron is forged or only cast. According to the doctor's estimate, we are at our best from 38 to 46, when enthusiasm, judgment and experience are balanced. After that date enthusiasm declines, judgment grows timid, and though experience enlarges, there comes a time when it ceases to have any enhancing power.

Swallowing a Tool Chest.—It is reported that in the different prisons of Paris there are five or six deaths every year from the effect of swallowing what is known as an "escape-box." This remarkable box is made for the especial accommodation of prisoners. It is of polished steel, about three inches long, and contains turnscrews, hammers, silk thread and other implements necessary for escape. The box appears to be easily swallowed, but sometimes fails to reappear as intended, and the death of the victim is the result. But when it does pass the bowels, the lucky prisoner is prepared to cut the thickest iron bars and set himself at liberty.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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THE Ukiah *Dispatch* understands that the quicksilver discovery on Dry creek, being opened by the Henshaws and others, is making a handsome showing. Two hundred tons of rock were taken out by five men in 10 days, and the pile has been estimated to likely yield about $40,000.

THE Belcher yielded $975,663 during the month of August. The Virginia *Chronicle* says that this one mine produces more bullion in six months than the whole of Utah in a year, and more than Colorado in a year and three months.

FINE gold is found in the bars of the Little Salmon river, about 25 miles from Fort Shepherd, where $10 to $15 a day to the hand is being made with a rocker. Quite a number of claims have been taken up.

THE new machinery for the Justice Mining Company, on the Comstock, is being made fast to the solid rock, by means of bolts, holes being drilled in the rock for the purpose. This will make a very solid foundation.

JAMES CRAWFORD has assumed the duties of his position as superintendent of the Carson mint, relieving F. D. Hetrich. Mr. Crawford has made no change in the operative officers of the mint.

ONLY $65,000 more is now required to complete the Santa Cruz narrow-gauge railroad, and arrangements have already been made for obtaining that amount.

THE Belcher air shaft reached the 850-foot level on Monday week. It costs $25,000. It will be continued to the 1,500-foot level.

PLATINA.—It is stated that in the State of Morelos, mining district of Tacala, Mexico, enormous deposits of platina have been found.

THE coinage and bars executed by the Carson mint during August amounted to $297,569.21.

Quicksilver Furnaces.

Since the "quicksilver excitement" began in this State, between one and two years ago, a large number of new claims have been located, as the high price of quicksilver has stimulated prospecting in a great degree. Probably few people are aware how many are interested in this branch of mining in this State, and what proportions it is beginning to assume. Large numbers of the so-called "mines" are mere "prospects," on which so little work has been done that it is difficult to tell whether they will ever be worth anything or not. There are now some 15 or 20 mines in the State which may be properly classed as producing mines, while there are hundreds of others which turn out a few flasks occasionally, some of which will, with a proper expenditure of money, add considerable to the quicksilver product of California.

Although it is with difficulty that capitalists can be induced to invest in cinnabar, a number of mines which have proved their worth are being worked on quite an extensive scale. The names of most of these mines are familiar, but new ones come to the surface almost every day. Some of these well known mines are increasing their works as fast as occasion permits, while others are erecting furnaces and retorts to commence operations.

The foundries of this city have of late received large orders for furnishing furnace retorts, etc., for these mines; and while a considerable quantity of this work has been turned out, orders are increasing rather than diminishing. Calling at the Golden State Foundry (Palmer & Knox) this week, we found them very busy in this class of work. They are making three sizes of furnace. They are at work on a 10-ton furnace for the Albert mine, Colusa county, and another 10-ton one for the Buckeye mine, same county. Another 10-ton furnace has just been completed for the Ida Clayton mine, near Calistoga. They are building a 15-ton furnace for the Annie Belcher mine and another 15-ton one for the Geyser mine. A 10-ton furnace is also being made for the Cloverdale mine. These are all what is known as the "Knox & Osborne Furnace."

They are also making a 20-ton furnace for the Rediugton mine. At this mine they have already two Knox & Osborne and one Almaden furnace, so with this new one they will have four in all. At this foundry they are also making a number of retorts for small mines.

At the Pacific Iron works they are also busy on work for the quicksilver mines. They have had a large amount of work of this class during the past year. They built one very large 30-ton furnace for the Great Western mine this summer, and are now at work on a 20-ton furnace for the Santa Cruz Mining Co., in San Luis Obispo county. They are making a number of retorts for various companies in Lake county, and shipping a good many retorts all over the State.

Some idea may be had from this enumeration of the work being done at only two foundries, of the importance of the quicksilver mining interests. The probability is that instead of decreasing, orders in this line will increase as more mines are opened.

IMPROVED AUGER.—Mr. William E. Howell, of Albany, Linn county, Oregon, exhibited in our office the other day an improved auger invented and recently patented by a Mr. Forstner, of Salem, Oregon. The auger has no gimlet or screw point like the ordinary auger, but is simply provided with two cutting bits. A band encircles the cutting bits and projects slightly beyond them. The lower edge of the band is sharpened so that in boring a hole the band cuts the wood around the hole, working sufficiently in advance of the cutting bits to make a perfectly smooth hole. The bits cut a flat bottom, so that at whatever depth the hole is bored it always has a smooth bottom. The auger bores easily, does not chip or sever the wood in entering or passing out on the opposite side of the stick, and can be withdrawn from the bore by simply drawing it out without backing it out with the usual reverse movement. The invention is one much needed.

GOLDEN STATE FOUNDRY.—At the Golden State foundry, in addition to the quicksilver furnaces mentioned in another column, they are making a lot of hoisting and pumping works for the Justice mine, on the Comstock. These are intended to work the mine to a depth of 1,500 feet. There are three engines—one 24x48; another, 20x42; and another, 16x36. The pumps are 12-inch plunger pumps. The gear-wheel for the machinery weighs 20,000 lbs., and is made in sections for facility of transportation. The whole machinery is very heavy and substantial. At this foundry, as in most others in town, they are very busy; busier, in fact, than they have been for the past nine years.

CEMENT ROCK.—We see by the Napa *Reporter* that a mine of cement rock and water lime has been discovered on the ranch of John T. Smith, situated 2½ miles from Napa, on the Sonoma road. As quite an extensive ledge of this valuable material has been found, and as it can be got to market as cheaply as from the cement mine, at Benicia, a chance for the investment of Napa capital is here presented. The cement is said to be of the best quality.

The Black Hills.

The glowing reports from Custer's expedition to the Black Hills have had the effect of exciting a lot of prospectors who want some new country to work in. Unfortunately for the miners it is forbidden ground, belonging to an Indian reservation. One correspondent writes that the miners traced up a creek, finding colors everywhere. Subsequent investigation proved that there was a belt 30 miles wide, as near as they could determine. A miners' meeting was held and considerable ground located. Contradictory reports, however, are given, and an officer who was with the Black Hills expedition says the newspaper correspondents have given an undue importance to that country, and have represented it as a paradise, when, in fact, its counterpart can be found in many places west of the Missouri river. Scarcely any gold is found, and none in quartz. Old miners charged with looking for gold were not at all enthusiastic. Rumors of rich gold deposits and other minerals are said to be purely rumors. The country is said to be rich in pasturage, is well watered and has fine timber, and would be acceptable for farming; but the country belongs to the Indians, and their rights to it are guaranteed by a treaty with the Government, and the Secretary of War has determined that the Indians shall be protected.

There are accordingly two sides to the story, and which one is true we have no means of judging. However, it is not at all improbable that the country is rich in minerals and will some day be opened up. At present, however, there is little use in miners going to the Black Hills, as the government will prevent it. If the country is as rich and broad as is represented, there will be plenty of room for all the miners who want to emigrate. Several expeditions, however, have organized, and unless troops keep them out it will not be long before some of these parties will be working in the Black Hills. Quite a number of people who have applied to the Department for permission to visit the Black Hills have been refused; but it is hardly probable that a simple refusal will deter excited men. The reports from there now are like the first from the famous diamond fields; it remains to be seen whether a second Clarence King will put a quietus to the Black Hill excitement, as that gentleman did to the diamond scheme.

Mining Accidents.

Mining accidents are of unusual frequency of late, and one can scarcely read through a paper published in the mining districts, without seeing an account of some accident where miners were either killed or injured. Among the latest we notice the following: On last Saturday, J. Cadman, a workman in the Crown Point mine, had his arm broken while attempting to halt the cage. Just as he was in the act of reaching for the bell-wire the cage caught his right arm, producing the fracture.

On the same day Joseph Farnsworth was very severely injured while at work in the bottom of the main shaft of the Sierra Nevada company by the cage being lowered upon him. He was hurt about the head and spine.

On the day previous to the above, while Jerry Cross was engaged in timbering a crosscut on the 1,100-ft. level of the Yellow Jacket mine, a cave occurred, by which he was badly bruised in the abdomen and back, and received some ugly cuts.

W. M. Sims was caved upon and killed a short time since while working in an old shaft near Folsom.

COCHRANE FEEDERS.—Joshua Hendy, manufacturer of Cochrane's ore-feeders, has received an order for eight of this class of feeders for the Lincoln 40-stamp mill, Amador Co., Cal. This order was given after tests made with the Cochrane feeder at the Keystone Consolidated mill, near the Lincoln. Mr. Hendy is our authority for the statement that the Cochrane feeder proved superior to that introduced in the Keystone mill by W. H. Patten.

MR. W. H. GORRIL, President of the Pacific Bridge Co., died in Oakland this week. Mr. Gorril was a lawyer of talent, who came to this coast for his health and has remained here since. He has been quite successful since he arrived here, and has succeeded in building up a very substantial business, and attaining the respect and good will of his patrons and business associates.

COMSTOCK BULLION.—The total product of the Comstock lode, up to the present time, is estimated to be somewhere in the neighborhood of $200,000,000. The *News* says that the amount just named, under the supposition that it is all silver, would, if massed, form a solid bar of bullion 25 feet long, 25 feet wide, and 25 feet high, weighing 1,222,326 pounds, Troy weight.

THE Knoxville quicksilver mines are 36 miles from Woodland, and the people of Yolo, in order to secure the trade of the new mines, are stirring in the matter of building a road between Knoxville and Woodland.

AT the Sacramento railroad shops the manufacture of five additional street cars for the San Francisco company, for which ten were recently made, has been commenced.

A New Quicksilver Strainer.

We examined this week a new quicksilver strainer invented by H. H. Oakes, superintendent of the Mineral Hill mines, Mineral Hill, Elko county, Nevada. It is intended to strain and clean quicksilver after the quicksilver comes from the huckskin or straining bag, and the amalgam is squeezed out. Without going into details, suffice it to say the apparatus is very simple and inexpensive, automatic in operation and apparently very efficient. Mr. Oakes informs us that he has had two at work at the mills for the past two months, and finds that they save considerable quicksilver. He says that in his experiments he found that the ore on the side of the mill where this arrangement was used was worked four per cent. better than on the other side. This he attributes wholly to the fact that the quicksilver was in so much better condition to amalgamate after being properly cleaned and strained by the new apparatus.

The quicksilver is first retorted and then passed through Mr. Oakes' strainer, which is so arranged as to extract any sediment or impure quicksilver in the mass. This is done mechanically. After running the quicksilver through the apparatus for two weeks and cleaning it out, he obtained nine pounds of very good floured quicksilver, of a bluish color. This was dried carefully in the sun, and on being properly manipulated eight pounds of quicksilver were obtained. The remaining pound was a very heavy kind of blue mud, familiar to most mill men. This pound of stuff was analyzed by the State Assayer, and found to contain some silver and 54 per cent. of quicksilver. This floured and dirty quicksilver usually lost is saved by this machine, and is prevented thereby from contaminating the clean quicksilver. The comparative results obtained by practical experiment are very satisfactory, and Mr. Oakes has applied for a patent for the apparatus. The machine is so simple and can be made so cheap that it will be within the reach of any miner, and will do for an arrastra as well as a 60 stamp mill, being an independent appliance.

The American Turbine Wheel.

Since our general reference to water wheels, Messrs. Treadwell & Co. have placed on exhibition, at the Mechanics' Institute in this city, one of the American Turbines, for which they are sole agents on this coast. This is considered a very superior wheel, and has been largely introduced into use throughout the Eastern States, and to some extent on the Pacific coast. Turbine water wheels are rapidly coming into general use, and bid fair soon to almost supersede all other kinds.

The advantages which these wheels possess over the best overshot or breast wheels are numerous and obvious. As a general thing their first cost is much less, and, owing to the small space they occupy, there is little or no excavation required for placing them in position for work, and no heavy nor expensive foundations are needed. Being made entirely of iron, they are not liable to get out of order. The great velocity at which they are run also adds to their efficiency, as there is but little if any necessity for complicated intervening shafts or gearing to obtain higher motion. The number of horse powers that a shaft will transmit largely depends on the velocity at which it runs. One that transmits 50-horse power when running 50 turns a minute, will give about 100-horse power when its speed is increased to 130 revolutions per minute. Much of this advantage is lost when that increased speed has to be obtained by complicated machinery.

It is supposed by many that turbines can be used to advantage only when very high heads are at command; but such is not the case. A much more economical use can be made of a 25-foot head than of one of 60 feet, or more. The friction encountered in passing a stream of water through a long pipe, in even a perpendicular descent, is much greater than is generally supposed, and must all be subtracted from the power as theoretically obtained.

SOGG'S MINE.—In our article on Sogg's mine in our last issue we stated that the company had paid out $60,000 since 1861 for labor and machinery. We should have said that they had paid out this amount since 1871. Latest reports from the mine is that the ledge is improving, and by the time the winter rains come they expect to make much better runs. This mine was incorporated as the Nevada Gold Quartz Mill and Mining Co. on the 25th of July last. John Berry is still superintendent.

A COAL mine has lately been discovered on a tract of land known as the Sobrante, situated on the San Pablo creek, about four miles from San Pablo. The land is in litigation.

A GRAVEL claim, near Eureka, which paid well in the old works, several years ago, is now being re-opened by Chase & Dickerson, with good prospects.

THE Board of Regents of the State University have decided to admit lady students to the medical department.

SAN FRANCISCO capitalists are making arrangements to work the quicksilver discovered on Mount Diablo about eight or nine years ago.

The Pacific Saw Manufactory.

Prominent among the industrial enterprises of this city, and one whose products are tastily arranged for exhibition at the west end of the Pavilion, is that of the "Pacific Saw Manufacturing Company." They exhibit a splendid array of everything belonging to their business, affording a display highly gratifying to our local pride, and indicative of the large success which that company has attained in their difficult and important specialty. They present every description of saws, from the most delicately fashioned scroll saw to the mulay saw of twelve feet in length, and circular saws of all sizes below six feet in diameter. Their collection is roughly estimated at $3,500 in value, and consists entirely of specimens of the ordinary styles manufactured by the company. The letters forming the words "Pacific Saw Company," are composed entirely of saw plates.

This company has now been in operation some eight years, and from small beginnings has gradually opened out to a most important mechanical enterprise.

California, from its first organization as a State, has led off in the use of saws for the manufacture of lumber; and the extraordinary size of her forest productions, has naturally led to the employment of saws of unusually large dimensions to correspond to the necessities of her mammoth growths. As the saws increased in size, the care in their manufacture, necessary to secure a perfect run and rapid feed, has increased in a doubled ratio. To keep pace with this augmented demand both for quantity and quality in this line, this company has procured the most perfect machinery, and the best skilled workmen, to be found in the trade. The raw material is obtained from abroad, and consists of the very best cast steel that can be procured. That used for circular saws is imported in circular disks, corresponding to the sizes needed. The material for all other saws also comes in the rough, unsven, warped, and as unlike the beautifully polished surfaces exhibited as can well be imagined.

The art of truing and tempering these huge circular plates is a most difficult one, and one that can be attained by but very few of even our first-class mechanics. Great care is taken by this company in performing this difficult work to its utmost attainable perfection, and they have succeeded in this specialty to a degree not probably excelled by any other establishment in the world. Saws are made by this company with both fixed and movable teeth. The process of the manufacture of the movable teeth, although carried on at this establishment, is quite a separate business from that of producing the plates, and belongs, we believe, exclusively to Mr. N. W. Spaulding, the inventor of the peculiar kind of tooth which he employs, and a prominent member of the company.

"Spaulding's Patent Movable Saw Teeth," as they are called, have almost revolutionized the business of circular and other large mill saws, and added largely to the capacity and economy of this great primal instrument, in every process and variety of wood work. Mr. Spaulding was the first one to make any important improvement in the manufacture of movable saw teeth, and his invention is that which has made the employment of such teeth a great practical economy over the fixed or square cornered teeth first employed. The invention of the Spaulding tooth has also led, as nearly all important inventions do, to many imitations, all of which present decided advantages in large saws over fixed teeth or the imperfect movable teeth which were first employed.

Smith's Patent Ladders.

At the north end of the Mechanics' Institute Pavilion may be seen six samples of ladders, invented by A. P. Smith, of Sacramento, patented Dec. 30th, 1873. Reference to the illustration will show that the results obtained by the invention are lightness and strength, and consequent safety. These ladders are not more than one-third the weight of the ordinary kinds in use, yet much stronger. The improvements consist mainly in strengthening the side rail by means of wires longitudinally placed and strained tight, and by transverse uniting rods, so that the material used may be greatly reduced in size and made so much lighter that very long ladders can be quite easily handled by two men.

Two kinds are manufactured; one with steps of the same width as the side pieces, the other with the ordinary rounds strengthened by an iron rod running through them and securely tightened by means of nuts. This has the double advantage of making it possible to greatly reduce the size of the rods and of giving great strength. In the engraving A is the ladder, B shows a single step with details of construction, and C shows the manner in which the wire is fastened.

In small towns and country districts where there are no fire engines, the Smith ladder would be of great utility, being easily carried by one man, and, owing to their lightness, without fatigue, one twenty feet long weighing but forty pounds. They are manufactured of all lengths to forty feet. Although so frail-looking they are perfectly rigid under a heavy load, not bending or trembling as do ordinary ladders. The value of these important improvements, secured by the inventor, will be readily appreciated.

Electro-Galvanic Quicksilver Saving Apparatus.

We examined the other day the quicksilver-saving apparatus, invented by Joseph Potts of White Pine, which has just been made in this city. The apparatus was shipped this week to Virginia, where it will be placed in a mill belonging to John P. Jones, and thoroughly tested. It was tried with great success at the Eberhardt and Aurora mill, at White Pine, where Mr. Potts assured us he saved 25 lbs. of quicksilver a day from one-third of the tailings of a 60-stamp mill. He has heretofore taken no steps to introduce his invention, but with the tests to be made on the Comstock he is confident that it will be generally adopted as an adjunct to quartz machinery.

We described and illustrated this machine in the PRESS of June 14th, 1873. The one we examined this week is intended for a 20-stamp mill. The apparatus is placed below the plates or battery, so that the tailings pass over it. It consists simply of a copper box, 12 feet long by four feet wide. Along the upper side of the box are placed a series of riffles or blades, eight in a row and about 4½ by 2½ inches in size. Each riffle is rivetted to the bottom of the box, at an angle of 30° from the horizontal plane, and extends *lengthwise* the box. A space of about one inch is left between the riffles in each row. These riffles are arranged so as to break the current of water and tailings, so that the tailings can not pass down without coming in contact with some part of the amalgamated surface.

On the lower section of the box are rivetted a series of copper riffles across the width of the box. The lower edges of these riffles are perforated so as to allow the quicksilver and soft amalgem to pass through and finally pass into the proper receptacle. The interior of the copper box as well as the upper and lower riffles are all well coated with quicksilver.

This whole copper box is enclosed in a zinc-lined wooden box, which may be closed and kept locked. As the copper reels on the zinc, on the admission of any tailings or water, however slightly acidulated, a galvanic action is set up. In addition to this, Mr. Potts has constructed a powerful battery, with nine large cups. This battery is six feet long and divided by glass partitions to form separate cups. It is coated inside with bees-wax. The zinc plates for the battery are six and a half by eight and a half inches, and one-fourth of an inch thick. This makes both an electric and galvanic battery for the apparatus, favoring amalgamation greatly.

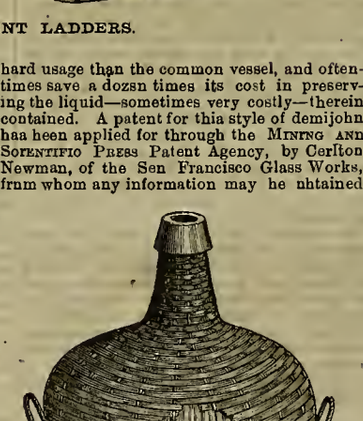
The whole apparatus is enclosed in a large wooden box with a cover, so that it can be kept securely locked. With the small machine nine feet long and sixteen inches wide, at use in the old mill in White Pine, he saved 25 pounds of floured quicksilver per day that was usually lost. There is nothing complicated about the apparatus, nor is it at all expensive. Accurate tests of the machine are to be made at the mill where this one is to be placed, the results of which we shall publish as soon as they are completed.

SMITH'S PATENT LADDERS.

Newman's Improved Elastic Demijohn.

Heretofore much fault has been found by the public with the ordinary demijohn, from their liability of being so easily broken; and as glass has proven to be the best material with which to contain liquids, simply from the fact that it is impervious to moisture and cannot taint the liquid, people will not abandon it for any other article for the same purpose. We give herewith an engraving of a demijohn which will answer all the purposes for which demijohns are used, and which are less liable to breakage than the ordinary kind.

By referring to the engraving it will be seen that the bottle is first covered with the common tule reed—a soft, elastic substance—forming a cushion, if we may so term it, and the rattan is woven over this, thus doubly protecting the bottle. To liquor dealers, grocery men, druggists and others, it will prove invaluable, as it will withstand a greater amount of hard usage than the common vessel, and oftentimes save a dozen times its cost in preserving the liquid—sometimes very costly—therein contained. A patent for this style of demijohn has been applied for through the MINING AND SCIENTIFIC PRESS Patent Agency, by Carlton Newman, of the San Francisco Glass Works, from whom any information may be obtained concerning it, and from whom dealers and others can procure them in such quantities as may be desired.



Newman's Improved Elastic Demijohn.

A LARGE quantity of steel rails has been purchased for use on the Eureka and Palisade Railroad. James Campbell, late of the Central Pacific, has been appointed Assistant General Superintendent.

THE machinery for the new branch mint has been almost completed and placed in position.

A COMPANY is being organized to build a street railroad at Auburn, Placer county.

The Pacific Iron Works.

The Pacific Iron Works is the oldest but one of the iron foundries on this coast. It was established in 1850 by Mr. Goddard, occupying the same location as at present, on First street bet. Mission and Howard. The works occupy a space fronting 240 feet on First street and running back to Fremont street 275 feet. The proprietors for the past twelve years have been Ira P. Rankin and A. P. Brayton. The general superintendent is George W. Fogg.

The works have been completely refitted with new tools of the most approved character, capable of turning out all classes of work, and is one of the largest and best equipped shops on the coast. The shop is a very substantial three-story brick building, perhaps the best in the city. All the different departments of a first-class foundry are here, the pattern-making, machine, foundry and boiler departments being completely equipped. On the average 200 men are employed. These works are peculiarly fitted for turning out heavy work of all descriptions.

In common with the other iron foundries of this city, work has been rather dull with them for the past three years, but the present year is a very busy one. Buildings, mills and hoisting works are on the increase and all of a larger character than heretofore. No particular specialty of work is performed at this foundry except, perhaps, that they have turned out more marine work in the past ten years than the other foundries. They have fitted out a number of tugs, steamboats, etc., which are now running on the bays and rivers of the coast. They built one of the first compound engines ever made here for the steam tug "Fearless," now running in Coos Bay, and which is performing its work well. They are also doing most of the repair work for the Pacific Mail Steamship Company.

These works have just shipped a fifteen-stamp mill for the Oakland Silver Mining Company of Nevada, with pans, settlers, etc., complete. They have a large contract to furnish iron work for the Napa Insane Asylum. Also a contract for furnishing the iron work for the building of the Safe Deposit Company, on the corner of California and Montgomery streets. They have been quite busy building furnaces, retorts, etc., for various quicksilver companies. They built the large thirty-ton furnace for the Great Western quicksilver mine, and are just shipping a twenty-ton furnace to the Santa Cruz Company in San Luis Obispo county.

The Rider Hot Air Engine.

The latest modification of Ericsson's invention for employing hot air in place of steam, has been placed on exhibition in the boiler room of the Mechanics' Pavilion, lately, by Huntington, Hopkins & Co. Several attempts, since the original device of Ericsson's, have been made to render the hot air engine a practical success; but for one reason or another none have as yet succeeded, unless we accord success to this new candidate for public favor, which, having only been patented since 1871, can hardly, as yet, be considered entitled to a reliable record. We understand, however, that this engine has thus far met with much favor wherever it has been introduced, and it certainly appears to be an important step towards meeting the requirements for an economical, safe and reliable engine for light work. It is comparatively noiseless, works very steadily, and is compact and simple in its construction. The one on exhibition, we are assured, can be worked up to two-horse power, with the use of from fifty to sixty pounds of coal for each day of ten or twelve hours, with continuous work, and it requires no more care or skill in attendance than does an ordinary stove. There is no water, steam, nor water nor steam pipes, nor boiler, to care for, consequently there is nothing to explode or endanger, and but little to get out of repair, beyond what is attached to an ordinary office stove; in fact it is much simpler than a kitchen stove with its accompanying furniture. It occupies but a small amount of space—3½x2½ ft. on the floor and 7 ft. in hight. This engine attracts much attention, and all who are curious or interested in examining it can have the opportunity of seeing it in operation every evening.

PHILIP ARNOLD, of Arizona diamond fame, has been released on a writ of *habeas corpus*. It will be remembered that Arnold was arrested in the streets of Louisville, Ky., and placed in duress to await transportation to this city for trial. His friends sued out a writ of *habeas corpus* and attempted to gain his release through the agency of the courts. The court held that the proceedings in the case were regular and legal, and remanded the prisoner to custody. On the 7th instant, and after Arnold had been in arrest some two weeks, the prisoner was brought before Judge Stiles, of the Court of Common Pleas, on a second writ of *habeas corpus*. The judge took the case under advisement and the result was the discharge of the prisoner.

FROM 20,000 to 50,000 pounds of borax have been transported over the Virginia and Truckee railroad since the completion of the new road to Columbus.

Cherry Creek.

The *Eureka Sentinel* has the following to say of Cherry Oreek district: Those who have been loud in thair predictions that Cberry Creek hsd pleyed out, that the new district wss a fizzle and would never amount to anytbing, are now very liable to be mistsken. Last spring the discouraging reports of the district had the effect of driving msny from the place, but those remaiuing, whose faith in tbe mines wes uushaken, are now resping tbe fruits of their faitb; and to-dsy Cberry Creek bas brigbter prospects of becoming an important district thsu ever before. The mines never looked iu a more favorable condition; tbe work of developiug aud prospecting them is being energetically pushed forward, witb tbe most satisfeefory results. The clatter of tbe stamps at the different mills in constsnt operstion, the tons of rich ore being extracted from the various mines and the number of men at work are evidence enough tbat tbe place still livetb. To show the present standing of the leading mines of the district we publish tbe following extraots received from there by mail yesterday, from a gentlemen well versed in mining affairs, and whose report can be relied upon.

The San Jose Company's Mine,

At Egan, five miles from the town of Cherry Creek, has now about eight hundred tons of good ore on the dump, and are still taking out rock of tbe same quality. About forty men are employed at the mine and mill of the compauy. The mill (twenty stamps) was stsrted up on Mondsy lest. Wbile shut down extensive repeirs were made on tbe mill. The compsny is working both custom aud ore from its own mine. General Rosecrans bas the management of the afiairs of tbe compsny.

The Teacup Mine,

Belonging to tbe Geneva company, has a shaft down 150 ft. aud is now running levels. The ore body is extensive and rich. A two-stemp mill bes been running, and 15 days' run of Teacup ore resulted in a bullion product valned at $12,000. The company is now working five stamps of the San José company's mill and has about 30 men employed at the mine. Capt. Kimball is in cherge of tbe mine at present.

The Chance Mine,

Owned by George Treat, of Sen Feancisco, under the superintendeuoy of Frank Hallowell, has 20 meu at work. The ore extracted is similar to that of tbe Teacup mine, and is being orushed at the two-stamp mill belonging to tbe latter company. The body of ore now exposed shows to be large aud of a high grade. The owuer has the utmost confidence that tbe Chance will prove itself to be one of tbe most valnable properties in the district, and from the showing it would appeer tbat sucb confidence has not been misplaced.

The Flagstaff,

Lately bonded to and being worked by McDermott & Co., is showing a fine prospect. At present six men are et work, but tbis force will soon be increased. The character of the ore and extent of the vein indicate that the bonders have made a profitable investment, and if tbe fnture developments disclose es much es those already mede the mine will soon become a payiug institution.

The Star Mine,

Recently sold to Messrs. Dickson, McKenney, and others, and a few days since incorporated as a company iu San Francisco with a capital stock of $3,000,000, is in excelleut condition, and the work of sinking the shaft aud drifting progresses favorably.

The Cherry Creek Company,

Under the charge of Captain Turner as superintendent, is now taking ore from the Exchequer mine and keeps its five-stamp mill iu constant operation, crnsbing seven tons of ore a day. The mines of the oompany are being vigorously prospected, and show satisfactory results.

Other Mines.

Work on the Gray Eagle has been resnmed, with a fine showing. The Victoria, the oldest mine in the district, has been bonded to Captain Turner, of the Cherry Oreek company, and work will be started immediately. The mines at Queen's spriug, Schellburn, Hunter's, Centerville and Ruby Hill distriots, and those on Schell oreek range, are being worked with varying results, some meeting the expectations of tbeir owners, while those not looking so well present an appearance that leads tbe proprietors to think thet they will yet prove productive and yield a good quality of ore.

The population of Cherry Creek is once more increasing, many miuers having lately arrived and obtsiued employment, though, for the present, it would not be well for those seeking employment to go there, as a full complement of men are now at work at the different mines. It was tbe rush thet geve tbe district tbe backset lest year, and to prevent a repetition, it is right to state that for the present labor is not iu suoh demaud as to cause a general immigratiou to the place. When the mines are further developed the workiug force will be increased, hut until then there are enough men in the camp to do the work required. From the present indioations Cherry Creek will, in a short time, ooonpy a prominent position among the mining districts of Eastern Nevada.

Some housewife says that rihbons of any kind should be washed in cold suds end not rinsed.

The McGee's Furnace at Tybo.

A oorrespondent of the Eureka *Sentinel* writes from Tyho as follows: On Monday morning, Aug. 26, as promised by Snperintendent McGee, the Tybo furnace was charged with ore. All the people living in camp assembled at the furnece to witness the first attempt at smelting. At precisely seven o'clock A. M. the first charge of ore was shoveled in; all waited with abated breath to witness results. In the meantime, between the first charge of ore and the first discharge of slag, Superintendent McGee, with his practical knowledge and eagle eye, carefully watched every perceivable part of the entire works—not a thing escaped his notice—up and down, from the top to the bottom of the furnace building, the feed room, tbe ore, coal, fumes, wells, flues, tweers—even to the smoke from the stack; not a curl or color went unnoticed. After the furnace had been charged about one hour, a nice little smile, about the size of an outside gate to a barnyard, was observed creeping over his face, and from this the orowd resd plainly—"a perfect success, gentlemen." And not long had the crowd to wait to prove his superior judgment in ore smelting. Not two hours after the first charge of ore was thrown into the furnace from the feed room, the superintendent took up a ber, tapped the discbarge, the slag started, run like melted tallow and ss clear as crystal. On seeing tbe slsg, bats and cheer after cheer went up from tbe crowd, but no cbange in the superintendent was perceptible. 'Twas all bnsiness and no mistakes with Mac; no basket of cbampague nor drinks in his. Successful legitimate business and no foolishness seem to be his aim. Steadily on until tbis morniug, sleg running freely, and still Mac, without sleeping or eating, is at his post, and at about six o'clock the well, holding between five and six tons of bullion, wes full, and syphon full, and now lead dipping and brick meking in full blast, and it cen now be quite sefely said thst ore smelting in Tybo is a perfect success.

Tbe furnace is of abont 40 tons' capsoity—mecbinery all new, and of a cepacity sufficient to drive two more furnaces of tbe ssme size of the present one. We understand that another furnace is to be constructed soon. Stone is now being dressed for a refining furnace. The intention is, I helieve, to separate the metals and use the lead over. By so doing they will be able to smelt all tbe various characters of ore tbet may be hrougbt to the furnace. Tbe planning of tbe grounds, the furnace, buildings, road, etc., are aooredited to Cyrns Packard, and in the judgment of practical furnece men, is the most economioal, handy and labor-saving construction of the kind in the Stete.

The railroad leading from the main dump of the 2 G mine to tbe furnace is a perfect model end success; is s quarter of a mile iu length, on whicb cars are used, drawn by a horse, that carry 3,000 ponuds, one of wbich is filled, hauled to tbe furnace and unloaded every fifteen minutes. The oar track is above the furnace, and by opening a trap door on the side of the car the ore drops into a chute and slides to tue feed-room floor, where no more handling is required. The mine dump is above this road bed, and holds about 200 tons, at the hottom of whioh is a small iron door that is raised with a lever; through this the car is loaded in one minute. A railroad is connected at the top of this ore bin with the inside works of the mine, through the lower tunnel, and into this tunnel all the ore is emptied through chutes and winzes from above. How tbese works sre exactly arranged inside, and just how the mine looks, I cau't sey. I know that only about ten men are working in the mine, and only know thet the car comes out often well filled with No. 1 ore, but do not know that there are meny thousands of tons of good ore above the railroad tunnel.

The company's mines are under tho management of J. B. Hudson, a thorougb practical miuer, and with suoh men as McGee, Packard and Hudson—all practicel laboring men—(men who are willing to sbake hands with any kid gloved mau tbat offere his heud, "hecause they like to soil gloves")—witb a furnece successfully smelting 40 tons of ore every 24 hours, abundance of good ore to smelt, abundance of wood and coal for their own nse, who cau have a doubt as to the final results?

Raymonn & Ely.—Yesterday we had tbe pleesure of meeting Capt. Day, and had some talk concerning the operations of the company so far as regards the erection of the pumping machinery. The captain seys there is some 160 tons of machinery on tbe way, also the timber for the rods, pillow blocks, etc. At the works preparations ere actively in progress for the reception of tbe machinery. All that care, skill and experience oan dictete in preparing for and setting up the machinery will he brougbt into requisition to insure entire success. The work is being performed by skilled mechenics under able and competent snpervision. It is thought that the machinery will be in motion about the 1st of February next. —*Pioche Record.*

Sold.—The mines bonded by Thomas N. Browne, and situated on Queen Springs hill, near Shellburn, heve been sold recently to Eastern parties, and the money distributed emong the severel owners. One of the fortunate ones, Peter Caffrey, is a resident of Treasure Hill, and we congratulate bim on his good fortune. The property is now under the control of Mr. Browne, and is being worked by bim for the company.—*White Pine News.*

Panamint District.

Tuesday we had the pleesure of meeting and conversing for a short time with Mr. R. C. Jaoobs, one of the discoverers of Panamint miuing district, now gaining a wide reputation for great richness. Mr. Jacobs informed ns thst bis mill would be in running order in abont three weeks. The mill of Jones & Co. will be ready for work this fall. The ore is of a "rebellious" charecter. Panamint is on the very edge of the great Death valley, in Inyo county, aocordiug to the latest surveys about 100 miles from Independeuce, the county seat. There is plenty of water in the district, but not enough for water power; enough fire-wood, but no building material. Lumber is hauled from Tehaichipa aud Los Angeles at great expense. The face of the ooantry is extremely rough snd uninviting. The ronte np the cañon to the central camp is good. The water and climate good. Mr. Jaoobs is going to San Francisco for supplies and will ship by rail to Bakersfield about 30 or 40 tons, as an experiment on rates of freight and time in making the trip. He thinks several days' time osn be saved by this route, which is worth a good deel of money when commencing operations in a new mining district. He is of the opinion that freigbting for Panamint snd all of Inyo county will be done through this route, owing to the saving of time if not a reduction of freight retes. While coming in, he passed quite a number of persons on their way out with teams and packing animals. The estimated population of the district is two hundred, including several families. He does not advise people to go tbere this fall, owing to tbe difficulty of getting building material. Mr. Jaoobs passed one winter in Panamint and says it was not at all severe. The summer seasou is warm, the surrounding country being a hot desert. On the route to Panamint you pass the Slate range borax fields, where the Searle brothers heve a furnace end are msnufacturing a oommercial article of the finest quelity. He says thst the borax fields of Slate range are sufficient to snpply the world for an indefinite time. From all we could learn in our brief oonversation witb Mr. Jacobs we are led to believe Panamint has no equal on tbe coast for richness, and we congratulete our Inyo neighbors on tbeir good fortune in having the district in their territory. We hope our Panamint friends will find it to their interest to do their freighting by the Bakersfield route. —*Southern Californian.*

Eagle Mill.

All the lumber for the new Eagle mill, in Indisn distriot, seys the *Silver State*, is now at Oreana, and is being hanled to the site as rapidly as the big teams of George Miller and Andy Westfall can get it tbere. The msohinery for tbe mill, which is to be of 15-stamp (dry orushing) capacity, will be shipped from San Francisoo this week, and will arrive at Oreana about the middle or last of next week. The miue coutinnes to improve es work progresses, and Superintendent Bivins is in high spirits. The main sheft is down a depth of 70 feet, in a body of ore 12 feet thick, more than one-half of which is first-olass milling ore. Lsst week a test was made of some of the ore taken from the hottom of this sbaft, and it was proved to contain $450 in silver aud $130 in gold to the ton. A contract hes heen let by the oompany to run 240 feet of tuunel from the hottom of the sheft—140 feet north and 100 feet sonth. The tunnel running nortb will connect with an old incline on the ledge, and is being run for the purpose of ventilating as well ae developing the mine; and the sonth tunnel is being run for the purpose of ascertaining, if possible, the extent of tbe imamense body of ore now in sight in the mine. This property, now owned by tbe Oakland gold and silver mining company of California, is tbe one reported against so strongly by George Hearst, the San Francisco mining expert, as to break np the first company orgenized for its purchase and working; and it stands to-day as a mountain of evidence against the mining knowledge of sll such frauds. The mine is one of the most valuable in the State, and the snperintendent, Mr. Bivins, deserves greet credit, considering all he hed to contend egainst, for tbe extraordinary amount of pertinacity he displayed in proving so iich a proverty.

A Fairy Fountain.—The *English Mechanic* gives the following: "If 20 grains of phosp borus, cut very small and mixed with 40 grains of powdered zinc, be put into four drachms of water, and two drechms of couceutrated sulphuric acid be added thereto, bubbles of inflamed phosphoretted hydrogen ges will quickly cover the whole surfece of tbe fluid in succession, forming a real fountein of fire." Those not accustomed to experiment with the phosphorus may need a caution in regard to handling it. It is best to cut it under water.

Frost Bites.—Dissolve 30 grains of tannin in 900 c. c. of water, and 3 grams of iodine in 50 grams of alcohol. Tbe solutione are mixed, end the mixture diluted to 1¼ liters. The mixture is placed upon a slow fire, and the affected pert immersed nntil the liquid becomes too hot; tbe part is then allowed to draw near the fire. The application is made once daily, a cure being effected after four or five days.

Bullion for August.—Wells, Fargo & Co. shipped from Anstin during the month ending August 31, 1874, per acconnt of Manhattau S. M. Co., hullion as follows: Eighty-five hers, weighing 8,629 pounds, valued at $110,202.77.

Arizona Mines.

The *Arizona Miner* has the following about local miniug operations: C. O. Brown got in from Oro Blsnco on Mondey and brought several nice lumps of gold teken out of the mine. He hss now got mining under way in a pretty sstisfactory menner. The mine is being worked day and night and seven arrastras are in continuous operation. The vein hss widened from twenty inches to four and one-half feet, witb perfect walls and every indication of permenency. He ssys if the vein continues just as large and rich as it shows at present, he doesn't ask for a better opportunity to get ell the money he wants. He hss bonght a lot more supplies and started them to the mine.

He says the plsee is rapidly assuming the character of a full-fledged mining camp. About forty people are at work there. A ranch is tbere with snpplies of milk, hutter and beef. The people are confident and of course cheerful.

Three arrastres are running on ore from the Ward mine, and one on ore from the Ostrich—this last being about six miles from the Oro Blanco and Ward. It is a recent discovery by George Hogg and another man, and Mr. Brown says the prospects for a splendid paying miue are all that could he desired. Five men are at work on it.

The mountsins are full of prospectors, and none have any doubts about that region, for many miles in extent, being very rich in gold, nor that it will by and by be the scene of a vast number of prosperous people.

J. McElliott snd G. W. Hamor have been at work for severel weeks developiug a couple of quartz ledges nesr John T. Smitb's ranch. Tbey sre now in town and report fine prospects for two good mines, and they intend to continue development.

E. M. Pearce and Mr. Barnes have gone to the Young America with snpplies. This miue is one of the richest in copper and silver in tbis or any other Territory. Our dispatches from Maricopa Wells sbow tbst Mr. Shultes, of Phenix, hss returned to develop the Quajate, in the vicinity of the Young Americe.

Colonel Taylor got in from the mines on Thursdsy aud also Mr. Sbultes—mentioned in our Maricopa dispatch. Colonel Taylor has purchased conditionally 700 feet of the marvelously rich Quajate, claimed by Mr. Sbultes, 600 feet of Olark and Collins on a vein which is simply an extension of the Quajate, Sacaton and Grey Eagle nnited, and also the undivided helf (he now owning one-helf) in 1,500 feet on tbe Sacaton and Gray Eagle from P. Forbach. Both Colonel Taylor and Mr. Sbultes showed ns specimens of ore from the dump of the Quajete, which ere extraordinarily rioh in horn silver, hlack sulphnrets and native silver. Mr. Sbultes bas 14 tons of ore which, with suitable reduction works at hand, he considers would be worth $20,000 in gold. Next week we shall get at sll the importent facts oonneoted with the discovery of these several veins and present them to our readers.

Colonel Boyle, superintendent of the Sonora compauy of London, is due here by stage of Tuesday morning. We understand he oomes prepared to prosecute work on the Santa Rita mine on a large scale.

Mining Failures.

In an article in the Fairplay *Sentinel* (Col.) occurs the following paragrapb: Every miuing district in the Territory has at a great expense erected monuments to Dame Folly that the names of the progenitors of smelting and reduction works, etc., might he handed down to posterity in "blue and gold." From Jamestown, the most northern mining district in Ooloredo, to the San Juen, the extreme southern, these monuments abound on every hill side, in every gulch; in short millions have been squandered in the vain endeavor to find some new metbod whereby the metals of Colorado might be extracted in a way peculiarly Americau in its application. If a history of different "processes" for smelting ores were written the historian would find that Gilpiu county has been the main bettle grouud. He also would find if he followed the rsmifications of the "proces man" for 10 years, that bnt one company have succeeded in the successful and remunerative milling of ores in the golden county of Gilpin. After Gilpin comes Park county, tbe same company having introduced their works, here, and in the treatment of ores as regerds smelting Summit, one of the newest countics of Colorado, comes the third on the list. Of this latter county we have to deal aside from the comparatively old mining district of Montezuma there has been but little done in the way of developing lodes, and these developments in a majority of cases heve been so meeger, that no determinatiou could be arrived at as to the value of the mines.

Painting on Glass.—The best metbod of peinting upon glass, so that the coloring will resist the weather, is given as follows: First draw tbe snbject on paper, and festen it, face downward, by pastiug it at tbe ends, to the gless. Turn the glass over, and paiut with a camel's heir pencil, tbe pigments being mixed with varnish. Let the outlines dry before filling in end sheding. The painting may be varnished over.

By placing fresh olive flowers at once in boiling water and collecting tbe distillate immedietely, the product is superior to that obtained by immersing the flowers in cold water and then reising the temperature.

The Floor of the Ocean.

The voyage of the "Challengar" promises to accomplish even more than was at first anticipated in throwing light upon certain disputed questions in regard to the physics and natural history of the globe. The subject of ocean circulation is now becoming comprehensible, and some of the most important geological problems seem to be receiving their solution. One of these is adverted to by Mr. Alexander S. Wilson, in a paper published in *The Chemical News* upon some of the chemical aspects of physical geography, based upon one of Professor Thompson's letters from the "Challenger," referring to the fact that in sailing from Teneriffe to St. Thomas the sounding indicated that the bottom of the Atlantic rises into a ridge about 300 miles west from Teneriffe, and that from this where the depth was 1,500 fathoms, the bottom sloped gently down, until at 750 miles west of Teneriffe it sunk to a depth of 2,950 fathoms, this continuing constant until within 300 miles of Sombrero.

A remarkable relationship was found to exist between the depth and the character of the dredgings. At 1,500 fathoms the dredge brought up globigerina ooze, multitudes of minute shells, and fragments of coral, the whole composed mainly of carbonate of lime. As the depth increased the proportion of these shells diminished, until in the deep water they disappeared, and there was nothing brought up but the fine red mud which did not effervesce with acids. This, consisting of iron and alumina, was met with everywhere over the plain, and could not be, therefore, as at one time supposed, the mud brought out by great currents, such as those of the Amazon and Orinoco; but must have been produced on the spot.

A specially noteworthy circumstance was the absence of shells, found elsewhere in so great numbers. In explanation of this phenomenon, Mr. Wilson refers to the concurrent fact that the water from these great depths is very rich in carbonic acid, the air from a depth of 1,476 fathoms containing 40 per cent. of carbonic acid, the percentage probably increasing rapidly with the descent. Water thus saturated with carbonic acid will readily dissolve carbonate of lime; and Prof. Thomson therefore concludes that the uniform deposit of red clay is simply the insoluble parts of myriads of shells, the residue, in fact, of a chalk formation now dissolved. The animals living on this area are universally destitute of a shell covering, this either being siliceous or membraneous. Thus, while the shallower regions of the deep sea-bed are covered by a layer of grayish-white ooze, prolific in organisms, whose shell will one day form chalk, this in the deep submarine is dissolved, leaving behind only the red mud. A geological formation would consequently consist of chalk or limestone of some sort at the higher levels, gradually losing its calcareous character as it passes lower down, first into a calc-ferrous slate, and finally into a slate containing no lime whatever. *New York Tribune.*

We learn from the Philadelphia *Ledger* that seven years of patient study have resulted in the invention of a series of machines by which American lead pencils are made, in Jersey City, entirely by machinery. From the time the plumbago and rough strips of cedar and other woods enter the machinery, until they are turned out together polished lead pencils, ready to be tied up in packages, no hand labor is required. The materials used are all American, the plumbago coming from Ticonderoga county, New York, and the cedar from Florida. The pencils are made of five different grades, and they are said to be of such quality that they can compete at once with the best pencils of —German manufacture.

Large Set of Sluices.—There was completed yesterday, at the Woodworth mill, near the mouth of Gold Cañon, a set of blanket sluices 1,700 feet in length. The string is made up of twelve compartments or separate sluices, each 19 inches in width. The bottom of each compartment is covered with blankets for catching sulphurets. It is estimated that the whole string of sluices will catch about 40 tons per day of concentrated tailings. All the water and tailings passing down Gold Cañon will run through the sluices.—*Enterprise.*

The Flora of the Wasatch range is unsurpassed in the world. Recently some miners in prospecting in the peaks beyond Parley's Cañon, having an eye for the beautiful of nature, thought to count the different varieties of flowers which wasted their fragrance on the mountain air, and bloomed and blossomed unseen. With a line they drew a circle, and in a radius of 40 feet they counted 63 varieties. The Gentiles have made the mountains of Utah yield up their precious metals and blossom as the rose 63 times.—*Salt Lake Tribune.*

"White coal," is the latest Australian discovery. It consists of felted cabbage fibers, like peat, which contain interspersed between them fine grains of sand. It is easily combustible, and burns with a bright flame. The white coal covers large tracts, requiring no mining.

In order that some idea may be formed as to the enormous extent of land required to grow trees for building and other purposes, in Europe alone, it may be stated that no less than 500,000,000 of acres are at this moment estimated to be in cultivation as woodlands, which is a very large percentage of the whole area.

Bismuth.

This metal occurs in its native state, and also in combination with sulphur, oxygen, silica and tellurium. The bismuth of commerce is almost exclusively obtained from the native metal, which is chiefly procured from the mines in Schneeburg, Saxony.

Commercial bismuth is never absolutely pure, but as the other metals with which it is associated are commonly more oxidizable than itself, it may, in a great degree, be separated from them by fusing the powdered alloy in an earthen crucible, with one-tenth part of its weight of nitrate of potash. When this mixture is heated until the nitrate is completely decomposed, a portion of the bismuth, together with the greater part of the impurities, will have been oxidized and remain in combination with the potash, while a button of purified bismuth collects in the bottom of the crucible.

Bismuth enters into the composition of the best type metal, and has the property of imparting to it a clean, sharp face. In the solder employed in the manufacture of pewter wares it also forms an ingredient, the composition being one part of bismuth, five of lead and three of tin. Bismuth forms one of the ingredients of a fusible metal, from which, such as toys, spoons are made which melt on being put into a hot cup of tea or water. An alloy composed of two parts tin, three lead and five bismuth, melts at a temperature of 199° Fahrenheit. Another alloy has been used in some parts of the continent of Europe in making safety plugs for steam boilers, which, by melting at a certain temperature, are intended to prevent their explosion. A subnitrate of bismuth is used as a cosmetic. Pearl powder is a similar preparation, obtained by dissolving bismuth in aqua regia, and precipitating by water. Bismuth is employed in the manufacture of porcelain, as an agent for fixing the gilding and for increasing the fusibility of fluxes, and neutralizing the colors which are often communicated by them. It is also used to some extent in medicine —*Ex.*

Kalsomining Fluid.—Take of white glue, 1 pound; white zinc, 10 pounds; Paris white, 5 pounds; water sufficient. Soak the glue over night in three quarts of water, then add as much water again, and heat on a water bath till the glue is dissolved. In another pail put the two powders and pour on hot water, stirring all the time, until the liquid appears like thick milk. Mingle the liquids together, stir thoroughly, and apply to the wall with a whitewash brush.

Manufacturers who use the best skilled labor, pay the best prices and produce only first-class work, are most generally successful. It is just as sensible to expect a poorly paid workman to do a large amount of work, and do it well, as it would be to expect a half starved horse to perform as much labor as one that is well kept.

In England, waste scrap-iron, turnings, and wire-clippings are put around the foot of telegraph poles when they are placed in the holes dug for them; and in gravelly soil the oxidation of the iron causes a conglomeration of the gravel into a dense, hard mass that adds much to the rigidity of the foundation.

Scott's Selenitis Mortar.—By a number of experiments it is proved that lime becomes hydraulic by absorbing small quantities of dissolved gypsum; that only such lime will set with gypsum as slakes slowly and whose density is greater than that of common lime.

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24v22-3m JOSEPH MOORE, Superintendent.

[Continued from Page 181.]

in the bottom working much softer than for some time past.

SUTRO TUNNEL.—The header is now in 6,797 ft. Progress last week, 75 ft. in dry ground, there being no water coming in. The number of men working in the header at present is 130. 12 mules and 32 cars, carrying 2½ tons each, are employed in the removal of the rock. About 100 car-loads, or 250 tons of rock are discharged at the month of the tunnel per day. At the present rate of progress Superintendent Benjamin expects to reach shaft No. 2 in five or six months.

CALEDONIA.—The main shaft is down to the 1,000-ft. level, at which point a station is being opened for the purpose of opening a new level. Everything in and about the mine is in fine fine working condition.

YELLOW JACKET.—The main east drift from the incline, on the 1,740-ft. level, is in 161 ft., the face in hard blasting ground. The south winze is down 278 ft. below the 1,540-ft. level, and has a considerable flow of water at the bottom, somewhat impeding the progress of the work.

BELCHER.—Daily yield, 550 tons of ore. The ore breasts on the 1,000, 1,200 and 1,300-ft. levels are looking well and yielding finely. The new air shaft has made connection with the upraise from the levels below, and already the beneficial effects are being felt throughout the upper portion of the mine. The machinery is all in fine condition, and the mine promises a rich yield of ores for many months yet to come.

BALTIMORE CONSOLIDATED. — Sinking the main shaft is making the usual good progress.

IMPERIAL EMPIRE.—Driving the main east drift, on the 2,000-ft. level, is making excellent headway. Sinking the main incline is making slow progress. The south winze, from the 1,850-ft. level, is still continued downward, at a fair rate of speed, the bottom still in fine ore. No change to report of prospecting operations in other portions of the mine.

BUCKEYE.—The ore body recently developed in the north drift at the first station still continues of a good character. The raise on this ore is up 30 feet and shows no change in the character of the ore. The company have about 200 tons of ore on the dumps and piled away in the mine ready to hoist to the surface. The Hope mill is kept steadily running on ore from the mine.

NEW YORK.—The main shaft is now down 35 ft. below the 560-ft. station.

SILVER HILL.—A breakage of some of the pumping machinery three or four days since has necessitated the suspension of almost the entire prospecting operations on the lower levels.

JUSTICE.—The preparation for the erection of the new and powerful hoisting and pumping machinery is making steady and favorable progress. Sinking the Waller shaft is making good progress, following the ore vein and developing some fine ore.

LEO.—The face of the north drift continues looking well and yielding some very good ore. In the stope the vein is fully four feet in thickness, and the bulk of it is good milling ore.

TYLER.—There is still no cessation of the flow of water into the shaft, and it seems hardly probable that it can now be overcome until the introduction of heavier pumping machinery.

PICTOU.—The main tunnel is still being driven ahead toward the ledge. Stringers of quartz continue to be met with.

BULLION.—Driving the north drift on the 1,700-ft. level, from the Imperial shaft, is making good headway, the face in soft working ground.

UNION CONSOLIDATED.—The east cross-cut from the main north drift on the 1,300-ft. level of the Ophir shaft is showing some very fine looking quartz.

GENESSEE No. 2.—New shaft down 87 ft. Streaks of quartz and porphyry are coming in at the west side.

SUCCOR.—Sinking the new shaft is again making fine progress.

MINT.—Sinking the main shaft is still progressing finely, the rock in the bottom working quite soft.

Arizona.

WALNUT GROVE.—*Miner*, Sept. 4: The latest news from the Vesuvius mine, in Walnut Grove district, was related to me, a few days ago, by Mr. Thatcher, who was at the mine last week, and assisted the owners in cleaning up. They ground seven tons and got $700, just $100 per ton. The condition of the mine is good. The owners are now down upon it over 40 feet; have drifted "both ways" from the bottom of their shaft and have a "pay-streak" of from 12 to 18 inches thick, which, if properly worked, will pay $150 per ton, in free gold.

FREDERICK has now about 140 tons of ore, that will pay about $50 per ton, ready for crushing. Explorations in his mine have developed a very large vein of rich rock.

THE Tiger dump has has 700 or 800 tons of the richest silver ore, all of which, and more too, was quarried out of one shallow shaft.

BRADSHAW.—Messrs. Goodwin & McKinnon, owners of a claim on the War Eagle lode, have, for about a year, run two arrastras by horse-power and done remarkably well. They have, so far, this year, worked 16 tons of ore which ore has yielded about $1,552 in gold. Their last run, eight tons, paid at the rate of $98.75 per ton.

British Columbia.

CARIBOO DISTRICT.

MINING ITEMS.—*Sentinel*, Aug. 29: The Chinese hydraulic companies above Richfield are cleaning up well, three companies—the Bradley Nicholson, Jenny Lind and Well Mary Ann — taking out from 80 to 100 oz. weekly. At Conklin Gulch the White Pine Co. running across the channel and getting a little gold. Ferguson Co. had 105 oz. last week; up to Friday this week 100 oz., only working one shift. The Ontario Co. have been prospecting their deep ground this week, and the supposition is that it is merely a pot-hole; are now running for the western side of the channel, where they expect to get good pay. Cora Co. have been building a shaft-house this week, and fixing up generally. Ottawa Co. have stopped prospecting for the present. Water heavy. At Jack of Clubs the Spruce Co. washed up 68 oz. last week, and 43 oz. up to Thursday. The Point Co. have got to work again in the face; have not washed up so far. The Van Winkle Co. had 220 oz. last week, and 60 oz. on Wednesday. The Vancouver Co. washed up 80 oz. last week; have not washed up so far this week; they are working on the sides, being unable to work in the face it is so wet. The Vulcan Co. are digging a chamber for a dump; expects to start in the face on Monday; opened out a set in the beginning of the week and got 4 oz. At Burns creek Perkins has struck a rich piece of ground and took out $80 in a short time. The company on Peters' creek are busy building a flume and making timbers.

Colorado.

CHALK CREEK.— Colorado Springs *Gazette*, Sept. 5: The Chalk Creek mining country, which is just now being opened up, promises to be a fine field of unusual richness. The whole of the region seems to be exceedingly rich in silver. Thus far about 300 lodes have been located. Few of these have yet been tested; but such assays as have been made give promise of unusual yields. One mine is down 90 ft. and has a crevice of from 2 to 4 ft. in width; the ore from it assays $800 to the ton. A quantity of surface ore which has been assayed runs from $75 to $125 to the ton. If these assays are fairly indicative of the character of the lodes, the Chalk Creek mining country may be set down as one of the very richest sections in Colorado.

Idaho.

MAHOGANY.—*Avalanche*, Sept. 12: This mine continues to pile up ore at the Ellmore mill, hauling at the rate of 12 to 15 tons of high grade ore daily, which can be increased when needed to 25 tons per day.

EMPIRE.—Sinking for the 6th level will be commenced at the Empire, as soon as the new wire rope arrives, which is expected daily. The bottom of the mine is looking well, and in the 5th level south of shaft they have fine ore and a large ledge.

SILVER CORD.—This mine is looking well throughout the lower levels. The winze between the 3d and 4th levels is down over 60 ft. and shows a large ledge of very rich ore.

POORMAN.—Putting up the new machinery, sinking the main shaft, driving two drifts, and work of all kinds is going on rapidly.

IDA ELLMORE.—The main shaft is now down 120 ft. below the 11th and cutting out for the 12th station has been started.

Montana.

PHILIPSBURG.—*New Northwest*, Sept. 5: Mr. Tilden, manager for the Hope company, has gotten his property well in hand, and is working some 15 men in the leads raising ore, has the St. Louis mill to reduce with and the machinery ready to ship which will greatly increase its capacity and efficient reduction whenever he shall decide the circumstances justify it. That will be a sufficient pile of the ores on the dump which he is now taking out steadily.

THE Northwest company has a contract to reduce a large amount of ore, and aside from this are prepared to ship such ores as they may deem advisable. The quality of the ore is high and if the vein continues good as they go down, it is a splendid property.

Oregon.

GRANT COUNTY.— *Mountaineer*, Sept. 12: A gentleman just down from Grant county informs us that there is much talk up there now concerning the quartz mines, some good paying ledges having recently been discovered. Were the money forthcoming to set up mills, several companies would be crushing ore, which it is thought will pay well. The Elk Creek district is now most promising.

VIRTUE MINE.—*Democrat*, Sept. 9: We are informed that Mr. Hyde, superintendent, has instructions from headquarters to put up 10 more stamps in the Virtue mill, which will be done within the next 30 days. This will make the mill a 20-stamp mill, which will be run by the same power now used in running the 10 stamps.

CHERRY CREEK DISTRICT.

THE MINES.—*News*, Sept. 12: The Cherry Creek company are working a large force on the Exchequer mine, and Capt. Turner is confident of having the biggest property in the State. The ore as extracted is being conveyed to the 5-stamp mill of the company, and the pile there accumulated has began to assume considerable proportions. The Chance is still "keeping up its lick," and the little 2-stamp mill continues to crush an astonishing amount of ore. The yield from this one institution is $900 per day. The Star mine is becoming a giant among the mining locations of the district. Wonderful results have been obtained from the ores worked, and as depth is attained, the extent and value of the same is increasing. The Tea-cup and Geneva company still holds to its well-merited reputation as an extensive and valuable property, and is being systematically and energetically worked.

Utah.

COLUMBIA DISTRICT.

MINES.—Cor. S. L. *Tribune*, Sept. 9: The Champion, Idaho, Buckskin, Blanche D., Isabelle D., Chanticleer, Washington, Chimney Corner, Athatasca, Seneca and Miami, for the amount of work done on them, show unusually well — the Idaho, Blanche D., Chanticleer and Chimney Corner, surprisingly so. The Great Western, situated on the western side of the range, owned by Kilvington & Co., shows a large amount of very fine croppings, which yielded $22 in silver and $30 in lead. In fact, all show merit which would richly reward capital in their further development, and my prediction is, that within one year Columbia will be known as one of the greatest mining district in Utah

Large or Small Water Wheels.

EDITORS PRESS:—In your valuable paper of August 15th appeared an interesting item about hurdy-gurdy water wheels, illustrating the advantage of a large diameter hurdy water wheel over a smaller one, in respect to the gain of power with a given quantity of water and fall. But in your issue of August 24th appeare another statement signed "Experience," which intimates to your readers that the size of the wheel was not material, that the disparity of the results of the small and large wheel on trial is attributable to the method of gearing.

I do not recommend the hurdy wheel as giving a high percentage of power from water, nor would I state anything to lessen any merits which may pertain to the Leffel & Myers' double turbine water wheel, under high falls; but I think, taking proper exception to the statement of "Experience," that the disparity of results is not to be attributed to the method of gearing. I contend that the result obtained came from the diameter of the wheel, and to show this it will not be superfluous to state that the water imparted the same velocity to the circumference of both wheels, empty; that the number of revolutions in the larger wheel was consequently about half; that the power of the water issuing from the nozzle and striking the face of the water-wheel, its buckets or cups was the same on both wheels, as the fall and amount of water were the same.

Now, if the power of the water is applied to the circumference of the wheel, it acts the same as in a whim or horse power, where the horse drags on a beam or tongue, and this power is continuous; if it is capable of overcoming the resistance or weight hanging to it, be it in the shape of stamps to be lifted or a tub full of quartz from a deep shaft. And now anybody may know that a horse is able to lift a heavier load the further and longer the distance from drum to attachment on the beam or tongue; consequently more power.

The drum represents the cams lifting the stamps; the diameter of the hurdy-gurdy water wheel is represented by the beam or tongue of the miner's whim, and the face of the wheel by the attachment for the horse.

CORRESPONDENT.

[NOTE.—What the horse gains in his ability to lift "a heavier load the farther and longer the distance from the drum attachment," he looses by the longer time required to lift it through the same space, by the same amount of exertion; consequently no power can be gained by increasing the diameter of the wheel.—EDS. PRESS.]

COMPLETED.—The new air chimney at the Consolidated Virginia mine is completed and works to a charm. All the hot steam coming from the mine at the mouth of the shaft before it was built, now passes through it.

JUNN & CROSBY'S new mill, Clear Creek county, Colorado, is a success, and the machinery is running night and day.

ORE is being shipped from the Comstock mines to the mills on Carson river and Silver City, at the rate of 1,465,000 lbs. per day.

THE last clean-up of the New York Hill mine, Nevada Co., was $3,220, or $5,650 to the load of rock.

THOMAS MORRIS, of Jeffersonville, contemplates opening the Boston claim in Table mountain, this winter, with hydraulic.

RICH placer mines were discovered last Friday at the head of the Cartac water-ditch, Los Angeles county.

CHARLES DELANEY President of the Virginia City Miners' Union, who shot himself last week, died on Wednesday morning.

THE Pelican mill, Clear Creek county, Colorado, is being enlarged.

A GANG of Chinamen were set to work in the coal mines near Tenino, on Monday.

DREDGING has been commenced on the bar at Wilmington, the port for Los Angeles.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Sept. 15th, 1874.

FOR WEEK ENDING SEPT. 1ST, 1874.

JOINT HOLDER.—Charles Buckner, Jr., S. F., Cal.

HORSE POWER.—John D. Harner, S. F., Cal., and Corydon A. Fargo, Stockton, Cal.

GAS HEATER FOR COOKING OYSTERS.—A. W. Manning, S. F., Cal.

FLOAT FOR STEAM BOILER SAFETY GAUGES.—Andrew Moon, S. F., Cal.

WATER-SUPPLY REGULATOR —David Morris and Theodore Morris, S. F., Cal.

ORE-WASHING MACHINE.—Charles P. Robbins, S. F., Cal.

CLOD CRUSHER.—William P. Anderson, Albany, Oregon.

HYDRAULIC CEMENT.—Frank E. Brown and Wilfred L. Brown, Mare Island, Cal.

FIREMAN'S LANNER. —Heyman Fox, S. F., Cal.

BALING PRESS.—C. P. Littlepage, Thomas J. Uhlhard and William A. Greenly, Big Pine, Cal.

COMPOSITION FUEL.—James A. Mare and Wm. Irelan, S. F., Cal.

CONSTRUCTION OF SEWERS.—James M. Thompson, S. F., Cal.

N. B.—Our list published in our issue of Sept. 12th should have been dated Aug. 25th.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

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OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

L. P. MCCARTY—General Agent.
W. H. RATTENBERRY—California.
CHAS. W. OTIS—Contra Costa County.
CHAS. T. BELL—Alameda, Santa Clara and Santa Cruz Countiee.
J. W. ANDERSON—Orange and Santa Ana, in Los Angeles County, Cal.
HOOD ALSTON—San Luis Chispo, San Bernardino and San Diego Counties.
JAS. KEARNEY—Amador, Calaveras, Tuolumne and Mariposa Counties.
B. GOODWIN—Sacramento County.
S. G. CRAWFORD—Nevada, Sierra and Plumas Counties.
J. G. KELLEY—For Washington Territory.

Special to Inventors.

All inventors who secure valuable patents through the M. & S. PRESS PATENT AGENCY are specially favored with a liberal notice of the merits of their inventions in the M. & S. PRESS and the PACIFIC RURAL PRESS—two first-class weeklies, the most widely circulated of any on this coast, reaching the very best classes, for the benefit of our ingenious citizens. In many cases we know that such notices have been worth more to patentees than the whole cost of obtaining patents. While we give the most able and experienced counsel to inventors, our terms are favorable to Pacific Coast inventors as compared with those of any other Agency in the United States—aside from the benefit derived from having inventions set forth truthfully at an important time in appropriate and influential journals.

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GENERAL MERCHANDISE.

WEDNESDAY M., Sept. 16, 1874.

Rags and Bagging are unchanged in price and still low. The present dull state in this line is entirely unexpected; but it is no doubt due, in great part, to the disposition of holders of Grain not to part with their produce, which of course directly affects the Bag business, as Bags are not necessarily used till shipment. Coffees are weaker, Coal is unchanged in price. Fish are quiet. Oils are steady. Sugar remains firm. Tobacco is buoyant.

BAGS.

Eng. Stand Wht..	12½	12½	
Detrick's Machine	—	@	30
Sawed, 21x36 F.	—	@	13
do 22x36, do E W-	—	@	13½
do 20x40, do A	—	@	14½
Flour Sacks ½s..	9½	@	11½
" ¼s..	6	@	7
Stand. Gunnies..			
double seam....	15		65—
single seam ..	13½		@14
" Wool Sacks.	65		@—
Barley Bags 24x36	—		@14
do 22x40	—		@11½
do 24x40	—		@15
do 24x36	—		@16
Oat Bags, 24x40.....	16		@16½
do 24x36....	—		@17
Russian 40-in.gds	8½		@10
do 45	10½		@11
do 60	—		@15

CANNED GOODS.

Assd'd Pis Fruits			
do ½ ℔ cans	2 75	@	3 00
do Table do...	—	@	2 75
Jams & Jellies	3 75	@	4 00
Pickles ½ gl..	—	@	3 50
Sardines, qr box	80	@	—
do hf boxes	3 20	@	—

COAL—Jobbing.

Australian, ℔ ton	10 00	@	—
Coos Bay.....	—	@	10 00
Ballingham Bay..	—	@	8 50
Seattle.....	—	@	11—
Cumberl'd, Acks..	22 00	@	23 00
do sbnk..	18 00	@	20 00
Mt. Diablo.....	6 25	@	8 50
Lehigh.....	—	@	19 00
Liverpool.....	11 00	@	14—
West Hartley..	12 50	@	—
Scotch.....	9 50	@	10 00
Scranton ..	15 00	@	17 50
Vancouver's Isl..	11 00	@	11 50
Charcoal, ½ sk..	75	@	—
Coke, ℔ bbl..	—	@	60

COFFEE.

Sandwich Island	—	@	22
Central Americ'n	19	@	20
Costa Rica par'd	21	@	22
Guatemala.....	19	@	20½
Java.....	—	@	28
Manilla.....	20	@	21½
Grnnd in ca...	—	@	30
Chicory.....	10	@	—

FISH.

Pac. Dry Cod, new	5	@	6
cases..	6	@	7
dn boneless....	11	@	12
Eastern Cod.....	7	@	8
Salmon in bbls..	9 00	@	25
dn ½ blues	80	@	4 75
dn 2½ ℔ cans	—	@	3 00
dn 2 ℔ cans..	2 65	@	2 75
dn 1 ℔ cans..	1 75	@	—
Do Col. R. ½ b...	—	@	—
Pick. Cod, bbls.	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Herr'g	—	@	50
Mack'l, No.1, ½ bbls	8 00	@	8 50
" Extra....	—	@	9 00
" tn kits..	2 00	@	2 50
" Ex mass..	3 00	@	3 50
" Ex mes.. ½ bs	—	@	12 00
Sm'k Herr'g, bx.	50	@	60

NAILS.

Assorted size, B.	5 00	@	7 25

OILS.

Pacific Glue Co.			
Neat F't No. 1.	—	@	1 00
Pure.....	1 25	@	—
Castor Oil, No. 1..	—	@	1 75
do do No. 2..	—	@	1 50
Coccoanut.....	45	@	50
Olive Plagniol..	5 00	@	—
do Possei....	4 75	@	—
Palm.....	9	@	—
do Bagicalupi	—	@	—
Linseed, raw...	—	@	1 02
do boiled....	—	@	1 07
China nut in os..	—	@	85
do bulk.....	75	@	80
Sperm, crude	—	@	1 40
do bleached..	—	@	2 20
Coast Whales...	35	@	40
Polar, refined....	50	@	55
Sperm.....	1 40	@	1 50
Lard.....	1 00	@	1 10
Coal, refined Pet	37½	@	40
Oleophine.....	—	@	34
Devoe's Brill't....	25	@	28
Long Island....	—	@	34
Kneka.....	37½	@	40
Devoe's Petrn'm	26	@	29
Barral kerosene	20	@	25
Olive.....	4 00	@	9 50
Downer Kause's	25	@	60
Gas Light Oil	—	@	34

PAINTS.

Atlan. W. Lead.	7½	@	12½
Whiting	—	@	2
Putty.....	4	@	4½
Chalk	—	@	2½
Paris White.....	2½	@	—
Ochre.....	4	@	5
Venetian Red ..	3½	@	4
Red Lead.....	10	@	11
Litharga.....	10	@	11
Eng. Vermillion	2 00	@	2 10

RICE.

China No. 1, ℔ ℔	6½	@	6¾
dn 2	5½	@	5¾
Japan	5½	@	6
Siam Cleaned...	7	@	—
Patna.....	—	@	6¾
Hawaiian.....	—	@	7
Carolina.....	10	@	10½

SALT.

Cal. Bay, per ton	10 00	@	11 00
do Common..	6 00	@	7 00
Carmen Island..	11 00	@	13 00
Liverpool fine...	20 00	@	23 00
dn coarse	15 00	@	20 00

SOAP.

Castile ℔ b....	10	@	11
Local brands....	5	@	8

SPICES.

Allspice, per ℔..	15	@	16
Cloves.....	47½	@	—
Cassia.....	22½	@	25
Citron.....	—	@	30
Nutmeg.....	1 20	@	25
White Pepper...	20	@	22
Pimento.....	—	@	15½
Grnd Allspice	—	@	20
dn Cassia do..	—	@	1 50
do Cloves do..	—	@	1 50
do Mustard do	—	@	2 25
do Ginger do..	—	@	1 50
dn Pepper do..	—	@	1 00
dn Mace do..	—	@	2 00

SUGAR, ETC.

Cal. Cube per ℔.	11½	@	—
Farm'd Cut Cube			
bbl or 100 ℔ bxs	—	@	11¾
do in 50 ℔ bxs..	—	@	12
dn in 25 ℔ bxs..	—	@	12¼
Circle A crushed	—	@	11½
Powdered.....	—	@	11¾
Granulated.....	—	@	11
Dry granulated	—	@	11½
Hawaiian.....	8	@	10½
California Beet..	—	@	10
Golden C.....	7	@	10¼
dn Rey'g grade	—	@	6½
Cal. Syrup in ols.	—	@	5½
do in ½ bls.	—	@	55
do in kegs..	—	@	60
Hawaiino Molasses.....	25	@	27½

TEA.

Oolang, Canton, ℔	19	@	25
do Amoy	28	@	50
dn Formoen	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
dn Moyune..	60	@	1 00
Gunpo'der, Canton	30	@	42½
do Pingsney	50	@	90
dn Moyuno.	65	@	1 25
Y'ng Hy., Canton	28	@	40
do Pingsney	40	@	70
do Moynae..	65	@	85
Japan, ½ chests, bulk.....	30	@	75
Japan, lacquered bxs., ½'s and ¼s	45	@	67
Japan do, ½ bxs	45	@	90
do pl'n bxs, ½s	35	@	65
dn ½s & ¼s paper	30	@	55

TOBACCO—Jobbing.

Bright Navys....	50	@	60
Dark dn	45	@	55
Dwn f Twist....	57	@	62½
12 Inch dn	57	@	62½
Light Pressed...	65	@	75
Hard do ..	60	@	70
Conn. Wrap'r....	40	@	50
Penn. Wrapper..	20	@	30
Ohio do ..	7	@	15
Virg'n Smok'g..	60	@	85
Fine ct che'g, kr..	8 50	@	9 25
Fine cut chewing, bue'ts	75	@	90
Bannor fine cut....	—	@	9 00
Enroka Cuba..	8 75	@	9 00

TURPENTINE.

Eastern.....	60	@	65

METALS.

WEDNESDAY M., Sept. 16, 1874.

The price of Quicksilver has been advanced in New York to $1.60. Here the market has not yet changed.

American Pig Iron, ℔ ton	—	@	42 00
Scoton Pig Iron, ℔ ton	45 00	@	47 50
Whale Pig, ℔ ton	—	@	42 00
Oregon Pig, ℔ ton	—	@	45 00
Refined Bar, ord assortment, ℔ ℔	—	@	— 3½
Refined Bar, good assortment, ℔ ℔	—	@	— 4
Boiler, No. 1 to 4	—	@	— 5¼
Plate, No. 5 to 8	—	@	— 5½
Sheet, No. 10 to 13	—	@	— 5¾
Sheet, No. 14 to 20	—	@	— 5¾
Sheet, No. 24 to 27	—	@	— 09
Horse Shoes, per keg	—	@	7 50 8 00
Nail Rod	—	@	— 9½
Norway Iron	—	@	— 8
Rolled Iron	—	@	— 6
Other Irons for Blacksmithe, Miners, etc.	—	@	— 4½
COPPER. —			
Brazers'	—	@	31 — 32
Copper Tin'd	—	@	45 —
O. Nail's Pat....	—	@	50 —
Sheathing, ℔ ℔	—	@	— 24
Sheathing, Yellow	—	@	— 25
Sheathing, Old Yellow	—	@	— 12½
Composition Nails	—	@	24 —
Composition Bolts	—	@	24 —
TIN PLATES.			
Plates, Charcoal, IX ℔ box	13 00	@	14 50
Plates, I C Charcoal	12 75	@	14 50
Rooting Plates	11 50	@	14 00
Banca Tin, Slabs, ℔ ℔	31	@	— 33
STEEL.—English Cast, ℔ ℔	20	@	— 25
Anderson & Woode' American Cast	10	@	— 17
Drill	18	@	— 22
Flat Bar	18	@	— 22
Plough Points	16	@	— 17
ZINC.	—	@	— 11
Zinc, Sheet	—	@	— 11½
NAILS—Assorted sizes	—	@	— 8
QUICKSILVER, per ℔	—	@	1 45

EVERY MECHANIC should read and familiarize himself with "Brown's 507 Mechanical Movements," illustrated, published and sold by Dewey & Co., MINING AND SCIENTIFIC PRESS office, S. F. Bound in cloth. Price (very low), post paid, $1, coin, or its equivalent in currency. Inventors, Engineers, Students, an Apprentices will find it exceedingly useful an especially handy for reference.

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We shall strive to make it an ever welcome visitor to those who desire to constantly

Improve the Heart and Mind,

And shall give a larger space to our HOME CIRCLE department, which from the first has been a popular feature of the RURAL.

Our aim is to gather information from all reliable sources, in the varied forms in which it is to be obtained. Our work is to divest our gleanings of all superfluities; condense such information as is of most importance to our special class of readers—give it to these in the plainest and fewest words possible,—saving *their time by our labor.*

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Domestic Economy,	The Orchard,
Good Health,	Tropical Fruits,
The Dairy,	Small Fruits,
The Apiary,	The Cereals,
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Horned Stock,	Fertilizers,
Sheep and Wool,	Miscellaneous.
Goats,	

Practical Farmers

Know how important it is that the above subjects should be treated from a local standpoint—that generally the farming tactics of the East will not do for this coast, that agriculture, in its infancy here, can derive greater benefits from an exchange of experience through the columns of the press than in older fields. Constantly observing and studying developments in the special field we represent, we can be expected to give truer information on agricultural subjects, than more general writers at home or abroad.

Our Traveling Correspondents

Will do much service by gathering a large amount of interesting information from various parts of the Coast, which, but for their research and practiced observation might never be placed on record or reach the eye of the reading public. Of our many

Local Correspondents

We have particular reason to be proud. No paper on this Coast—old or new—has ever been so highly favored with volunteer contributions. They are talented, reliable, independent and generous representatives of an intelligent and enterprising people, noble types of good humor, unselfishness and true progress.

Short Stories,

Original and selected, will hereafter appear in each number. Their selection, we trust, will be such as to render them popular and unobjectionable to all. In addition to a large number of

Fine Engravings,

Representing Choice Stock, Farm Products, Scenery, Remarkable Productions, Improvements in Farming Implements and Machinery, Works of Art and the Beautiful in Nature, we shall from time to time present the modest

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Engravings (costing thousands of dollars originally) are inserted in our columns during a single year. They afford instant and perpetual impressions often more perfect and real than words can convey.

Patrons of Husbandry.

We shall continue to give our weekly summary of matters connected with the interest and progress of this growing and important movement. We shall aim to give information as fresh as possible in this department. Its readers are aware that the RURAL has been in the lead in calling farmers to organize. We shall continue to work zealously with the Granges for the noble objects of the Order.

The present is an

Important Period

In the history of our Coast. The coming 12 months promise greater developments in its agricultural progress than has been experienced in any previous year. Agriculturists are alive to improvements in every direction, and those who would keep up with the spirit of the times should certainly read the RURAL PRESS.

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Will receive greater attention in the department of DOMESTIC PRODUCE than that of any other weekly journal. We shall spare no pains to render the reports as reliable and complete as possible. By the employment of our special reporter we hope to make this very important part of our paper one of its best and most satisfactory features.

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Agriculturists on This Side of the Continent,

We cannot expect one-half so large a circulation as journals in older and more populous districts. Consequently readers cannot rightly expect such a paper here at Eastern rates.

No Premiums But a Good Paper

Do we offer. A flashy chromo (or cheap map), with an ill suited paper, will hardly satisfy the farmers of this Coast, whose time is too precious for trifling. To many of you the benefit of a reliable and valuable paper should reach a hundred fold its cost, while to all a poor journal would be dear at any price.

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To Granges and Farmers' Clubs, furnishing club lists, $3 per annum.

DEWEY & CO., Publishers,
Office, No. 224 Sansoma street, San Francisco.

LEATHER.

WEDNESDAY M., Sept. 16, 1874.

The Leather trade continues fairly active, with a slightly better call for State made Leather. The demand for imported Kips is small.

City Tanned Leather, ℔ ℔			23@24
Santa Cruz Leather, ℔ ℔			23@26
Country Leather, ℔ ℔			24@28
Stockton Leather, ℔ ℔			25@28
Jndot, 8 Kil., per dnz			$50 00@54 00
Jodot, 11 to 19 Kil., per dozen			66 00@80 00
Jodot, second choice, 11 to 16 Kil. ℔ doz			55 00@72 00
Cornellian, 12 to 16 Ko			57 00@67 00
Curnellian Females, 12 to 13			60 00@64 00
Cornellian Females, 14 to 16 Kil			66 00@74 00
Beaumerville, 15 Kil			72 00@—
Simon, 13 Kil., ℔ doz			81 00@83 00
Simon, 20 Kil. ℔ dnz			65 00@67 00
Simon, 24 Kil. ℔ dnz			72 00@74 00
Robert Calf, 7 and 9 Kil			35 00@40 00
French Kips, ℔ ℔			1 10@1 35
California Kip, ℔ doz			40 00@50 00
French Sheep, all colors, ℔ doz			8 00@15 00
Eastern Calf fur Backs, ℔ ℔			1 00@1 25
Sheep Roans for Topping, all colors, ℔ doz			9 00@13 00
Sheep Roans for Linings, ℔ doz			5 50@10 50
California Russett Sheep Linings			1 75@2 50
Best Jodnt Calf Boot Legs, ℔ pair			5 00@5 25
Good French Calf Boot Legs, ℔ pair			4 00@4 75
French Calf Boot Legs, ℔ pair			4 00@—
Harness Leather, ℔ ℔			30@37½
Fair Bridle Leather, ℔ dnz			48 00@72 00
Skirting Leather, ℔ ℔			34@37½
Welt Leather, ℔ doz			30 00@50 00
Buff Leather, ℔ foot			18@21
Wax Side Leather, ℔ foot			17@19
Eastern Wax Leather			—@—

Hints to be Remembered.

A note dated on Sunday is void.

A note obtained by fraud, or even from one intoxicated, can not be collected.

If a note be stolen it does not release the maker—he must pay it.

An indorser of a note is exempt from liability, if not served with notice of its dishonor within twenty-four hours of its non-payment.

A note by a minor is void.

Notes bear interest only when so stated.

Principals are responsible for their agents.

Each individual in partnership is responsible for the whole amount of the debts of the firm.

Ignorance of the law excuses no one.

It is a fraud to conceal a fraud.

The law compels no one to do impossibilities.

An agreement without consideration is void.

Signatures in lead pencil are good in law.

A receipt for money is not legally conclusive.

The acts of one partner bind all the others.

Contracts made on Sunday can not be enforced.

A contract made with a minor is void.

OAMPO, SAN DIEGO CO., CAL., July 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast cannot do their own light when they do not put their business into your hands.

I remain yours truly, A. M. GASS.

SCIENTIFIC PRESS.—The attention of our readers is called to an interesting article on the Mining Interests of Northern Sierra, on the first page of this issue, from the SCIENTIFIC PRESS, San Francisco. This is the ablest, most instructive and influential Mining Journal published in the Great West, and should be liberally patronized by all our mining friends.—*Mountain Messenger*, April 25.

HINTS FOR INVENTORS, We will send on receipt of stamp in postage, FREE, our 52-page Circular containing 112 Illustrated Mechanical Movements; a digest of PATENT LAWS; information how to obtain patents, and about the rights and privileges of inventors and patentees: list of Government fees, practical hints, etc. Address DEWEY & CO., Publishers and Patent Agents, San Francisco.

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874,** provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and, if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Black Mountain Coal Mining Company.

Principal place of business, City and County of San Francisco, Cal. Location of works, Santa Cruz County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 28th day of August, 1874, an assessment of 3 cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 402 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 2d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

F. H. WELLS, Secretary.

Office—No. 402 Montgomery street, room No. 23, San Francisco, Cal. sep5

Eagle Quicksilver Mining Company.—

Location of works, Santa Barbara county, California. Principal place of business, San Francisco, Cal.

NOTICE.—In pursuance, that at a meeting of the Board of Trustees of said company, held on the 23d day of July, 1874, an assessment, No. 8, of one hundred and fifty dollars ($150) per share was levied upon the capital stock of said company, payable immediately, in gold coin of the United States, to the Secretary at his office, rooms 5 and 6, No. 302 Montgomery street, San Francisco, California. Any share upon which said assessment shall remain unpaid on Monday, the 21st day of September, 1874, shall be deemed delinquent, and will be duly advertised on Saturday, the 26th day of September, 1874, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 26th day of September, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Rooms 5 and 6, No. 302 Montgomery street, San Francisco. jy25

El Dorado North Mining Company—Location

of principal place of business, San Francisco, California. Location of works, Philadelphia Mining District, Belmont, Nye County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the fourth day of August, 1874, the several amounts set opposite the names of the respective shareholders as follows:

OLD STOCK. Names.	No. Certificate.	No. Shares.	Amount.
E McFaddin, Trustee	16	100	$100 00
M J McDonald, Trustee	45	5000	5000 00
M J McDonald, Trustee	48	500	500 00
M J McDonald, Trustee	50	500	500 00
NEW STOCK.			
E A Richardson, Trustee	6	100	50 00
J B Warren, Trustee	11	50	25 00
J B Warren, Trustee	12	50	25 00
J B Warren, Trustee	20	50	25 00
E A Richardson, Trustee	26	100	50 00
E A Richardson, Trustee	32	100	50 00
E A Richardson, Trustee	41	100	50 00
E G DeCrane, Trustee	46	50	25 00
E G DeCrane, Trustee	52	100	50 00
J B Warren, Trustee	59	20	10 00
D Driscoll & Co, Trustees	65	10	5 00
Schmiedell, Hocbstadter & Co, Trustees	69	20	10 00

And in accordance with law, and an order of the Board of Directors, made on the fourth day of August, 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction at the salesroom of Manrice Dore & Co., No. 326 Pine street, San Francisco, California, on Tuesday, the sixth day of October, 1874, at the hour of 1 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

FRANK SWIFT, Secretary.

Office—Room No. 4, Hayward's Building, No. 419 California street, San Francisco, California. sep19

Electric Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 3d day of September, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 4th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—No. 318 California street, San Francisco, Cal. Room No. 13. sep5

Germania Mining Company—Location of

principal place of business, San Francisco, State of California. Location of works, Tintic District, Junb County, Utah Territory.

Notice is hereby given that at a meeting of the Directors, held on the fifth (5th) day of August, 1874, an assessment (No. 2) of one dollar per share was levied upon the capital stock of the company, payable immediately, to the secretary, at the office of the Company, 408 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the twelfth (12th) day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the second (2d) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. W. TRIPP, Secretary.

Office—No. 408 California street, room 16, San Francisco, Cal. ag15

Kincaid Flat Mining Company—Principal

place of business, San Francisco, California. Location of works, Sonoma, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 18th day of August, 1874, an assessment of two dollars per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 217 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 21st day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 12th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office, 217 Sansome street, (up stairs,) San Francisco, California. ag22

Manhattan Marble Company of California.

Location of principal place of business, San Francisco, California. Location of works, Oakland, Alameda County, State of California.

Notice is hereby given, that at a meeting of the Directors, held on the 26th day of August, 1874, an assessment (No. 5) of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary of the company, at his office, No. 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 28th day of September, 1874, shall be deemed delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 20th day of October, 1874, at 12 o'clock M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. A. B. CLASON, Secretary.

Office—No. 212 Sansome street, San Francisco, California. ag29

Oceanic Quicksilver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, San Simeon Mining District, San Luis Obispo County, California.

Notice is hereby given, that at a meeting of the Directors, held on the 12th day of September, 1874, an assessment (No. 1) of forty cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company, California street, opposite Cal. Street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 19th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 10th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. F. CRONISE, Secretary.

Office—No. 438 California street, San Francisco, Cal.

Saw Pit Flat Gravel Mining Company

Consolidated.—Location of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Plumas County, Cal.

Notice is hereby given, that at a meeting of the Directors, held on the 17th day of August, 1874, an assessment (No. 1) of five dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the 21st day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Thursday, the 15th day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, California. ag22

Tuolumne Hydraulic Mining Company.

Principal place of business, City and County of San Francisco, State of California. Location of works, Tuolumne county, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 19th day of August, 1874, an assessment of twelve and one-half (12½) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, room 14, 302 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 21st day of September, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the twelfth (12th) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. T. MILLIKEN, Secretary.

Office, 302 Montgomery st., San Francisco, Cal. ag22

Machine Builders.

THE RISDON
Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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LEWIS R. MEAD.....Secretary
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MANUFACTURERS OF
STEAM ENGINES,
Quartz, Flour and Saw Mills,
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Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
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Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
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Of every description and size

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY, P. O. box 2032, San Francisco, Cal., will receive prompt attention.
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STEAM ENGINES, BOILERS,
CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
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PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
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STEIGER & BOLAND,
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SOLE MANUFACTURERS OF
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PNEUMATIC DRILLING MACHINES,
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The only Drilling Machinery that has ever done any successful Tunnel work in America, is being used upon the largest tunnels and mining operations on the Comstock lode; also in Placer, Mariposa and Nevada Counties, Cal. Sample machinery can be seen and further information given, by applying to

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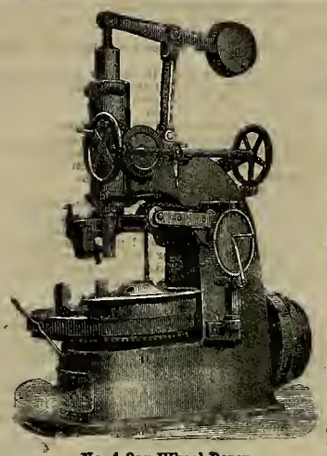
Sole Agents for States and Territories west of the Rocky Mountains, 108½ Leidesdorff street, Hayward's Building, San Francisco, Cal. 21v28-3m-hd4p



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NEW YORK STEAM ENGINE CO.
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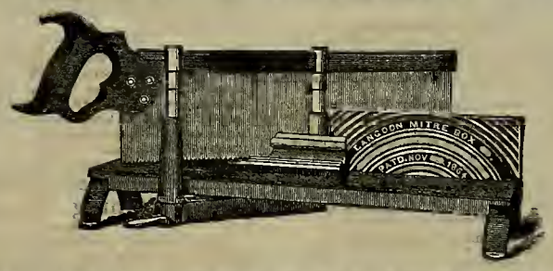
LANGDON'S ADJUSTABLE MITRE BOXES.



Common Mitre Boxes, 6 in. right angle, 4 in. at mitre; price, with Diston's Saws, ready for use, 18 in., $9.00; 20 in., $9.50.
Mitre Boxes with Extension Lever and Dado Stop, 9 1-2 in. right angle, 8 1-4 in. mitre, with Diston's Saws, 22 in., $11.00; 24 in., $11.50. For Metal Moulding, 20 in., $9.50. Sent by Express C. O. D.

CONROY, O'CONNOR & CO., Agents,
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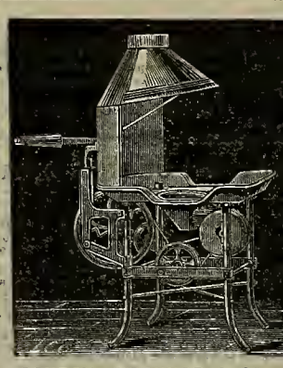

KEYSTONE PATENT FORGES
(FAN BLAST,)
Large or Small, for Hand or POWER.
Twenty-three Standard Styles.
Best and Cheapest
FOR EVERY CLASS OF WORK.
Also,
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Keystone Portable Forge Co.,
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CONROY, O'CONNOR & CO., Sole Agents for Pacific Coast, S. F. 2v29-eow-2m

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MANUFACTURERS OF ALL KINDS OF
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Miners' Foundry and Machine Works,

CO-OPERATIVE,
First Street, bet. Howard and Folsom, San Francisco
Machinery and Castings of all kinds.

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PRESCOTT & CO.,
Manufacturers of Quartz and Amalgamating Machinery. Hoisting Machinery, Saw and Grist Mill Irons, House Fronts, Car Wheels, and Castings of every description made to order.
Steam Engines constantly on hand for sale. 9v28-1y

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Machinery.

THE
AMERICAN TURBINE WATER WHEEL

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ¾ 78.73; ⅞ 82.58; ⅞ 82.90. Percentage of whole gate, 88.14.

Mr. Emmerson says: "These are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to
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Sole Agents for the Pacific States and Territories.
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BALL'S
SWEEPING DREDGE,
A NEW AND VALUABLE
CALIFORNIA INVENTION,

Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a *basis* of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $40,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

Address, JOHN A. BALL,
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McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st., between Fremont and Beale, San Francisco

THEODORE KALLENBERG.
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and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

STEAM ENGINES AND BOILERS

Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by
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EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)

The Cheapest and Most effective Furnace now in use. Parties desirous of building above furnace, or for any information on same, address,

I. T. MILLIKEN,

a31 No. 302 Montgomery st., room No. 14, S. F.

STEEL SHOES AND DIES

FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy.*

Die. Shoe.

Will wear three times longer than any Iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.

All orders promptly filled.

MOREY & SPERRY,

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Examination solicited. 9v28-1y

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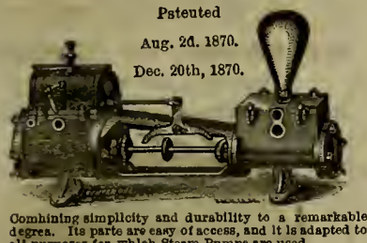
A. CARR, Manufacturer & Proprietor.



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Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

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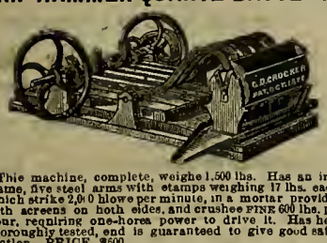
10v28-1y 43 Courtland Street, New York.

CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $500.

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Water Wheel. The best in the Market, and sold at less price than any other first-class Wheel. Send for a Pamphlet and be convinced. BURNHAM, York, Pa.

6v29-1m

Buy Real Estate while at Low Rates.

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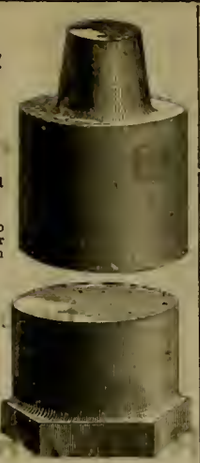
[PATENTED MAY 26TH, 1874.]



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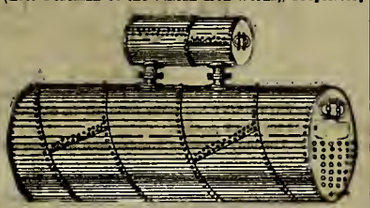

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(Model of 1873.)

San Francisco Agency.

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In the manufacture of the new gun, iron mountings (blued or case-hardened) have been substituted for gun metal or brass, thus increasing the strength of the arm and decreasing its weight. It is also now so constructed as to carry a Central Fire Cartridge holding one-third more powder than used in the cartridge of the model of 1866, thereby greatly augmenting the power and accuracy of the weapon.

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Has a Set or Hair Trigger which can be used at will—set or not set, as preferred. All the arms have a sliding lid which covers the opening in which the Carrier Block moves up and down. This lid, by the action of the Carrier Lever, is always open when the gun is fired, and closed by hand when the firing ceases, thus protecting the lock and inner works of the gun from dust and rain.

Various other improvements, which it is not necessary to mention in detail, by which the strength of the several parts is increased and the general appearance of the gun improved, have also been made.

There is now a greater variety of the Sporting Rifle than heretofore. They can be had with a length of barrel (round or octagonal) ranging from 24 to 30 inches, fitted with Globe and Peep Sights, or any other kind in use.

The Carbine is now made with all the improvements above referred to, except the set trigger.

The Sporting Rifle and Carbine will also be made as Extra Arms, Gold, Silver or Nickel Plated, plain or beautifully engraved.

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Still further improvements have been accomplished which overcome all objections heretofore raised against the Repeating Rifle as an army gun. It is safe, certain and effective in fire, whether used with deliberation or during excitement in action, and no more motion are required than in operating the old model gun.

More extended and minute particulars concerning the new gun can be had by writing or applying to the San Francisco Agency for circular.

CARTRIDGES.

The trade is notified that the Shells of the Central Fire Cartridge for the new gun can be reloaded, and that the Winchester Repeating Arms Company are manufacturers of every description of Cartridge used for Carbine, Rifle and Pistol of any make, and that the Company have a full stock constantly on hand at their San Francisco Agency

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NOTE.—Also Agent for the Dupont Powder Company and Eagle Safety Fuse Manufacturing Company.

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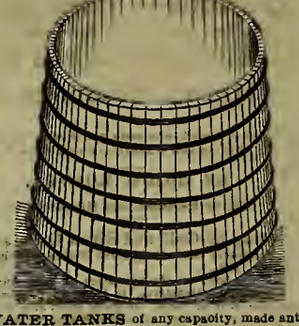

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The Quartz Operator's Hand-Book; by P. M. Randall. 1871. Revised and Enlarged Edition. Cloth bound, 175 pages. Price, $2.

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[Covered by Letters Patent of July 2d, 1872, and recent applications.]

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Added to a battery of stamps this machine constitutes a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 12 or 15 tons per 24 hours.

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MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, SEPTEMBER 26, 1874.

VOLUME XXIX Number 13.

The Black Hills Excitement.

The Black Hills excitement prevails to some extent in this city, as well as in the mining districts, and we hear thet several parties are being orgenized here. Already a few advertisements appear in the papers of sanguine individnals who desiro to organize companies of which they are to be leaders. One compeny being formed will start on the 15th of March. Reports of the richness of the gold fields in the Black Hills are at present so contradictory that it is prematnre for prospectors to connt on making largo fortnnes. The recent Stickeen River excitement will, however, be a lesson to many on this coast who might otherwise listen with a favorable ear to the yarns abont the Black Hills.

Prof. Newton H. Winchell, Minnesota, State Geologist and Professor of Natural History in the State University, accompanied the Black Hills expedition in an official capacity. He states that gypsnm, marble, slate, etc., may he fonnd in nnlimited quantities; but on the gold question he is singalerly reserved, merely remarking: "The miners that accompanied the expedition report the finding of gold and silver, though I saw none of the gold, nor did I see any of the auriferous quartz. I have taken the gold reports with a large grain of allowance." Prof. Donaldson, late of the State University, Minnesota, perfectly agrees with the conclusions of Prof. Winchell upon the gold question. The views of Prof. Winchell were stated more fully at a meeting of the Minneapolis Academy of Natural Sciences.

Prof. Winchell said that he did not see any gold in the Black Hills, nor did any one bring any to him for examination. Some brought what they thought was gold-bearing quartz, but on examination he found it to be mica scales stained with iron rust. Iron often gets into mica and colors it, causing frequent mistakes in that way. He could not say bnt that there was gold there, and same parties may have discovered gold, bat he saw none, and therefore he was of the opinion that there was none there. He was led to the belief thnt the reports of gold were gronndless from another reason, viz.: that the character of the men who telked np the expedition, nrging the government to explore the Black Hills, would leed anyone to mistrust their statements. These men were miners and adventnrers who profess to be practical miners, bnt who have always lived on and profited by excitement. They were stock-jobbers, who probably owa extinct claims now in different parts of the country, and who wished to profit out of this expedition.

The reporters accompanying the expedition derived all their information concerning the reported gold discoveries from these men, and so did General Custer. No one but these men pretended to have taken ont any gold, or to have seen any. It would have been very easy for them, with the view of reising this excitement, to have taken with them a quantity of gold dnst and then washed it in their pnns.

He did not meen by these remarks to dissnade men from going to the Black Hills, bnt he did not wish them to go and expect to return loaded down with gold nuggets, under his representation.

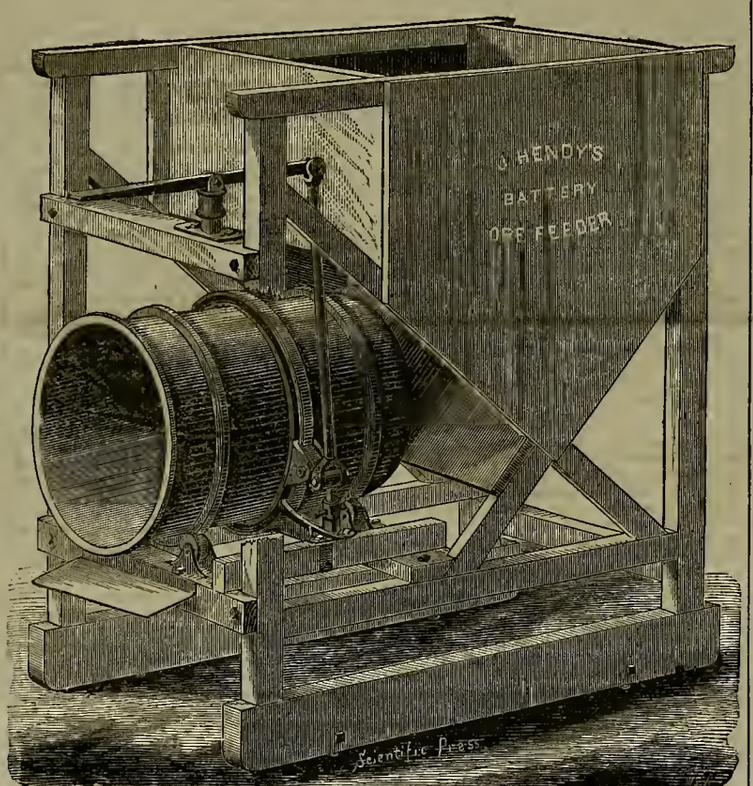
He disclaimed any personel feelings against the men referred to. He hed been on friendly terme with them, and, as far as he had any intercourse with them, they had treated him courteonely; bnt he did not think thet in his position he onght to senction by his silence the wild fever which hes now been excited.

A gentleman recently from the vicinity of the Little Salmon river, says that good paying diggings heve been fonnd on that river, abont 23 miles from Fort Shepherd. Thie river empties into the Pen D'Oreille leke, and was known to be auriferous, bnt prospecting of any importance hed never been attempted. The miners now working find the gold in the bare, bnt have to pack the pay dirt down to the river; even in this way they can meke $10 to $15 per day to the hand. The gold is scaly, and assays $17.50 per ounce. A large nnmber of claims have been recorded.

A new public road to Panamint via Mojave will soon be opened.

Academy of Sciences.

The regular semi-monthly meeting of the California Academy of Sciences was held on Monday evening last, Dr. Harkness occupying the chair. Among the additions made to the museum were 21 specimens of fossils from Alaska, and six jars of alcoholic specimens from the same country, received through the office of the United States Coast Survey. The fossils were bones and teeth of the mastodon, generally of more enormous dimensions than hitherto procured from that locality. Four



HENDY'S ORE FEEDER FOR QUARTZ MILLS.

jars of alcoholic specimens from Central America, composed of centipedes, hippocampus or sea-horse, and flying-squid, were received from J. C. Merrill. The regular exchenges and scientific publications for the library were laid on the table.

W. N. Lockington read an interesting paper on the crustaceans of the Pacific Coast.

Dr. Cooper, late of the State Geological Survey, made some remarks on the coal formations of this coast, referred to at length in another column.

Judge Hastings read several short, characteristic papers, which were listened to with fortitude by the members.

The following resolutions, expressive of respect for the memory of a much velued member of the Academy, the late Curator of the museum, were submitted by the Trustees and unanimously adopted:

Whereas, The will of a Divine Providence has taken from our midst our fellow-worker, Hiram G. Bloomer; therefore, be it

Resolved, That this Academy desires to record its sincere and earnest regret at the loss of one of its members, so honored for his gentle and kindly nature, so respected for his principles of truth, so worthy of admiration for his enthusiastic love of science, and his generous desire ever to impart information, as the friend who has been recently called away from us; and its belief that by the unexpected death of Mr. Bloomer a gap has been caused in the ranks of its officers which it will be difficult to fill.

Resolved, That in the loss of Mr. Bloomer we recognize the departure from amongst us of a brave and noble spirit, who, amid many of the hardships of life, clung persistently to the pure love of the beautiful, and who, in his unselfish devotion to his favorite pursuits, has left an impress upon the future of our State which in after years will be more fully recognized and known.

Resolved, That we deeply and sincerely sorrow over the sad and sudden bereavement which Mr. Bloomer's family have sustained, and offer to them our heartfelt sympathy in the hour of their affliction.

Resolved, That these resolutions be printed in the proceedings of the Academy, and that a copy of them be forwarded to the immediate relatives of the deceased.

In moving the adoption of the resolutions, Prof. Bolander recounted the great services the deceased had rendered the Academy. His devotion to the cause of science had doubtless hastened his death. Mr. Bolander made a supplementary motion that a committee of five be appointed to catalogue the valuable donations Mr. Bloomer has made to the Academy in books and specimens, with a view that some recompense be made to his family.

This motion was also adopted, and the Chair appointed as such committee Prof. Bolander, Dr. Kellogg, Henry Edwards, R. E. C. Stearns and G. W. Harford, to report at the next meeting.

Thomas Guinean, of Sacramento, has a party of miners engaged in prospecting for coal in the mountains a few miles above Monticello. A tunnel has been run in some 150 feet upon a vertical seam of coal of a few inches in thickness.

So much coal has been taken out at the Tenino mines in excess of means for transportation, that the working force has been considerably reduced.

The Pacific Edge Tool Works.

The Pacific Edge Tool Works, W. F. Palmer and S. F. Blasdell proprietors, is an institution just started in this city, and is in every way worthy of encouragement. The works occupy a well-ventilated, roomy shop on Berry street, between 4th and 5th. At this place are manufactured cast steel edge tools for ship and house carpenters, caulkers, block and pump workers, coopers, butchers, etc. There are in the shop a steam engine, four forges, a blower, grindstones, and everything complete for grinding and polishing tools. Grinding and polishing is done for the trade as well as for their own works. The very best material is used, and none but the best brand of English steel is put into the tools.

This new home manufacture was commenced on the 13th of August, and they have not yet got fairly started. Mr. Palmer, late of New York, and of the firm of Sheffield & Palmer, Stamford, Conn., has had 30 years' experience in the business, so that they are confident that they can turn out tools as good as any in the market. There has been no one here before who could do this class of work. All of their tools are warranted, which is a great advantage to purchasers. Parties buying warranted tools which are made in the East are no better off than if they were not warranted, as they have no chance to return a poor tool to the maker. If carpenters or others buy plane irons, chisels, adzes, drawing knives, etc., of a firm in this city which warrants their work, if the tools are found to be burnt or otherwise defective, they can be exchanged for perfect ones. Of course, as the enterprise has just been inaugurated, tools with the "Palmer" brand on them, are very little known as yet; but the proprietors of the works are confident that when they are known, their business will increase, and they propose enlarging their works. They sell to the trade and to individuals, supplying stores when desired. Tools can be repaired here now and need not be thrown away as heretofore when injured. There have been no tool works here before where tools could be re-edged and repaired, and the establishment of this will be of great advantage to carpenters and others. Mechanics using edge tools will do well to examine the display of the Pacific Edge Tool works in the Mechanics' Fair, or call and examine samples at the works.

Hendy's Battery Ore Feeder.

We illustrate to-day a new style of ore feeder for quartz mills, designed by Joshua Hendy, of this city. This machine consists essentially of a hopper and an inclined revolving iron cylinder, the latter actuated by the drop of the stamps, through the medium of a lever with connecting-rod and friction grip. At the drop of the stamps, the tappet strikes the end of the lever and lifts the grip, thereby causing a partial revolution of the cylinder. The re-action which would otherwise be caused by the weight of ore upon that side of the cylinder is prevented by a friction brake working in a groove beneath the grip. The ore as discharged from the cylinder is received upon an apron which has an inclination both forward and towards the battery, thereby causing it to be distributed more evenly. An adjustable screw underneath the grip determines the rate of feed.

This machine is in successful operation at the Pacific Reduction Works, in Alameda county, and at the works of the Auburn Mill Co., Reno, Nevada.

The steel rail now being laid down by the Central Pacific Railroad Co. between Truckee and Blue Cañon, costs at the rolling mills in the Atlantic States $120 a ton. The iron rail costs about $65 a ton, but only lasts about one-fifth as long as the steel rail.

Panamint is looming up rapidly. Lots are in great demand and command good prices. Extensive preparations are being made to work Senator Jones' mines.

The San Diego mines are expected to produce $400,000 this year.

Refining Base Bullion.

A correspondent of the Eureka *Sentinel* gives the following description of his visit to the Germania Refining Works, situated about six miles south of the Salt Lake city, on the Utah southern railroad. The main object of these works is the separation of the precious metals from the lead in the so-called base bullion, by means of zinc, or, technically speeking, the desilverization of lead by zinc. As it may not be nninteresting to a large number of your readers to get an idea of the execution of this process, I will in the following try to give a brief description of the menipnlations carried on at the works above mentioned. Previously it will be necessary, however, to make a few general remerks. The zinc desilverization process is based upon the following facts:

1. Zinc has a greeter affinity for silver and gold than lead.
2. It does not form an alloy with lead.
3. It has a lesser specific gravity than lead.
4. The melting point of zinc is et 412° C., while that of leed is et 334°.

If metallic zinc is added to molten base bullion at a temperature higher than the melting point of the former, the zinc forms an alloy with the gold and silver of the lead bullion, and, in cooling down, rises to the surface of the now impoverished lead, which must be kept in a state of fusion, covering the whole of the lead in the shape of a hard scum—the zinc scum. This scum is teken off from the leed-bath, and as it still contains a large percentage of lead, is subjected to a liquetion process, by which the lead is sweated out to within about 2¼ per cent. The zinc scum from this operation is the silver producer; the remeining lead being zinciferous, must be softened, end is then ready for the market. From the above, it would appear thet the zinc process is composed of three main operations:

1. The desilverization of the lead bullion.
2. The dezincification of the poor lead.
3. The desilverization of the zinc scum.

Desilverization of the Lead Bullion.

After the bullion is sampled and assayed, from 20 to 22 tons are introduced into a large calcining furnace, the bottom of which is encased by e strong cast-iron box. Here the bulliou is melted and then subjected to a dull red heat, air being admitted through the work-doors, whereby most of the mecbanical impuritiss, consisting of iron and coppsr mette, and a portion of the antimony, arsenic and copper, in the shape of their oxides, are brought to the surfece of the metal, in consequence of their lesser specific gravity. These impurities are known nnder the name of *dross*. As soon es the surface of the metal is completely covered with dross, this is skimmed off and removed throgh the work-doors. It still contains precious metels. We will call it "first dross." The lead bullion in this celciner is then tapped, end, by means of an iron spout, conveyed into either one of the two largest of a system of five cast-iron desilverizing pots. These pots, or kettles, are set in the shape of a wedge, the two lergest ones forming its basis, the smallest one the point. As the works are rnnning at helf capacity at present, that is, 20 tons of bullion per 24 honrs, only one series of pots is in use, viz: one large one, one middle one end the one at the point. Eech pot has its separate fireplece, which derives its draught, like all the other furnaces, from a stack 90 feet in hight.

The Lead Bullion

In the first pot is now exposed to a temperature high enough to smelt a certain percentage of zinc, which is added in a sort of an iron cege attached to a stirring contrivence. As soon as the zinc is believed to be sufficiently mixed with the bullion the stirring epperatus is withdrewn end the temperatnre ellowed to go down to the melting point of leed. The scum, which now rises to the surfece, is ladled over into the adjoining smaller pot, melted, stirred, and cooled, and skimmed as before, the skimmings being transferred to the last and smallest pot, in which they have to nndergo the same manipulations. The scum from this last pot is the rich scum and goes to the alloy furnace. The leed from the second and third pots is returned to the first pot by meens of a connecting gutter, into which the lead is ladled. Hereafter a second end afterward a third addition of zinc is mede in pot No. 1, and the ensuing scums are treated in the same menner as before, with the sole exception thet the final scums are not taken to the alloy furnace, but are nsed over again instead of metallic zinc, they being too poor in precious metals. The liquation lead (lead sweated out) from these laet zinc addition, is returned to the firet pot, whereupon the latter is emptied, through a spont at its bottom, into a softening furnace—of which there are two, one connected with each large pot.

Dezincification of the Poor Lead.

The lead from the first pot is now practically desilverized, ae it containe only 15 grammes of eilver, or less than 1-11 of an ounce in the ton; but it ie hard, owing to a small percentage of zinc being retained in it, and to the presence of arsenic and antimony, if such have been in the original bullion. To remove these impurities the lead is exposed to a dull, red heat in the softening furnace, and from time to time stirred with a hoe to offer a new surface to the oxidizing agency of the air. As soon as the lead is perfectly covered with dross, and the samples teken out of the furnace from time to time by their peculiar luster and crystalline texture demonstrate its purity, the dross is removed through the work-doors and the lead is tapped into a large cast-iron pot with fire-place. Here the lead is poled for several hours, thet is, stirred with a pole of green wood, whereby it assumes a bubbling motion and thus gives a large number of surfaces to tbe air. By this operation the lest traces of zinc are removed. Through a movable spout at the bottom of tbe pot the lead is run into molds branded "selected" or "common" lead, according to its purity. The dross is reserved for further working; we will call it *poor lead dross*.

Desilverization of the Zinc Scum.

The rich zinc scum, es I said before, is treated in the alloy furnace. This is a blast furnace of smaller dimensions than the enormous ore-smelting furneces of Eureka. The scum is smelted in conjunction with pieces of scrap-iron and ore-slag, Pennsylvania coke serving as a fuel. The smelting is done at a low temperature under a pressure of blast. By this operation the zinc is, for the most part, volatilized as oxide of zinc, which is caught in a condensation cbamber attached to the furnace; but the silver and gold remain with the lead, which was intermingled with tbe zinc scum. This "rich lead" is tapped below the furnace hearth and ladled into molds, and is then passed over to the cupelling furnaces. The slag is not kept running continuously, but tapped at intervels, the breast of tbe furnace being closed in the meanwhile. Tbe slag is used over in the ore-smelting furnaces es a flux. As enother residual product, we heve zinciferous iron-sows, which form a crust around the heerth of the furnace and have to be detached by mechanical means. They look very much like our speiss or "iron," as it is commonly celled, and mey be used in the desulphurization of galena.

The rich lead is cupelled iu an

English Cupelling

Or refining furnace, of which thero are six in the works. The bottoms, cupels or tests, of these furneces are made of bone ashes, and have an oval shape. Before use they are dried and anneeled. Tbey rest on two strong iron bars in tho furnace proper. At tho back wall of the furnace there is an opening for the blast, which is created by steam, and on each side of it a charge-hole. At tbe front well there is an opening for the discharge of the litharge, and sideways from the test there is a fire door. The test is placed in the furnace in such a manner that the plane of its long axis passes through the center of the tweer-opening and the discharge.

The cupelling process is based upon the following circumstances: If en alloy of lead and precious metals is fused and then exposed to a current of eir, the entire lead is grednally converted into oxide of or litharge, as it is generally termed, leeving fually an alloy of the precious metals.

The rich lead is now introduced through the cherge-holes in the test, ber by bar, and melted. As soon as the test is filled up to the rim the blest is turned on and the heet kept up at the same time.

The Formation of Litharge

Begins, which is partially absorbed by the porous test—pertially drawn off into a gutter cut into the test on the discbarge side. The litharge is run into pots mounted on wheels, end removed when filled. As soon as the metal bath has decreased sufficiently in size more rich lead is introduced into tbe cupel, till it is supposed to contain tbe quentity of silver desired. The blest is continued until the brightening of the silver has teken place, when no more litharge is perceptible, and then the operation is finished. A hole is now bored into the bottom of the test, and the refined metal drewn off into molds resting on a movable frame. The silver bars thus obtained are remelted in bleck lead crucibles, cast into ingot molds, assayed, and can now be sold to tbe banks. They are then .996 fine. The litharge is accumulated for furtber treatment. The test is broken np and assorted.

The Untarnished Portions

Of it are used over again, while the balance goes to the ore smelting furnace for tbe extraction of the metels it contains.

It now remains for us to state briefly what is done with the residual products, in which there is still a good deal of money value hidden. Tbe first dross from the calcining furnace is liquideted in a furnace constructed especially for that purpose by Mr. Weise, the superintendent. It is a reverberatory, with two bottoms, one above tbe other. The upper one is composed of grate-bars with narrow slits, and is charged with the dross. The lower one consists of composition, and has a steep pitch toward the tap-hole, in front of which there is a cast-iron receptacle. The temperatnre is now conducted so that the lead trickles out of the dross into the lower hearth, but leaves the balance unfused. This dross is then withdrawn, and smelted for copper-matte, with iron pyrites, which is not further treated on the spot. The lead goes back to the desilverizing pots.

The Poor Lead Dross

Is smelted directly with sleg for antimonial or hard lead (type metal) in a cupola furnace. This lead commands a good price. The litharge from the cupelling furnaces ie revived in a reverberatory furnace; that is, it is mixed with stone coal, exposed to a melting heat, whereby it is reduced to metallic lead. As the litbarge ie neither very pure nor free from silver, the reenlting lead has to be returned to tbe desilverizing pots.

Exclusive of the furnaces heretofore mentioned, there are three more furnaces on the ground destined for the reduction of rew ores and by-products. One is an English flowing furnece, for the production of lead bullion and gray slag (slag rich in lead) from rich gelena ores. Tbe gray slag is further treated in one of the two remaining cupola or blest furnaces. I herdly need to sey tbet all ores not fit for the reverberatory ere smelted in tho latter with the proper flnxes.

The Blast Furnaces,

One of which is provided with all the modern appliences (water jeckets), receive their blast from a large-sized Sturtevant fen, propelled by a 45-horse-power engine. All the furneces are provided with dust-chambers connected with flues, wbiob run into the main flue, the latter terminating into a tall stack. The only fuel required at the works is raw *stone coal* for the reverberatory furnaces, desilverizing pans and the steam-engine, and *coke* for the blest and assay furnaces.

Finelly, I cennot forbeer to praise the urbanity and willingness of the gentlemen in charge to give information—Mr. Billing, the business manager, end Mr. Weise, the superintendent.

Low Grade Ores.

The question of the utilization of low grede ores, says the Eureka *Sentinel*, is one which hes, heretofore, been too generelly overlooked throughout Nevada. In Europe a system of concentration is now and has been for many years in successful operation, end through its means very nearly all crude ore is prepered for the reduction. What little rich material occurs throughout the vein matter is carefully separated by hend; whilst tbe residuum, by far the major portion, is orushed, jiggsd, passed over the shaking table, round buddles and plane tables, until a working product is obtained ready for the final manipulation, generally in the furnaces. It would surprise the majority of our millmen to learn how small a yield in the lead and the precious metels is deemed worthy of a preparatory treatment. It is not unusual to submit to concsntration ores which will assay two to three per cent. of leed, with from five to $15 in silver to the tou. So perfect, indeed, is the mechanical errangement of many of the works thet as high as 75 stamps may be seen at work and not a single attendant in sight. The batteries are self-feeders; the crushed pulp passes first into and over a series of obloug boxes, fitted underneath with pyramid-shaped bottoms, from whence the sends, sinking each according to their respective gravities, are projected through a metallic pipe upon a series of continually-moving sheking tebles. The very finest slimes are collected in properly proportioned settling tanks, whenco they are taken on tbe buddles to plane tables.

The method of universel application throughout England, France and Germany depends upon the agency of water, carrying along and holding in a temporary suspension the various comminuted particles of ore and gangue.

With us, however, water iu sufficient quantity is not always attaineble, and the inventive genius of our people has been taxed to find enother medium, which shall combine in a more delicete manner all tbe requisites of quantity, elasticity and ease of applicetion. All these have beeu found in a combination of crushers, rolleis, separating sieves and jets of atmospheric air. The current of air may be regulated so that its wave-like impulses act on the suspended ore particles precisely as the weter in the jiggiug machines; in fact, being a more attenueted medium, it does not offer too harsh a resistance to the most delicate atom of tbe so-called noble silver ores, and may be equally as well applied to the commonest of the base leed and copper minerals.

Already, for several months, one of these "dry eir concentretors" has been in successful operatiou in Nevada, and we learn that another and larger machine is to be set up in one of our most successful mills. We shell wetch with more than ordinary interest the progress of the experimont, which is, indeed, in the right direction.

Here, right in our midst, there are thousends, not to say millions, of tons of low grade leed ore, which will essay from five to eight per cent. in lead, and from, say, five to 15 dollars in gold and silver, which are practically worthless. At best they ere, if of an irony character, only aveileble as flux. Conld they be concentrated, say four or five tons into one, they could be smelted with profit. We commend this snbject to the cereful consideration of our furnaco men, whom we shall endeavor to keep informed as tbe experiment to which we allude progresees.

Manufacture of Chlorate of Potash.—To manufacture chlorate of potash on a large scale, it has been recommended by W. Hunt to adopt the following method: Milk of lime is made to trickle down over bricks, pleced in a tower where it comes in contact with a coutinuous current of chlorine gas. Chlorate of lime is the chief prodnct, and, by treating this with chloride of potassium, chlorate of potash is formed, which can be purified by cryetallization.

Natterer, a German pbysicist, by more modern applianoes, succeeded in obtaining a temperature of 220° below the freezing point of water, and Dr. Kane obeerved a temperature of 76° below it. Jonle, an eminent English physicist, calculated, from the law of the expaneion of gases, that a temperature of 459° degrees below the freezing point of water wonld probably be the absolute zero.

New and Old Towns in California.

The mining towns, says the *Bulletin*, of California have been "cremeted" once, twice, and some of them three timos. The very bones of these towns have besn burned np. And this has happened, genorally, after the resources throngh which they have been built up have been partially exhausted. Nevada at one time had a population of not less than 15,000; that is, there were this number which were near enongh to depend upon the postoffice in thet town. Three great conflagrations have swept over the town, yet it is to-day just about as much of a place es it would heve been had no fire consnmed it. In the autumn, according to precedent, we expect to get the news of the burning of two or three mining towns. The buildings are chiefly of wood. There is always e Cbinese querter with all the appliances for touching off e fire suddenly; high winds and materiel exposed to the hot sun until it it almost ready for spontaneous combustion, will ordinarily insure a sweeping conflagration. And so it happens that nearly every mining town of eny prominence hes been tried by fire. Mokelumne Hill hes been swept for the sscond or third time. It will be restored again, beceuse its resources are not confined to a few wooden houses. The eigbt or ten thousend people who used to he tributery to the "Hill" are not there now. We shell heve only the 2,500, more or less, who will still cling to its fortnnes, and hold, with a good deal of justice, thet it is one of the healthiest and most picturesque towns in the world.

After snch a disastrous experience the wonder is that greater precautions are not taken against fire in these mountain towns. Thus, at Mokelumne Hill there is a kind of lava-rock nearly or quite fire-proof, and yet so soft when it is uncovered thet it can be cut with an ax, and can be prooured witbout limit. We do not hear that any of the buildings constructed of this rock were destroyed. In the vicinity of all tho mining towns there is an abundance of rock within eesy reech which may be had without other expense than thet of hanling. The rough stone cottage is cheap end comfortable. There are no earthquakes in the mountains to shake it down, and the fire will not consume it. If these mountain towns were construoted from thg waste rock everywhere accessible, they would be among the most picturesqne towns in the world.

But in respsct to combustible material, the mining towns are herdly worse off tban is San Francisco. We have a wooden weter-front, and two-thirds of the area of the city is covered with wooden buildings. We have a better police supervision end a moro efficient fire dspartment. These are about all we have to reduce the contingencies of a sweeping conflagration. An artisan has recently shown the practicability of inclosing ell wooden houses in cities with a brick sbell. He demoustrates that it can be done at comparatively small expense, thet the value of houses so treated is grsatly enhanced, and that all objections to wooden houses would be thereby avoided. The brick shell would sustain only its own weight, and there wonld be little reel denger from earthqnakes. These double houses may yet come into favor, but we are not ready for them yet. At presnt, wooden housss are popular, and the more so as they admit of much cheap and meretricious oruamentation.

New mining discoveries will create new mining towns, and these will follow the fortunes of the mines to a large extent. But the most promising new towns will spring up along the coest. A considereble town will resnlt from the colony settlement of tbe Lompo ranch, just north of Point Conception; Monterey will be recuscitated, partly through the influsnce of a locel railroad, and the development of agricultural wealth. Santa Berbare has grown from a Mexican hamlet to its present dimensions within the last eight years; and San Diego, with a fine harbor in front, end a paper reilroad in the rear, hes done wonders.

It is now evident that there will be a chain of flonrishing towns along the coast, built up largely throngh agriculture end local commerce. These will never go beckward, beceuse the chief elements of prosperity are not likely to fail. In early times there were towns laid ont, like "New York of the Pacific," which never came to anything. They were started without resources and es a crazy speculation. They never progressed far enough to furnish a respectable rnin. But the new coast towns, deriving their life from popuietion and bnsiness, will be both permenent and prosporous. There is room for at least 20 such towns. Many of them may be swept by fire as the mountain towns have been. Bnt the white wooden towne by the sea will be likely to hold on their way until the bottom falls out of agricultre and commerce—which will certaiuly not be in our time.

French Railway Cars.—Some of the double deck cars, which are quite common upon French roads, exhibit an almost extraordinarily emell proportion of dead weight. One on exhibition at Vienna, with a capacity of 90 persons, weighed only 11.75 tons. Freight cars weighing but 10,000 pounds carry 20,000 or even as much as 30,000 pounds.

Lap for Polishing.—I dare say many will at once say "It won't do," but for many purposes no emery glued on anything, or made np in any way, is so simple and effecinal as a plain piece of hardwood turned to the shape reqnired, and smeared with emery and oil.—*English Mechanic.*

SCIENTIFIC PROGRESS.

Science Reads an Oracle Relating to the Metallurgy of the Future.

One of the most interesting incidents nf the visit nf the American Society of Civil Engineers to the Stevens Institute of Technology, at Hoboken, anggested the above title for our article. After witnessing the beautiful experiments exhibited by Professor Morton, inspecting the multitnde nf interesting objects in the lecturs room in the Department of Engineering, and spending a pleasant quarter of an hour with Dr. Mayer among the myaterious physical apparatns of his laboratory, the party orowded into the little lecture room of Professor Leeds. The Professor had thrown upon the screen the images of several contorted and rather uninteresting looking specimens of mineral. These, he ataes, wsre pieces of "tulgurite," or thunderbolt, as it is nften called, sent him from North Carolina. When a heavy finsh ot lightning strikes the earth, it sometimes fuses tho soil in its track, and, on solidification, it becomes a solid har or rod, which may be, and often is, dug ont of its bed. In this case, the lightning had penetrated a bed of pnre white aand, melting the silex and forming a hollow shaft two or three inches in diameter and four feet long, filled within and surrounded without by the white sand of the locality. The shaft, however, was not white. Its color varied from a dark to a white pearly gray. Chemical analysis showed it to contain iron, and so accurate was the work that, on estimating it ns nsual, as oxide, ths figures proved some error to have occurred. Estimating it as metallic iron, the figures were correct. Apparently, therefore, the fulgurite was discolored by finely divided metallic iron, and this deduction was confirmed by other and direct experiment. This would explain the peoaliarity of color, since the oxide would have colored the silex green. But metallic iron does not exist in natnre on the esrth's snrface, and the chemist wns compelled to seek some explanation of its existence here by an examination of the peculiar conditions under which it was produced.

The final conclusion seemed necessarily to be that, at the immensely high temperatnre nt which silica melts(the extreme limit attainable with the oxyhydrogen blowpipe), iron "dissociates" from oxygen, and that here, dissociation having occnrred, the metallic iron, transported by the electric flash from some snbterranean deposits, become sncased in molten sand, and was preserved unoxidized within the fulgnrite. The melting of that immensely refractory material, silex, the dissociation of iron from oxygen, and the transportation of such an amount by electrical action, were circumstances at once remarkable and interesting. Professor Leeds then gave his fellow members of the society and ot his profession an ontline or the possible hearing of this onrious instance of natural metallurgy npon the futnre of the art. He stated that, whils it could hardly yet be considered as probable, it csrtainly did not appear impossible that at some future time the processsea ot art might imitate what was here seen accomplished by nature, and that this interesting phenomenon might be a strong intimation ot the dirsction in which metallurgical changes might lead. Could a material be obtained of which to build a furnace which should be capable of resisting the temperatnre at which silex melts, and could such a temperatnre be attained in the furnace, we need but throw our ore upon the bed of the furnsoe and allow it to reach the temperature of dissociation, when the oxygen would pass off up the chimney, without the nse ot carbon or other deoxidizing agent, and the metal would flow down upon the hearth. The requirement of a nsw retractory material may not improbably bs fulfilled. Eqnally remarkable discoveries are frequently made. The attainment of so high a temperatnre nscessitates probably the invention of a method of preventing the dissociation of oxygen and hydrogen by high tsmperature. As we also have stated, in an editorial article in our last issne, the limit of combination ot these gases, or their temperatnre nf dissociation, is stated by Deville at about 4,500 degs. Fah., and this is, therefore, the limit ot temperature attainable by their combustion. Oxygen and carbon dissociate at a lower temperatare.

The speaker relerred to the possibility that this elevation of the limit may be attainable hy carrying on combustion nuder presaure, as already proposed by Bessemer, and as probably illnstrated in some slight degree by the elevation ot pressnre within the converter, and the extraordinary temperatnrea there observed. This interesting aubject and the novel ideas auggeated by it were evidently looked upon as important aa well as entertaining hy visitors, one of whom expressed the idea which is embodied in the title which we have assumed for our article, and nearly all of whom forgot professional dignity so far as to applaud heartily. Many of our readers, by the character of their pursnits, are also interested in this anbject. We hope that aome may be so fortunate as to be able to aid in securing the benefit here indicated as possibly attainable.—*Scientific Am.*

One of the oldest experiments made on a large scale to ascertain the amonnt of heat prodnced by the frictional resistance of a certain given power, was made by Benjamin Thompson, of Concord, N. H., known in Europe as Count Rumford.

Simple and Cheap Glass Cells.—Mr. F. Clowes, of Queenwood college, Hants, sends to *Nature* the follow deacription of a method for extemporizing glass cells with parallel sides: "A piece of India rubber tnbing (or solid rnbber) bent into a semi-circular form is placed between equal sized rectangular plates of glass, the ends ot the tube terminating at the upper edges of the glass plates; the plates are then held together by passing two strong India rubber rings over their ends. If the rings are of such a size to exert the requisite compression, a semi-circnlar water-tight cell is thus obtained, which can be taken to pieces and cleansed with great ease. A trough so made served well to exhibit with an ordinary magic lantern the experiments described in Tyndall's 'Heat a Mode of Motion,' and smaller cells suitably fitted with platinum wires, and held in the wooden frame nf an ordinary lantern slide, enabled the galvanic decomposition of aoidulated water and of saline solntions to he thrown upon a screen and thus rendered visible to a large audience."

Improved Method of Generating Chlorine. It has long been known that at a high temperatare a mixture of chlorhydric acid and air is converted into water and chloriue. Deacon of Englnnd thus applies this trnnsformation. Chlorhydric acid gas at a temperature of from 370 to 400° C. is passed into a vessel containing pisces of porous clay which have been soaked in a solation of sulphate of copper and then baked. The oxide of copper in the pores is converted into the chloride of copper while water is formed. This chloride, when the baked clay containing it is subjected to a current of hot air, is transformed into oxide; the evolvèd chlorine passed through water to absorb any H Cl which had escaped decomposition, and then dried, is passed into the chambers where the chloride ot lime is manufactured. Meanwhile the oxide of copper is made into chloride ready to evolve Cl again.—*Polytechnic Bulletin.*

Certain improvements in the methods of and materials for decarbnrating cast iron and converting iron into steel, originate with Mr. C. Binks, chemist and metallurgist, Westminster. In the manufacture of aniline a residual product is obtained, consisting chiefly of precipitsted magnetic oxide of iron with some organic matters containing carbon and nitrogen; and this compound is proposed to bo used for the decarburation of oast iron, in the production of malleable iron, either alone or in combination with the carbonate of soda or of potash; as also for the treatment of cast iron in its conversion into steel, and for adjusting the relative proportions of the iron and azotized carbon in relation to the constitnent elements of steel.

The use of infusorial earth as a nou-conductor of heat is suggested by the *Monetary and Mining Gazette.* Tripolite or infusorial earth, being a worse condactor of heat than coal ashes, and almost as poor as flax chaff, and being refractory, is adapted for walls of ice-cellars and fire-proof safes, for casing steam boilers and pipes, etc., and possesses the advantage of affording protection against rats and mice. Its lightness is also a great recommendation. One cubic foot of it weighs 21½ to 26 pounds; the same bulk of dry coal ashes 40½ to 42½ pounds, and of dry earth 94 to 128 pounds. For casing steam pipes it is mixed with dry flax seed.

Mr. Proctor thinks there are several reasons for believing that the planet Jupiter is not inhabited. The first is its distance from the sun, which so greatly diminishes the amount of heat received thst our lecturer believes it to be inefficient to snstain life of any kind. Another reason is, that the apparent changes in color of the planet's surface, ascribed by all astronomers to the changes in the cloud-masses in its atmosphere, are so great and sudden that Mr. Proctor thinks the heat of the sun is an inadequate cause for them, and that the planet itself must be in a heated state approaching incandescence.

Metallic Alloys.—Mr. H. Hann, of London, has patented (for J. A. Jacoby, of Hamburg) an invention which has for its object improvements in the composition of metallic alloys applicable to various other usetul purposes, such as reducing friction in bearings and other parts of machinery, resisting oxidation, being also comparatively cheap and economical. Metallic alloys made according to this invention consist of from 70 to 73 per cent. of copper, from 9 to 11 per cent. of tin, from 15 to 20 per cent. of lead, and from 0.05 to 1 per cent. of zinc.

A German chemist has discovered a procesa by means of which paper may be rendered impervious to moiature. He statea that it is sufficient to immerse the paper in an ammoniacal solution ot copper; when the paper is completely dried, it will, with difficnlty, lose its consistence, even in boiling water. The ammoniacal solntion which he employs is Schweetzer's liqnor, obtained by treating platea of pure copper with a concentrated solntion (88 per cent.) of aal ammoniac while exposed to the atmoaphere.

Recent experiments by M. Sorel prove that carbou retains its reflecting capacity even at the highest temperatures. A snnbeam becomes reflected by diffnsion and is polarized in exactly the same manner, whether it falls upon a brilliant flame or upon earth.

MECHANICAL PROGRESS.

The Sand Blast Again.

In a paper read before the British Association, Mr. Newton said: When effects on patterns of a delicate nature are desired, and only small quantities of material are to he removed, the blast of air from an ordinary rotary fan is used as the propelling medium. Sand driven by an air blast of the pressure of four inches of water, will completely grind or de-polish the surface of glass in ten seconds. If the glass is covered by a stencil of paper or lace, or by a design drawn in any tough elastic substance, such as half-dried oil, paint or gum, a picture will be engraved on the surtace. Photographic copies in bi-chromated gelatine, from delicate engravings, have been thns faithfully reproduced on glass. In photographic piciures in gelatine taken from nature, the lights and shadows produce films of gelatine ot different degrees ot thickness. A carefully regulated sand-blast will act upon the glass beneath these films more or less powerfully in proportion to the thickness of these films, and the half-tones or gradations of light and shade are thns produced on the glass. It the sand-blast he applied to a cake of resin on which a picture has been produced by photography in gelatine, or drawn by hand in oil or gum, the bare parts of the surtace may he cut away to any desired depth. The lines left in relief will be well supported, their base heing broader than their top, and there being no under-cutting, as is apt to occur in etching on metal with acid, an electrotype from this matrix may be made and can be printed from in an ordinary press.

The process had also been used for cleaning the exterior of buildings, and it was intended some fine day to polish np St. Paul's and Westminister Abbey. This could be done very rapidly and without injuring the sharp lines or edges of the masonry.

A nnmber of beautiful and curious specimens of glass, marble, slate, granite, etc., operated on by the process, were exhibited during the reading of the paper, and excited the most intense interest. Among these was a plate of glass about half an inch thick, which had been pierced through in about ten minutes, and also a large flat file, in which a slit about four inches long and three-eighths of an inch broad had been cut by the sand-blast.

Mr. Newton stated, that small shot or grains of cast iron, of about one twenty-sixth ot an inch diameter, in place of the sand, have been found to cnt granite more rapidly; probably because they are not broken by the shock, and the whole force of the blow is thus expended in disintegrating the stone, instead of being partly wasted in ornahing the grains of sand.

The following suggestive paragraph on the same subject we take from a prospectus of a company projected to work the invention: Although the sand-blast has not yet been practically applied to quarrying for slate, either for slabs or roofing slates, it is very confidently believed (from experiments that have recently been made) that the invention may be very advantageously applied for those purposes; and not only will there be a great saving in labor, bnt a large proportion ot the blasting required to get the slate ont of the quarry may be dispensed with, and a great deal of the waste material which now takes place may be avoided. As this waste frequently amounts in weight to as much as nine times the weight of the marketable article produced, it will be seen that there is a wide margin for the profitable use of the iuvention, and for preventing waste. The process is also applicable to quarrying stone and for cutting hard rocks in tnnneling in the construction of railways. It is believed that in tunneling operations, in many kinds of rocks, a large proportion of the blasting now required may be dispensed with by making nse of the sand blast.

A new electric whistle for locomotives is now coming into use in France. It is intended to take the place of switch signals; opening the switch causes a copper plate a short distance off in the roadway to become electrified. A metallic brush on the engine transfers the current to the whistle, which is opened, and remains open until the steam is shnt off by the engineer. If the engineer is neglecting his dnty, the fact is at once made known by the continuous sonnd ot the whistle.

A French journal connected with the metal trade gives the following cnrious estimate of the value of a piece of iron costing in its rough atate 1f., after being employed for different manufactures. Made into a horseshoe it is worth 3f.; into agricultural implements, 4f.; forged into ornaments, 45f.; converted into needles, 75f.; into steel buttons, 900 f.; employed as polished steel for decorative purposes, 2,000f.; and made into shirt studs, 6,000f.

Prof. Tunner remarks that it is customary to attribute greater strength to cold rolled iron than to that which has been rolled hot. Although experiment has shown that such is the case with new iron, yet this is of little importance in practical use, because it does not last. The strength of such iron, says Prof. Tunner, decreases gradually with time. This is a question which it would be well to determine by experiment.

Lanterns.

In many respects the principles involved in the old grater lanterns are the same as those now applied to lanterns of the present day. The former, it will be remembered, was simply an old tin can, swung from the hand by the aid of a wire or piece of strong twine, and was perforated with many holes to allow the light contained within the can to reach the onter world. The illumination in this case was generally supplied by a piece of candle. The objects to be attained in the use of this lantern were to shield the lamp or candle from the wind and weather, and allow the light to escape trom its shield. We have abandoned the tallow candle, and for it have substituted the kerosene lamp. We have endeavored to supply the place of the perforation of the can by the use of glass, and thus to accomplish the double purpose of protecting the flame and of allowing its rays to pass out of the shield. We have substituted brass or nickel plate for tin, or have used the latter article in a more highly finished state; but, after all, but few essential principles are employed in the construction of the modern lantern that may be called new.

Davy's "Miner's" lamp, although very old, is nevertheless a novelty, because its use during the last sixty years has never been superseded and scarcely amended. In this lamp it is generally known that the globe or chimney is either wholly or partly composed of a wire net work, which may become red hot, but nevertheless constitutes an impassable barrier to the flame within the lantern, and thus may he burned with safety in the midst of combustible gas.—*Iron Age.*

Restoration of Burnt Steel.—On the destruction, not long ago by fire, of the house of a popular officer of high rank, several swords, valued not only for their workmanship and temper, but for the circumstances under which the owner had become possessed of them, had been reduced to the condition apparently of twisted pieces of hoop iron. They were sent to Birmingham, and some time afterward returned in a condition "differing but little from what they had been before their fiery ordeal." Supplementing this statement, Messrs. Wilkinson, the sword manufacturers in Pall Mall, say that it is often of great importance that the onter scale left by the fire should not he removed, nor any attempt at cleaning the surfaces be made unless by experienced hands. In the case of sword blades especially, they find that the minutest details of embossed ornament can generally be traced over the outer scale of burnt steel, and may be copied and restored unless obliterated by friction. Inlaid or damascened gold work on steel will stand a very high degree of heat without being destroyed, and the figure of the genuine Damascus blades, being a part of the structure of the metal, can he restored as long as any of the steel remains. —*Iron.*

A new Chinese Composition.—Dr. Scherzer, an Austrian official at Pekin, has sent to his government some specimens of a Chinese composition called "Schioicao," which has the property of making wood and other substances perfectly water-tight. He says that he has seen in Pekin chests which have been to St. Petersburg and had come back uninjured, and that the Chinese use the composition also for covering straw baskets, which are afterward employed for carrying oil long distances. Card board, when covered with the composition, becomes as hard as wood, and most wooden buildings in Pekin have a coating of it. It consists of three parts ot blood, deprived of its fibrin, four of lime and a little alum.

Hock's Petroleum Motor.—In the imperial printing office at Vienna, three presses of a capacity of 1,200 sheets per hour are driven by a motor invented by Hock, which it is said promises to be very usetul for small industrial establishments. Combustion of petrolenm in the working cylinder, and the heat developed by it, constitute the motive power. The machine is said to be very regular in action, to be entirely free from danger, to require little attention, to occnpy little space, and to be very economical in running, one and a half pounds of petroleum per honr being reckoned for one-horse power. Like the gas engine, it is also ready at all times, and it is easily cooled down.

Journal Bearings.—Dr. C. Knnzel, the inventor of phosphorus bronze, expresses the opinion that a good metal for bearings onght not to be homogeneous, bnt should consist of two alloys of different hardness. The harder of these should be a porous mass which forms, to a certain extent, the skeleton of the whole, and its pores or cells should be filled with a softer alloy. After a series of experiments Dr. Kunzel has taken an English patent for the following alloy: One-fonrth to two parts phoaphorus, 4 to 15 parts lead, 4 to 15 tin, 8 to 15 parts zinc, and copper up to 100 parts.

New Pumping Apparatus.—Messrs. John Jones & Sons, of the Old Buffery Colliery and Furnaces, Dudley, England, have lately put down a powerful pumping apparatus, the engine of which does a vast amount of work with a minimum of power. It is called a "bull" engine, is of 80 horse power, and was made by Messrs. Lee, of Patricroft, near Manchester. The cylinder is 30 inches in diameter, with a working barrel of 12 inches to the lift and an eight-foot stroke. With one boiler 30 feet by five and a half feet, this engine raises 1,250 tons of water per day.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Sept. 23, 1874.

NAME OF COMPANY.	IN MINE.	FEET IN MINE.	SHARES HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo		6000	16¾w	15f	1	
Alpha Con	300					
Alta	3600					
American Flat		30000	9⅞w	8¼s		1⅛
Bacon M. & M	65	24000	7M	8s		1½
Baltimore Con		24000	11w	9s		1½
Belcher	1040	104000	67¾s	64T		1¼
Best & Belcher	224	22400	36⅝M	32½TH	2½	
Bowers	20	8000				
Buckeye		16000	3M	2⅝T		⅜
Bullion	2500	25000	17w	11TH	6	
Caledonia	5000	20000	27½w	23s	5	
California			53⅝w	44f		8½
Chollar-Potosi	2800	28000	69⅝s	62½TH	11½	
Conndence	130	24000	29¾	21⅜F	3	
Con. Gold Hill Quartz	34½	20000	7⅞s	5½T		½
Con. Virginia	1160	108000	94w	84f	9¼	
Cook & Geyer	1600	24000				
Crown Point	600	100000	64s	55¾T		4⅝
Daney	2000	20000	3¾w	2⅜F		⅛
Dardanelles	1200	24000	14w	13½TH		
Dayton			5½w	5F		
Eclipse	70	25000	12Tu	9W		⅛
Empire M. & M	75	50000	10⅝F	9¾T		⅛
Exchequer	400	8000	125w	105F	20	
Fairmount			2w	2w		
Flowery	3000	12000				
Franklin			3M	2½T		
Globe		20000	2w	1⅝F		⅜
Gold & Curry	1200	48000	28M	22½F		4½
Hale & Norcross	400	16000	51M	45Tu		7½
Imperial	184	100000	11⅜F	10T		⅛
Indus						
Insurance	2000	30000				
Jacob Little						
Julia	2000	30000	6¾w	4Tu		1½
Justice	3000	21000	26w	12TH		14
Kentuck	85	30000	23⅝w	18½T		6⅜
Knickerbocker	1200	24000	7¾w	6s		1⅜
Kossuth			1½M	1Tu		½
Lady Bryan			⅞w	⅝F		
McMeans	3600	36000				
Mint	1600	30000	40cw	40cF		½
Nevada	3000	40000	1¾Tu	1½w		⅛
New York Con	3600	36000	5w	3¾M		1¼
Occidental	800	10000	4M	2¾M		1⅛
Ophir	1400	16800	45¾w	29F		16⅜
Overman	1200	24000	67w	45½F		22½
Phil. Sheridan	1200	24000				
Pictou	2000	30000	½w	450s		
Rock Island		24000	5w	4½T		
Savage	800	16000	68½w	57TH		10½
Seg. Belcher	180	8000	116w	97TH	10	
Seg. Caledonia		10000				
Seg. Rock Island			1w	⅞T		80c
Senator			1¾w	1⅝TH		
Sierra Nevada		100000	8¾w	7½F	1	
Silver Hill	1000	54000	9½M	8s		1½
South Comstock						
South Overman		24000				
Succor M. & M	7600	22800	3M	2Tu		3⅝
Sutro		24000	1w	1w		
Trenoh			9TH	8½F		
Tyler	20	50	1⅞w	90cM		1
Union Con	2200	33000	23½w	19T	2	
Utah	803	20000	5¾w	3¼Tu	2¼	
Woodville		20000	12½w	8S	2	
Yellow Jacket	1400	28000	117w	100F	6	
NEVADA.	1200	24000				
Adams Hill		50000				
Alps	800	30000				
Amador Tunnel						
American Flag M. & M		30000				½
Arkansas	300	30000	2M	1¾w		
Belmont			8½T	7¾TH		⅜
Bowery		30000	20cw	20w		
Chapman M. & M		30000				
Charter Oak	1000	30000	½F	½F		
Chief of the Hill		30000				
Chief East Extension		36000				
Columbus M. & M	10000	50000				
Condor		25000	3M	2½M		
El Dorado South			11⅞F	11w		⅜
Eureka Con		50000				
Excelsior		12000				
Harper		30000				
Hayes						
Hermes	1000	30000				
Home Ticket						
Hunn & Hunt	3600	30000				
Ingomar	1000	30000				
Ivanhoe		30000				
Jackson		50000				
Josephine						
Juniata Con	5000	50000				
K. K. Con						
Kentucky	1000	30000				
Kinston	1000	30000				
Lehigh	1000	30000				
Lillian Hall	1000	15000				
Louise	2400	30000	¾F	¾F		
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24023	60000	5⅝w	4¾M		
Mooking-Bird	1200	30000				
Monitor-Belmont						
Murphy	2000	60000				
Newark	800	32000	1⅛M	1M		42½c
Pacific Tunnel						
Page & Panaca	2400	40000	1¼Tu	1TH		
Peavine	1000	30000				
Phœnix		50000				
Pioche	1000	20000	7w	6¾T		⅛
Pioche West Ex		30000				
Pioche-Phœnix		40000				
Portland						
Raymond & Ely	6000	30000	13T	10½F		2¼
Rye Patch			1⅜TH	1¼T		⅛
Silver Peak		30000				
Silver West Con						
Standard M. & M						
Star Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mount		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole	200	30000	1½F	1Tu		⅛
Watson						
Yellowstone						
CALIFORNIA.						
Alpine	1200	12000				
Bellevue	8000	30000	½F	⅜w		⅛
Calaveras	3200	20000				
Cederberg		24000	1w	1w		
Chariot Hill			10½w	9¼F		⅛
Con. Amador						
Cottonwood Creek		20000				
Dunderberg M. & M						
El Dorado						
Eureka	1680	20000	10F	10F		
Gillis		24000				
Independent	1800	25000				
Keystone		10000				
Mt. Jefferson	1500	25000				
Oakville						
St. Lawrence M. & M						
St. Patrick	1800	20000				
Teonmseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000	⅞Tu	⅝M		⅛
Golden Chariot	750	30000	5½Tu	4¼T		½
Ida Elmore	1300	10000	2¼M	1⅞w	3¾	
Mahogany	720	10000	5TH	3W		¾
Red Jacket						
South Chariot	660	20000	11TH	9TH		
War Eagle	1000	10000	1⅜w	1F		⅛
WHITE PINE.						
General Lee						
Mammoth	1000	20000				
Noonday	1800	36000	35cF	15cw		10c
Orig. Hidden Treas	1000	20000				
Silver Wave	800	21333				
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
Alpine Gold M & M Co	Amador Co Cal	7	1 00	Aug 10	Sept 14	Oct 5	J F Lightner	438 California st
American Flag M & M Co	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney	320 California st
Arizona & Utah M Co	Washoe	10	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Bellevue M Co	Placer Co Cal		50	Aug 18	Sept 21	Oct 15	D F Verdenal	409 California st
Chief of the Hill M Co	Ely District	5	25	Aug 11	Sept 11	Oct 1	O S Neal	419 California st
Daney G & S M Co	Washoe	10	75	Aug 21	Sept 25	Sept 26	G R Spinney	320 California st
El Dorado North M Co	Belmont Nevada	1	50	Aug 4	Sept 15	Oct 6	G E Honghton	215 Sansome st
El Dorado South Cons M Co	Nevada	4	1 00	Aug 7	Sept 14	Oct 1	W Willis	419 California st
Empire M Co	Idaho	7		Aug 26	Sept 30	Oct 24	Wm Willis	419 California st
Empire Mill & M Co	Washoe	15	50	Aug 13	Sept 17	Oct 8	G R Spinney	320 California st
Globe M Co	Washoe	8	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Globe Cons M Co	Washoe	3	50	Sept 12	Oct 18	Nov 4	J Maguire	419 California st
Gould & Curry S M Co	Washoe	23	2 00	Sept 1	Oct 6	Oct 27	A K Durhrow	438 California st
Hale & Norcross G & S M Co	Washoe	44	5 00	Sept 8	Oct 13	Nov 3	J F Lichtner	438 California st
Julia G & S M Co	Washoe	19	2 50	Aug 4	Sept 7	Sept 26	A Noel	419 California st
Justice M Co	Washoe	11	2 50	Sept 4	Oct 7	Oct 29	F Swift	419 California st
Lady Bryan M Co	Washoe	3	50	Sept 18	Oct 20	Nov 9	F Swift	419 California st
Mint G & S M Co	Washoe		10	Aug 23	Oct 2	Oct 28	D A Jennings	401 California st
Newark S M Co	Ely District	8	1 00	Aug 18	Sept 23	Oct 15	J W Clark	418 California st
New York Cons M Co	Washoe	10	1 00	Aug 25	Oct 1	Oct 19	H C Kihhe	419 California st
North Bloomfield Gravel M Co	Cal	33	1 00	Aug 11	Sept 15	Oct 5	Thos Derhy	320 Sansome st
Page & Panaca S M Co	Ely District	7	50	Aug 4	Sept 8	Sept 24	H P Bush	Merchants' Ex
Pioche S M Co	Ely District	Nevada	7	1 00	July 29	Sept 7	Oct 2	C E Elliot
Portland S M Co	Ely District		25	Aug 21	Sept 28	Oct 20	F J Gray	438 California st
Raymond & Ely M Co	Ely District	1	3 00	Aug 17	Sept 23	Oct 16	T W Coburn	418 California st
Savage M Co	Washoe	15	10 00	Sept 1	Oct 5	Oct 23	E B Holmes	419 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	Oct 14	Nov 2	A O Ryce	308 California st
Silver Peak M Co	Ely District	5	50	Sept 3	Oct 10	Nov 2	O T Grimes	240 Montgomery st
Sierra Nevada S M Co	Washoe	39	1 00	Aug 5	Sept 8	Sept 29	R Wegener	414 California st
South Chariot M Co	Idaho	10	1 00	Sept 2	Oct 3	Oct 28	Frank Swift	419 California st
South Comstock M Co	Washoe	1	50	Aug 18	Sept 22	Oct 12	J M Buffington	Merchants' Ex
Succor M & M Co	Washoe	9	1 00	Aug 18	Sept 22	Oct 14	W H Watson	302 Montgomery st
Sutro M Co	Washoe		50	Aug 14	Sept 18	Oct 13	G W R King	434 California st
Tyler M Co	Washoe	6	25	Aug 15	Sept 18	Oct 8	O D Squire	539 California st
Utah S M Co	Washoe	6	1 00	Sept 21	Oct 26	Nov 16	W E Dean	419 California st
War Eagle M Co	Idaho	7	1 00	Aug 21	Sept 25	Oct 17	L Kaplan	Merchants' Ex
Yellow Jacket S M Co	Washoe	18	5 00	Aug 11	Sept 15	Oct 16	G W Hopkins	Gold Hill Nev

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

California Cons M Co	Cal	1		Aug 26	Sept 29	Oct 19	B J Gray	438 California st
Cederberg G M Co 1st Sonth Ex	Cal	7	4	Aug 27	Oct 1	Oct 20	J N Webster	420 Montgomery st
Cons Channel M Co	Nevada Co Cal		20 00	Sept 7	Oct 12	Nov 6	H Cordes	44 Stewart st
Consolidated Reforma	Lower Cal	1	50	Sept 1	Oct 5	Oct 28	A D Carpenter	605 Clay st
Cupel & Tiger S M Co	Arizona	2	50	Aug 12	Sept 14	Oct 2	C J Eaton	Express Bldg
Edith Quicksilver M Co	Cal	1	12½	July 21	Sept 26	Oct 26	W Stuart	113 Liedesdorff st
El Dorado W & D G Co	Cal		10 00	Sept 15	Oct 15	Oct 31	H Elias	416 Montgomery st
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 27	Chas S Healy	Merchants' Ex
Germania M Co	Utah	2	1 00	Aug 5	Sept 12	Oct 2	J W Tripp	408 California st
Gold Mountain G M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Cavallier	513 California st
Gold Run M Co	Nevada Co Cal	7	25	Aug 7	Sept 15	Oct 7	C C Palmer	Cor Market & Spear sts
Greenhorn O M Co	Cal	4	70	Aug 10	Sept 15	Oct 6	J F Lichtner	438 Montgomery st
Hayes G & S M Co	Nevada	5	20	Sept 4	Oct 8	Nov 3	O R Spinney	320 California st
Independence Cons M Co	Cal		15	Sept 4	Oct 10	Oct 29	F J Hermann	418 Kearny st
James Point Gravel M Co	Cal	2	10	Aug 14	Sept 15	Oct 3	D O Ferris	223 Montgomery st
Kossuth M Co	Washoe	2	25	Aug 25	Sept 25	Oct 14	E F Sons	419 California st
Mosquito Hydraulic Quartz M Co	Cal	1	15	Aug 12	Sept 15	Oct 3	G S Healy	Merchants' Ex
New York M Co	Washoe	1	50	Aug 28	Oct 1	Oct 19	H C Kihhe	419 California st
Phœnix Tunnel & M Co	Utah	6	25	Sept 6	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Presidian G & S M Co	Nevada	2	50	Sept 5	Oct 26	Nov 16	E H Brown	402 Montgomery st
Red Jacket M Co	Idaho	4	1 00	Sept 2	Oct 9	Oct 31	W Willis	419 California st
Sanderson O M Co	Cal	12	30	Aug 12	Sept 8	Sept 26	W Stuart	113 Leidesdorff st
Silver Cord M Co	Idaho	5	1 00	Sept 11	Oct 12	Nov 2	Frank Swift	419 California st
Silver West Cons M Co	Enreka Nev	2	10	Aug 19	Oct 6	Oct 31	F R Runker	606 Montgomery st
"Sixty-three" G & S M Co	Cal		25	Sept 2	Oct 5	Nov 2	J R Helm	411¼ California st
Starr King S M Co	Nevada	7	25	Aug 6	Sept 11	Sept 30	L Kaplan	Merchants' Ex
State of Maine M & M Co	Cal	7	5	Sept 17	Oct 24	Nov 10	J M Buffington	Merchants' Ex
Table Mt Alpha M Co	Cal	5	25	Aug 20	Sept 29	Oct 20	T F Cronise	438 California st
Tecumseh G S & C Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Ward Ellis S M Co	Robinson District	2	10	Aug 21	Sept 23	Oct 19	J M Buffington	Merchants' Ex

MEETINGS TO BE HELD.

Nams of Co.	Location.	Secretary.	Offics in S. F.	Mesting.	Dats.
Baltimore Cons M Co		D T Bagley	401 California st	Annual	Oct 1
El Dorado Quarter & Deep	Oravel M Co	H Elias	416 Montgomery st	Adjourned	Sept 30
Esta Buena S M Co		A Noel	419 California st	Annual	Sept 28
Eureka M & Smelting Co	Nevada	T P Beach	424 Montgomery st	Annual	Sept 29
Floral Springs Water Co	Nevada	Thos Denigan	607 Front st	Annual	Oct 8
Kelsey G & S M Co		J H Sayre	331 Montgomery st	Annual	Sept 29
Lady Washington M Co		Called by Trustees	419 California st	Special	Oct 17
San Marcial S M Co	Mexico	Called by Trustees	426 Montgomery st	Special	Oct 21
Segregated Belcher M Co	Washoe	G D Edwards	414 California st	Annual	Oct 6
Woodville G & S M Co	Washoe	Called by Trustees	401 California st	Special	Sept 28

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Nams of Co.	Location.	Secretary.	Offics in S. F.	Amount.	Payabls.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	4 00	Sept 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Sept 10
Consolidated Virginia M Co	Washoe	D T Bacley	401 California st	3 00	Sept 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	Sept 12
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 00	Jan 17
Enreka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

The mining share market has heen in a state of excitement for the past few dsys. An advance along the line occurred, everything going up higher thsn it was for some time past. The fluctuations of the market will he seen hy referring to our stock tahles in another column. This rise has heen long and auxiously looked for hy brokers, who will now reap their harvest. As regards the situation in the mines, it still remains favorahle everywhere aloug the line of the Comstock. In that direction, according to the *Enterprise*, there is nothing to cause a panic, or even the slightést nneasiness. From the lower levels of several of our leading mines—where work has for a long time heen in a great measure suspended, on account of had and heated air—we may expect soon to hear good reports, as the works for their proper ventilation are fast approaching completion. In mines where drifts have heen running for months in lines parallel with the vein, only touching here and there its protuherances and sinnosities, preparations for crosscutting are heing made; indeed, in a few instances cross drifts have already heen commenced. The ore hodies already developed expand and improve the work of their exploration progresses and in many instances these have proved to he deposits of undouhted permanence. Good work is everywhere heing done hy those of our companies engsged in prospecting. It is true they have their occasional mishaps and that they at times encounter unlooked-for obstacles, as great floods of water, very hard rock or had, swelling ground, hut hy the exercise of patience, perseverance and skillful engineering all difficulties are eventually overcome.

THE Stevens mine, or West Argentine, Colorado, has heen sold to Chas. Menderhall, of Cincinnati, for $37,000 in cash.

Mining Accidents.

Two men, Eugene Clifford and James Ryan, were seriously injured hy a pecnliar accident recently in the Cerro Benito mines. The Hollister *Enterprise* says they were engaged in sinking an air shaft to connect with one of the tunnels, and had got down a depth of 35 feet when the point of the pick in the hands of Clifford struck into an old charge of powder, exploding it and hurning the men frightfully. Ryan, who was standing off at a little distanoe, had his hands and face hnrned—the left hand hadly. His companion fared mnch worse, as he was standing immediately over the flame. His body, face and arms were shockingly hurned, yet it is thought he will recover. This old blast, it seems, was dropped down into a crevice when the men were hasting on a former occasion, and remained intact until struck hy the pick, as alluded to.

On the 10th inst., a miner named John Evans was instantly killed hy falling down the shaft of the Sierra Nevada mine. At the time the accident occurred he was hringing up some timhers from the hottom of the shaft on the cage. It is supposed that the timhers caught against the lagging and rolled about on the csge, knocking him off.

On the 18th inst., a man nsmed Thomas Ripley, mining near Chinese camp, was heing lowered into his shaft when the noose in which he was seated slipped from the hight, precipitating him a distance of 85 feet. He struck on his feet with terrific force, hreaking every hone in the lower portion of his hody aud killing him instantly.

A miner named John Kuareshorough broke his right leg last week by falling into a chnte from the 1,200-ft. level of the Belcher mine.

Charles Shepardson received injuries on the 17th inst. in the Sutro tunuel, from which he died two days after. The deceased was carman in the tunnel. The cars hold ahout three tons of rock each, and are hauled out of the tnnnel in small trains hy a mule. It seems that Shepardson had brought out a train of losded cars, three of which he pushed out upon a track resting upon a trestlework intended to support the weight of empty cars only. He got hetween two of the cars for the purpose of dumping one of them. While he was lifting on the car the track suddenly gave way nnder his feet. As he fell he was csught hetween two cars and crushed across the hreast.

On Saturday morning as a three-decker oage, containing loaded oars, was heing hoisted up the north compartment of the Consolidated Virginia shaft, the cable suddenly parted at the top of the gallows frame. The *Enterprise* says tbat the cage, whioh had almost reached the 1,300-ft. level, fell hut ahout four or five inches, when it was caught and held suspended in the shaft. The cahle descended the shaft with a noise which resounded through the miue like crashes of thunder. The miners state that the friction of the falling cahle caused bright flashes of fire to stream from the sides of the shaft, as they could plainly see wherever it passed the stations at the several levels. Luckily no one was hurt hy the accident.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Offics, San Francisco:

COQUILLE BLACK SAND GOLD MINING CO.—Sept. 7. Location: Coos county, Oregon, or elsewhere. Directors: W. T. Reynolds, Louis Blanding, C. H. Dewsy, John L. Bray and S. P. Taylor. Capital stock, $400,000.

TABOUT MINING CO.—Sept. 8. Location: Tuolumne county, Cal. Directors: A. D. Carpenter, Clinton Gurnes, Ford H. Rogers, Louis Vesaria and George R. Adams. Capital stock, $6,000,000.

CONTRA COSTA COAL MINING CO.—Sept. 12. Location: Contra Costa county, Cal. Directors: H. P. Coon, O. H. Burton, C. C. Webh, J. S. Hutchinson and C. B. Psrrin. Capital stock, $500,000.

SUNDERLAND QUICKSILVER MINING CO. — Sept. 13. Location: San Luis Ohispo county, Cal. Directors: Thomas Sunderland, J. D. Fry, R. F. Morrow, J. F. Lockhart and H. C. Kihhs. Capital stock, $10,000,000, in shares of $100.

PRIETOS MINING CO.—Sept. 13. Location: Los Prietos, Najalayequa district, Santa Barhara county, Cal. Trustees: M. J. McDonald, J. D. Fry, E. L. Sullivan, E. J. Pringle and A. Packard.

ANGLO-MEXICAN SMELTING AND REFINING CO.—Sept. 15. Object: To sreck smelting and refining works in the different States and Territories of Mexico. Directors: Frederick Hiller, Jr., Frederick Hiller, Sen., John A. Peir, Otto F. Gehricke and Samuel Locke. Capital stock, $1,000,000, in shares of $50 each.

ST. HELENA O. AND S. MINING CO.—Sept. 17. Location: State of California. Directors: J. T. Holmes, J. M. Winslow, Paul Ruger, W. R. Stesls and J. A. Conlee.

HURON CONSOLIDATEN SILVER MINING CO.—Sept. 18. Location: Highland mining district, Lincoln county, Nevada. Directors: H. C. Patridge, Timothy Sargent, S. D. Simons, J. A. Alhertson, Peter McCannon, Peter Harrison and F. W. Clcete. Capital stock, $5,000,000, in shares of $100 each.

PLUMAS CONSOLIDATED GOLD MINING CO.—Sept. 18. Location: Plumas county, Cal. Directors, Maurice Dore, John D. Fry, James R. Garnis, Chas. N. Felton and Robert F. Morrow. Capital stock, $5,000,000, in shares of $100 each.

MANSFIELD DITCH HYDRAULIC MINING CO.—Sept. 19. Location: El Dorado county. Directors: George M. Pluney, John O. Hanscom, J. E. de la Montanya, D. Dickerson, Jr., and A. D. Allen. Capital stock, $3,000,000.

EXCELSIOR QUICKSILVER MINING CO.—Sept. 19. Location: Guerneville district, Sonoma, Cal. Directors: C. E. Allen, Thomas R. Hayes, Henry T. Wheeler, Charles D. Morrison and Wm. P. Morgan. Capital stock, $500,000.

AGRA MOUNTAIN TUNNEL AND MINING CO.—Sept. 22. Location: Agra Mountain mine, in ths Agra mountain district, El Dorado county, Cal. Directors: ISAAC Tahor, J. H. Harmon, E. C. Boobar, A. C. Hendley and N. B. Hitchcock. Capital stock, $2,000,000.

SCOTT QUICKSILVER MINING CO.—Sept. 22. Location: Santa Inez valley, Santa Barbara county, Cal. Directors: George Roherts, R. R. Craig, C. B. Buckinham, Walter M. Rockwell and A. L. Warner. Capital stock, $3,00C,000.

SANTA INEZ QUICKSILVER MINING CO.—Sept. 22. Location: Santa Inez valley, Santa Barbara county, Cal. Directors: Solomon Heydenfeldt, Jesse S. Hall, Harvey S. Brown, W. H. High and Joseph Craig. Capital stock, $3,000,000.

NIAGARA GOLD AND SILVER MINING CO.—Sept. 23. Location: Gold Hill district, Nevada. Directors: James A. Pritchard, W. T. O'Neale, W. L. Brackett, J. J. Hoimes and W. F. Hals. Capital stock, $6,000,000.

Ths following named companies have filed certificates of incorporation in the office of the Secretary of Stats at Sacramento:

SAN JOSE MINING, WELL AND DITCH CO.—Capital stock, $50,000, in shares of $50 each.

REDMAN MINING CO.—Location: San Diego county. Capital stock, $3,000,000. in shares of $100.

EAST BRANCH MINING CO.—Capital stock, $500,000, in shares of $25 sach.

Ths following named company has filed a certificate of incorporation at Portland, Oregon:

OREGON CENTRAL PACIFIC RAILROAD CO.—Directors: B. J. Pengra, B. Goldsmith, William H. Watkins and Ed. Quackenbush. They propose to construct a railway from Winnemucca to the Columhia river, via Goose Lake valley, Sprague River valley, to the middle fork of the Willamette, down the north side of the river to Springville, Lane county, thence on the west side of ths river to Portland, thencs to Columhia river. Capital stock, $7,500,000.

THE *Guardian* says that despite the rumors to the contrary, the diggings at Omineca are likely to prove not only good, hut lasting. There will he quite a number of miners returning to that section next spring, and hy the investment of a little capital in ditches, a very large amount of gold will be taken out.

A PARTY of men engaged in hlssting rooks to improve the channel of the Little Truckee river, four miles above Bocs, discovered a coal vein Fridsy. The vein is about 18 inches thick, and the ooal has been tested and hurned freely.

THE Calistoga *Free Press* announces that the interest in the quicksilver mines and in the silver ledges in the vicinity of the Calistoga silver mine is increasing.

A LARGE portion of the railroad sheds hetween Truckee and Emigrant Gap will have to he rebuilt hefore another season.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned:

California.

ALPINE COUNTY.

IDLE.—*Miner*, Sept. 19th: With the exception of the Monitor and Northwestern the mines in our county are mainly idle. That company's mill has been running all the week, with what particular results has not transpired.

THE Silver Glance shaft continues to produce ore of a fine quality, and runs a full force of men.

RUBY QUARTZ.—*Chronicle*, Sept. 19: The Acacia contractors struck fine ruby quartz in the tunnel, but whether it is a feeder or the main ledge is to be determined. When struck it showed a depth of 6 in.

THE additional machinery at the Exchequer will soon be in running order to allow the sinking of the shaft to the 200-ft. level, where an extensive body of rich ore will be developed.

SILVER CLOUD.—The shaft is now nearly 90 ft. deep, and when down 100 ft. a drift will be started for the ledge.

AMADOR COUNTY.

MINES.—*Ledger*, Sept. 16: Reports from the quartz mines in the county continue very favorable. Work is progressing steadily in the State of Maine mine, with very fair prospects of speedy development into a valuable mine. The Kennedy is taking out good rock from the last sinking, and the ledge looking remarkably well. The Oneida is producing excellent rock, and the prospects of the mine were never more flattering. The developed mines at Sutter creek and Amador City are returning to their owners their usual large monthly yield of gold, which we doubt not is satisfactory to all parties interested. The Phœnix holds its position as one of the most valuable mines in the county. At Fiddleton, the Valparaiso, as work progresses, gives every indication of a really valuable mine. From our knowledge of this mine, when it shall be fully developed, we feel assured it will take rank amongst the best paying mines in the county. At Quartz hill, work is steadily progressing on the Gold mountain, Golden Crown and White mountain claims, and we are pleased to learn the rock in each presents most encouraging proofs of the value of these claims.

COLUSA COUNTY.

FURNACE COMPLETED.—*Sun*, Sept. 19: The furnace at the iron mine was fired up last Tuesday. It will require a week or more to get it sufficiently seasoned to fill with ore. Then it will be filled about half full of stones in which there is no quicksilver. After burning this for a few days it will be filled with a poor grade of ore. All the condensers will have to get coated with soot in which there will be more or less quicksilver, before the full amount will be taken out. There will always be several pounds of quicksilver in the soot.

ELGIN MINE.—*Independent*, Sept. 18: This mine continues to make rich strikes, and is fast ascending the scale of mines. Some time ago a report was circulated that it was so hot in the neighborhood of the mine that the miners could not work—and this without the busy tongues ever taking pains to visit the mine. Those who own the mine have not been frightened out yet. They still keep on working without any knowledge of the excessive heat complained of on the outside. The Elgin mine has paid expenses from the start, and for the past five months something more. The top dirt and rock pays to retort, for the reason that it requires very little labor to bring it where required. They have now struck the ledge, and there is one grand chimney of cinnabar looming up and all the miners have to do is pick it out and realize from 10 to 25 per cent. even without sorting. One batch run out 72 lbs. of silver—that is the largest that ever was run in this vicinity. From 20 to 60 lbs. are run every 24 hours, and only one man is required to get the ore out. They have commenced building a wagon road up to the mine which will be a grand improvement. They will soon have it completed, and then the Elgin mine will be second to none.

EL DORADO COUNTY.

IMPROVEMENTS.—*Republican*, Sept. 17: J. W. Bennett has taken a third in the Dolly Varden lode, at Kelsey, and let a contract to extend the tunnel 100 ft. This mine has a promising look. He has examined the True claim in Big cañon, and thinks from all the indications that it is a good lead, but that the tunnel ought to be run in 200 ft. further and cross-cut.

INYO COUNTY.

THE BORAX WORKS. *Independent*, Sept. 19: Searles & Co., at Borax Lake on the Panamint road, now have eight vats in use, each capable of turning out three-fourths of a ton of merchantable borax every seven days, that being the time required to effect the perfect crystallization of a vat of water from the heating apparatus. Sixteen more vats, making a total of 24, are to be put in as fast as possible. The boiling apparatus is a most complete affair; it consists of a number of large vats or pans all heated by one furnace (fed with sagebrush for fuel), the heat being carried through the water in a series of ramifying pipes or flues, thereby effecting economy in fuel and space. These boilers have a capacity more than sufficient to supply the proposed complement of crystallizing vats.

MARIPOSA COUNTY.

SNYDER.—*Gazette*, Sept. 19: We learn that Messrs. Streeter and Marsh have made arrangements to work the quartz mines near Snyder's known as the Snyder mine. These gentlemen are practical miners, and we doubt not that the mine, under their management, will give a good account of itself.

MENDOCINO COUNTY.

QUICKSILVER.—*Dispatch*, Sept. 10: Edsall and others have recently discovered what promises to be a good quicksilver lodge near the foot of Hull mountain, on the southwest side, and near the road to Round valley.

MERCED COUNTY.

CINNABAR.—*Tribune*, Sept. 19: Mr. E. L. Reed has confidence in our cinnabar mines. He made a purchase this week of two hundred and twenty-two feet in the Quien Sabe, located on Bay View ledge, near Cambria, which, from all appearances will turn out well. Men are at work on this claim now and the prospects are flattering.

NAPA COUNTY.

BIG INDIAN.—Cor. *Reporter*, Sept. 19: This mine, situated two miles from Anderson's Springs and one and a half miles from the famous Kearsage, has a tunnel run in 44 ft., which has struck the lode with flattering prospects. Another tunnel 100 ft. further south was driven into the lode and run through to what appeared to be the foot wall, a frothy substance that did not satisfy the miner at work as being the true wall. He started a drift obliquely, and found a splendid wall, and overlying the same a vein of black ore of surpassing richness, and from ½ to 2 ft. thick.

PROSPECTING FOR COAL.—Thomas Guinean has a party of miners engaged in prospecting for coal in the mountains a few miles from Monticello. A tunnel has been run in 150 ft. upon a vertical seam of coal of n few inches in thickness in sandstone rock. It is of an excellent character, and he has strong hopes that the vein will widen into one of workable breadth.

DISCOVERY.—Vallejo *Chronicle*, Sept. 19: Another silver ledge has been discovered and located in the Calistoga district by J. A. Conlee, from the Utah country. The location is about a mile beyond the Calistoga mine, on the southern slope, and several hundred feet lower down.

NEVADA COUNTY.

COAL.—Truckee *Republican*, Sept. 19: A party of men engaged in blasting rocks to improve the channel of the Little Truckee river, four miles above Boca, discovered a coal vein yesterday. The vein is about 18 in. thick, and the coal has been tested and burns freely.

PITTSBURG.—*Union*, Sept. 23: The rock from the Pittsburg is showing remarkably well in sulphurets and fine gold, and from the prospects had it is believed that more big crushings will be obtained just as soon as the mine is cleared of water.

QUARTZ.—*Tidings*, Sept. 19: A discovery of a very rich quartz ledge has been made on Deer Creek, near the Dikeman dam, four or five miles northwest from Grass Valley. Six pans of quartz gave gold to the value of $106, and two pans subsequently gave $60 worth of gold.

SPLENDID rock coming out of the stopes of the Idaho, where recently it was of low grade though plenty.

THE Home gold mine, located over near the Wyoming and principally owned by Hon. Thos. Findley, of this place, is soon to be worked.

GRAVEL.—*Transcript*, Sept 23: Gravel miners are making ready for winter, and all hope for plenty of rain. Although the fall last year was heavy, yet the season has been short, and water is very scarce in many places.

WE learn that rock which will pay at least $75 per ton is being taken out of the Gold Run mine, and that the rock in the Occidental is looking splendidly, and continues to improve as a greater depth is attained.

PLACER COUNTY.

GOLD RUN.—Cor. *Herald*, Sept. 19: O. S. Kipp, W. H. Hunt, and one or two others have struck a ledge of rock, and from the specimens brought into town, will pay at least $500 to the ton, as near as I can find out, although it is kept a secret. The ledge was first discovered in the vicinity of Cold Spring ranch. It has been traced into and up a small cañon called Silver Jack cañon. Everybody is on the tiptoe of excitement, and all the ground on both sides of the cañon has been duly staked off and claimed.

PLUMAS COUNTY.

ITEMS.—*National*, Sept. 19: $25,000 was the result of the season's run at Gopher Hill, the claim recently sold to the Plumas Ditch Co., by Mr. Haycock. The company may get a few days' run, yet, this fall. Fant & Co., of Light's cañon, shipped seventy ounces of gold for twelve days' run, working three men. A new ledge has been struck by Mr. Majors, on Wolf creek, which prospects well: Parties are prospecting on the old Ellis ledge at Round valley.

SAN BENITO COUNTY.

QUICKSILVER.—*Advance*, Sept. 19: Another mine has been recently discovered on what is known as Chalmer's ranch, about 17 miles south of Tres Pinos. J. F. Johnson returned reporting very promising prospects, and a number of practical miners were at once dispatched to work on the mine.

SAN DIEGO COUNTY.

BANNER DISTRICT.—Cor. *World*, Sept. 19; The Chariot Mill is turning out $30,000 worth of bullion per month; the Ready Relief company are erecting a 10-stamp mill and as soon as they get it running it will turn out $30,000 a month more. The Pioneer Mill will soon be refitted and remodeled or charged into a camshaft mill, and the Redman mine will soon be reopened from which we have no doubt a firm yield of bullion which will yield $16,000 more, making $95,000 the yield of bullion per month. The Kentuck mine has a fine body of ore in it, but the company are not hoisting out of the shaft as there is no custom mill here where they can get it crushed, and other mines are similarly situated. We may put the estimate for the yield of bullion for the next year at $1,000,000.

Nevada.

WASHOE DISTRICT.

CONSOLIDATED VIRGINIA.—Gold Hill *News*, Sept. 17: Daily yield, 300 tons of ore. The ore breasts on the 1,200, 1,300 and 1,400-ft. levels are working splendidly and yielding the usual amount of rich milling ore. The mine is gradually cooling off since the air connection with the Gould & Curry on the 1,500-ft. level, and will soon be as comfortable a mine to work as any on the line of the Comstock. Work is steadily progressing on the new mill, which is approaching completion as fast as it is possible to place the ponderous machinery in place.

OPHIR.—Daily yield, 50 tons of ore. The ore breasts both north and south on the 1,465-ft. level are opening stronger and yielding ore of a richer quality every day. In the openings in both the north and south winzes from the 1,300-ft. level the ore is of a fine quality. During the past week the east cross-cut from the south drift on the 1,465-ft. level encountered a fine body of rich ore, causing the stock to jump from $22 to $30 per share. The ore found in this drift is very rich, but of what extent cannot yet be known. It is a discovery, however, of great importance, lying, as it does, 156 ft. east of the other ore bodies now being worked on that level. The Empire State mill is kept steadily running on ore from the mine.

SIERRA NEVADA.—Sinking the new shaft is progressing at the rate of 2½ ft. per day, the rock in the bottom working finely. The hoisting and pumping machinery is all working with the utmost perfection, and much better progress with the sinking is expected from this time forward. The ore breasts in the old upper workings of the mines are yielding 65 tons of good milling ore per day, keeping the company's mill steadily running, crushing ore from the mine.

DAYTON.—Daily yield, 60 tons of ore. This ore is extracted from the ore breasts on the second and third station levels. The ore breast in the north drift at the 2d station level is looking finely, while those both north and south on the third station level are looking splendidly.

WOODVILLE.—The ore body on the 200-ft. level continues of a good quality, and is growing stronger as the ore breasts are extended. The winze from the 200-ft. level has made connection with the north drift on the 300-ft. level, securing a fine circulation of good air, and greatly facilitating the work on both levels. The ore vein on the 300-ft. level is from seven to 10 ft. in width, and gives average assays of from $90 to $125 per ton. A winze has been commenced on the 300-ft. level which will be immediately sunk to the 400-ft. level. The new amalgamating pans have all been put in place, the retorting and assaying apparatus is completed, and a clean-up at the mill will probably be made in a very short time.

GOULD & CURRY.—No work is being done at present on the 1,700-ft. level on account of water. Connecting the north drift on the 1,500-ft, level with the Virginia Cons. has cooled that level so as to make work in that portion of the mine quite comfortable. It has, however, caused a strong swelling of the ground necessitating the entire retimbering of the drift which is now being done. The prospecting drifts on the fourth station level have developed fine, large bodies of solid quartz, but no ore that will pay for extracting.

BALTIMORE CONS.—In consequence of the breakage of some of the air machinery, but little progress has been made with the sinking of the shaft during the past week. The north drift on the 450-ft. level has shown considerable improvement during the past week.

IOWA.—Last Monday work was resumed in the old Iowa tunnel. This tunnel is already in 130 ft., and will cut the ledge several hundred feet below the surface. Cleaning out and repairing the drift is making good progress.

BELCHER.—The new air shaft has been connected below the 800-ft level with the 900-ft. level which now begins to give a good, strong ventilation to the lower levels. Sinking the main incline will be resumed about the middle of next week. Prospecting drifts are shortly to be started for the purpose of cross-cutting and prospecting the 1,500-ft level. The main south drift from the main incline, running toward the Seg. Belcher ground, will shortly be started up. The ore breasts throughout the entire mine are looking well and yielding splendidly. Daily yield, 550 tons of ore.

DARDANELLES.—New shaft down 95 ft. and sinking deeper at a good rate of progress, the ground working very favorably. Preparations are being made to remove the excellent steam hoisting machinery from the old shaft of the company to the new shaft.

CALEDONIA.—Sinking the main shaft is making steady progress, the rock in the bottom working somewhat harder than for some time past. It is now down 20 ft. below the 1,000-ft. level. The prospecting drifts on the 700 and 800-ft. levels are still driven vigorously ahead, without change of interest to relate.

BULLION.—The north drift on the 1,700-ft. level of the Imperial shaft is still driven vigorously ahead, following the foot wall of the ledge, cutting occasional bunches of low-grade ore. The formation of the ledge, so far as developed on that level, shows a great improvement over what it was on the levels above.

HALE & NORCROSS.—The main incline is down 130 ft. below the 2,000-ft. level, the bottom in good sinking ground. The north drift, on the 2,000-ft. level, has made connection with the south drift from the Savage, on the same level, cooling off the level and greatly benefitting the prospecting operations on the 2,000-ft. level.

GLOBE CONSOLIDATED.—The face of the main west drift on the 400-ft. level is almost entirely in quartz of fine character. There seems no doubt but that the main ore vein on this level will now soon be reached. The flow of water from the face of the drift is quite considerable, but does not impede the progress of the work. The face of the north drift from the winze, at the head of the incline, is in fine ore which appears to be widening out as the drift progresses to the northward.

IMPERIAL-EMPIRE.—Sinking the winze below the 1,850-ft. level has been discontinued for the present, on account of water and bad air. The bottom of the winze is still in rich ore. The ore body struck last week in the south drift on the 1,850-ft. level, still continues of a fine quality as the drift follows it to the southward. The main east drift, on the 2,000-ft. level, is making fine progress, the rock in the face working quite soft.

CALIFORNIA.—Both of the north drifts on the 1,400 and 1,500-ft. levels, from the Virginia Consolidated shaft, are making fine progress. These drifts are running to connect with drifts now being driven southward on the same levels from the Ophir. The connections will be made and both levels thus thoroughly ventilated in about four weeks further time.

LEO.—The north drift is making good headway, and the ledge continues large and well-defined, still carrying very good ore. The north stope is looking and yielding well, the ledge being from 4 to 5 ft. wide. The south stope is affording a good quantity of excellent ore; ledge from 6 to 8 ft. thick. About 200 tons are ready for milling.

ORIGINAL GOLD HILL.—The drift west at the 340-ft. level is to-day in 81 ft. from the shaft, all the way in vein matter, and showing indications at present of approaching the ore vein. At the 176-ft. level a drift is also being run for the ledge, which is in 60 ft., also in vein matter.

DANEY.—The face of the main west drift on the 400-ft. level is almost entirely in solid quartz of a very flattering character. There is every indication that the main ore vein will be reached in a very few days. There is a steady flow of water from the face of the drift, which does not at all impede the progress of the work.

SUTRO.—During the past week the main west tunnel has been steadily driven ahead through very promising ledge matter. Considerable quartz is found mixed with clay. The running is quite easy and good progress is being made.

UNION CONS.—The east cross-cut from the main north drift on the 1,300-ft. level of the Ophir, is still driven vigorously ahead, the face in clay and porphyry mixed.

SAVAGE.—Sinking the main incline is steadily progressing, without any change of consequence in the character of the rock penetrated. Sinking the south winze below the 2,000-ft. level is making favorable headway. Prospecting on the 2,000-ft level is still prosecuted without change of value to report.

YELLOW JACKET.—Sinking the south winze below the 1,540-ft. level is making steady progress. The main west drift on the 1,740-ft. level is in 189 ft., the rock in the face working quite soft. There is no change to report of the other prospecting operation in the different portions of the mine.

NEW YORK.—The main shaft is down 47 ft. below the 560-ft. level in soft sinking ground.

CROWN POINT.—Sinking the main incline is making good progress. The main south drift is still driven vigorously ahead, without change of interest to report. The ore body on the 1,500-ft. level is opening up finely, and already promises a good yield of rich ore. The ore breasts on the 1,300 and 1,400-ft. levels are both looking well and yielding splendidly. The ore body on the 1,000-ft. level is showing improvement as it is worked to the northward. Daily yield, 500 tons of ore.

UTAH.—Prospecting the 400-ft. level is still vigorously prosecuted, without any new discoveries or changes to record. The water in the shaft, although under good control, is not yet sufficiently drained to allow of a resumption of the work of sinking the shaft.

CHOLLAR-POTOSI.—Daily yield, 100 tons of ore, the assay value of which is $30 per ton. There is no change to report of the prospecting operations at the fifth station level. The ore breasts on the old upper levels are all looking well and yielding the usual amount of good ore.

SUTRO TUNNEL.—The total length of the main tunnel is now 6,862 ft. Soft ground has been encountered during the past week, which has retarded tunneling operations somewhat, it being necessary to keep timbers close up to the face of the header. Since last report, the tunnel has been advanced 65 ft.

Diamond Cutting.

The *British Trade Journal* publishes the following interesting account of the menner in which diamonds are cut and polished: The art of a diamond cutter is not easily acquired; and the monopoly of it which the Dutch heve until quite lately enjoyed is really not astonishing; and there is no telling how long they might have kept it to themselvee had not jealousies recently sprung up between the employers and the journeymen, which induced some of the latter to settle in London and to pursue their avocation there. These Dutchmen have prospered in the metropolis, but the eyes of Birmingham have been upon them, and henceforth they will have to contend with some native opposition. Mr. Spencer hes at length, after a long time spent iu maturing his plans, succeeded in obtaining the requisite experience and machinery, and, moreover, he has obtained men who are able to successfully accomplish the delicete work required. Diemonds, when fonnd by the diggers, are most pecnliar in shape, the majority of them appeering to have been submitted to the operation of cutting, and afterwerd to have hsen squeezed or compressed, so that the regulerity of the fecets which they bear has been pertially destroyed. Others eppear to have been in a state of fusion, and to have "set" in most fenteatic shspes. All, or nearly all, bear flaws of some kind, and the preliminary operation is to remove these defecte. Having ascertained which way the "grain" of the stone runs—for diamonds have grain, like wood, although it is not quite so readily discovered—it is firmly fixed iu a very hard cement, with the flaws uppermost. Teking a diamond with a sharp edge—which is also set in cement contained in a cup with a long handle—the operator proceeds to "sew" a small trench in the rough diemond, just beneath the flew, teking the utmost care to catch the dnst produced by the sawing process in a smell box, as it is valueble for polishing diamonds and other purposes.

When the trench is cut to a slight depth, the workmau inserts the blade of a sharp instrument, and on thie being tapped sharply, the diamond splits, generelly with marvelous precision, and the defective part of the diamond is thus removed. Some stones, however, cannot be thus dealt with, in consequence of the grain not running smoothly. Any attempt to split them would surely destroy the greater part of their beauty, end they are therefore cut with a very finely tempered sew, sprinkled with plsnty of diamond dust, moistened with olive oil. Supposing the diemond to have been freed from all flaws and blemishes, it now requires cutting. The cutter mnst necessarily be a man of great judgment and teste, for he has to decide, on inspecting the rough stone, in what form it shall he cut, so as most effectively to display its brilliance and beauty, and at the same time to preserve as much as possible of its weight. The workman having decided whether the diemond shall form a rose or a brilliant, proceeds to cut it eccordingly. To his taste, also, is left the decision es to whether the stone shall have 20, 24, or more faces. To cut these facets, he fixes the diemond in cement, and proceeds, with another diemond of about equal size, to rub away the surface of the stone, until a perfectly flst surface of the size required ie formed. A skillful workmen will so manipulete the diamond, that he will cut facets on the stone *on* which, and on the one *with* which he is operating, simultaneously. Of course, the dust and small chips formed in this process are also carefully preserved. One fecet having been formed, the stone is turned in the cement and second facect is cut iu a similer manner. Such is the marvelous skill attained by the workman, thet he will cut the whole 20 or 24 facts of exactly similer size—or, at least, so nearly of a size that a microsoope only would reveal any discrepency. Having thus, with greet care and nicety, brought the diamond to the shepe required, the facets, which are of neoessity rather rough, have to be polished. This operation requires scarcely less skill than that of cutting. The polishing wheel is a circular teble of iron, known by the Dutch name of "Schuff." By means of machinery it is made to revolve with extreme rapidity, sometimes at the rete of neerly 3,000 revolutions per minute. On the surface of this iron table is placed a quantity of very fine diamond powder, moistened with olive oil. Before the diamonds are polished they are set in a cone composed of an alloy of lead and tin, and this cone exactly fits in a cup, which is held stesdy by a long handle fixed in the wall of the room, or some convenient post. The facet of the diamond, which forms the summit of the cone, is then pressed on the revolving table and held down by weights of lead. Of course, the weights vary, some stonee requiring two pounds pressure, and others as much as 30 lbs. The workman who euperintends the operation has to exercise the most extreme cauttiou, for should the diamond become loose in the cone, ii wonld, in all probability, be much damaged by the edge of the facet being grouud away. One fecet having been properly polished, the stone is taken from the cons, and refitted with another facet nppermost, and the same operation ie repeated. It will be seen that the polishing of a diamond thns occupies a considerable time; and, as it occasionally heppens that a gem may be softer in one part than in another, the workman requires to be constantly on the alert to regulate the pressure on the etone and the revolutions of the table. When it is also borne in mind that some of the diamonds cut and polished in thie manner are smaller than the head of a pin, and that perhaps they have to be cut with twenty-four facets, the extreme delicecy of the operation will he at once apparent.

Lac.

Lac is a resinoue substance formed on severel different kind of trees in the East Indies, snd produced by the punctures of an insect (*coccus lacca*), and by its formation of the exuding jnices into celle for its eggs.

These adhere to the branches in grains, completely encrusting them, and are either imported in that form, end called stick-lac, or the grains are gathered from the branches, their coloring mattsr extrected and formed into flet cskes, still preserving the granular appsarance, and called seed-lac, or the seed-lac is melted up into masses and called lump-lac. Finally there is shell-lac, which is seed-lac further purified by heing put into hags of fine linen, and melted over a charcoal fire until it passes through them. The bags are squeezed and passed over a smooth surface of wood, on which the lack is deposited in thin leyers. If pure, this kiud of lac will take fire on a hot iron, and burn with a powerful smell.

By pouring warm weter on stick-lac a crimson coloring matter is obtained, whioh is made into square cakes for ssle, and called lac-dye, lac-lake or ceke-lake. These cakes when broksn are dark-colored, shining and compect, hut when scraped they yield a bright red powder approaching oarmine. The cskes of lac-dye from Indie are stamped with certain marks, the best being D. T., the second best J. McR., the third C. E., which are the initials of different menufacturere. The cakes do not in general contain more than 50 per cent. of coloring metter, the rest being resin 25, and alumina, plaster, chelk and sand 25.

The dye above referred to, and which constitutes much of the velue of lec, is due to the insect which makes the cells, and which is of the seme family as the cochineal insect. The parent lac insect, after leying her eggs, becomes e mere lifeless hag of an ovsl ehape, containing a small quantity of a beautiful red liquid. The youug insects feed on this liquid, and their hodies assume the sems hue, so that the branch which bears them appesrs to be covered with red powder. The cells of gum-lac which shelter them are more or less deeply tinged with the same color, end the best time for gathering stick-lac, so as to secure the coloring matter, is before the insects have made their escape. Previous to the discovery of the true cochiusal, the coloring matter of the lec insect was universally employed for dyeing red. The crimson of Greece and Rome, and the imperishable reds of the Brussels and Flemish schools were obtained from this sonrce. The best quality of stick-lec is obtained from Siam, that of Assam ranking next. Of late years lec-dye has egain been substituted for cochineal on account of its greater cheapness, and also on account of its being less affected by perspiration than cochineal.

So abundant is the supply of leo among the cultivated mountains of Indie, that it is asserted consumption ten times greater then the present might he readily met.—*Cabinet Maker.*

All About Coffee.

In the followiug we find some very useful hints on coffee. Only one thing we will add: Never uae "ground, browned or prepered coffee," for there is room for decsption that ought not to be risked.

Jave coffee has a large, full yellow berry, but thet of the Rio is emaller and of a greenish tinge. The difference in essential properties is dorived from the difference in climate, thst of Java retaining the bsan to ripen moie perfectly than it is left to do in Brazil, where it is reised chiefly by unskilled slave lebor. The best coffee for farmers is made by mixing the two—Java affords the most fragrence, and Rio the most stimnlant and proteotion against chilliness and damps. Very much depends upon the perching of coffee. This should be done slowly at first to expel ell the moisture, and repidly at last, stirring it constsntly so that it will be browned, and not burned in the least. When it has an oily eppearance, and is of a light brown color, it should he removed at once from the fire and put in a close vessel.

We have tried a great many ways of making coffee pots; hut for family use we have never found anything better than a good block tin pot, and the white of an egg to cleanse the beverage. We grind two tablespoonfuls to a person, put it into the pot, add the white of an egg and sufficient cold water to moieten the whole; stir it together and let it warm on the stove, and then pour on hoiliug water and let it boil two or three minutes only, unlese those who drink it have been exposed to cold or damp, or are anticipating euch expoeure. In that case it should remain over the fire fifteen or tweuty minutes, long enough to extract eome of the bitter principle, which is of the neture of quinine in its effects on the system.

Coffee grounds should never be allowed to remain in tin, but should be poured out and the pot carefully cleaned as soon as it ie used, else the flavor of the next beverage prepared in it will be impaired. Soft water is very much preferable to hard for making coffee, ee the mineral salts in the latter often oombine unpleasantly with the constituents of coffee, and give it an acrid taste. There is no good reason why our tables should be so frequently disgraced with muddy, bitter, roily coffee, when a little care and skill can furnish a beverage aromatio, exhilarating and delightful.—*Ex.*

Catgut.

The manufacture of the striug popularly known as catgut, and of so much importance with the users of strinqed instruments, is an invention dating beck to pre-historic times. The earliest record speaks of cords made from the intestines of various animals and used in the construction of hows and other warlike implements. Prepared intestines are also mentioned hy Josephus, as heiug used in the construction of catapultic engiues which were intended for throwing stoues as well as darts and errows, these having been invented by Dionysius, the tyrent of Syrecuse, 399 B. C. In the construction of' musicsl inatruments these strings were used by the nations of the East at a period earlier than euthentic history began.

The manner of preparation wes originelly very imperfect, the strings being subject to decay and the destructive attecke of vermin. Catgut is now generally prepared from the intestines of the sheep and goat; rerely from those of the horse, ass or mule, and never from those of the cet, as one would naturally suppose from the name. The first stege in the process of manufecture is the thorough cleansing of the entreils by means of a blunt knife or scraper, which in the hands of eu expert workman is an operation requiring very little time. The intestines ere then steeped in weter for severel days, or uutil the externel membrane becomes sufficiently loosened to allow of its ready removel by scraping. The materiel which is thus screped off is employed for the cords of battledoors and rackets, and also ee thresd in sewing the ends of intestines together. The scraped intestines are then steeped in water and scraped again, when the larger are cut and pleced in tubs with selt to preserve them for the sausagemaker; the tormer are allowed to steep in pure water, and are then treatod with a dilute solution of alkali, usuelly a compound of one ounce eech of potesh end carhonete of potash to a gallon of water, with occasionelly tho addition of a little alum. After remaining in this bath a sufficient length of time—which varies with the different establishments, snd on which the quality is said pertly to depend—the intestines are drawn through a perforeted brass thimble and assorted in their respective sizes, when, after drying, their manufacture is considered completed. In order to destroy any auimal matter that may still adhere and escaped the successive scrapings and washings, and which would lead to putrefection, it is customery to subject the catgnt to the fumes of burning sulphur—sulphurous roid—which acts es an antiseptic aud arrests decomposition.

The best catgut strings are those known as Romen, which are made in Italy from the intestines of sheep aud goats. These are the strongest made, and mostly used for musical instruments, and are remarkable for their clearness and transparency. The cords used by clock-makers ere made from the smallest of the intestines and from lerger ones which have been split longitudinally into several lengths, which lengths are then sewed together with thread made from the external membrane scraped off during the process of manufacture as described above. Whip cord is mede from catgut which has bsen twisted in a mennsr somewhat similar to thet employed in the manufacture of single-corded ropes. The catgut obteined from the intestines of horses, asses aud mules is principally mede in France, and is employed in many eases instead of leether helts for driving mschinery.

The country from which probably three-quarters of the whole amount consumed is derived, is Itely, which also furnishes the best, and, as many violiuists assert, the only ones thet are fit to be used for a violin. The best and lsrgest bass viol stringe are mede in Germany, where, also, the greeter part of the guitar strings are mennfactured. Englend and the United States heve no capital employed in this lucrative business, or, if they have, it is very small, and those engaged in it have failed to make themselves known by advertising this fact.—*Mercantile Journal.*

A Curious Formation.—A few deys since the miners working in the lower level of the Silver Lake mine, owned by John B. Winters & Co., made a curious discovery. After taking out the ore in the vein at a certain point, they for some reason took it into their heads to dig into the wall of the lead. After passing through a shell of wall-rock of a few inches in thickness, they made the discovery that there lay behind it several large bowlders of pure argentiferous galena. These were no small affairs to be put into a wheelbarrow and wheeled away, but immenso masses of metal that could hardly be moved by all the men that could gather around them. Some of these bowldere eo curiously tucked away outside of the vein proper would weigh over half a ton. One of them, weighing between eight hundred and one thousand pounde was got out of the miue whole and sound, just as it wae found, and will be brought to this city iu the course of seven or eight days. A short piece of the new wagon road now building to the mine remains to be completed, and as soon as this shall have been finished, eo that wagons may reach the dump, the big metal bowlder will be brought to this city and placed on exhibition somewhere on C street. It will he hauled to Careon on a wagon and from there will come by rail.—*Virginia Enterprise.*

Anhydnous alumina steerate dissolved in turpentine is recommended as a limpid and flexible varnish, and it is said to be unalterable at elevated temperaturee.

Furniture at the Mechanics' Fair.

The furniture manufacturers occupy an extensive spsce in the Pevilion, and their exhibits form one of the most creditable displays at the exhibition. The displsy to-day is in marked contrast with the earlier shows, when the chief portion of the articles were of Eastern make. With the exception of musical instruments, we are not aware of the presence of a single ertiole of furniture or cabinet manufacture on exhibition which is not the work of our own mechanics. This fact speaks volumes in regard to the progress which has been mede on this coast within a few years in this importsnt brauch of industry. Our people are now fully alive to the fact that as good furniture can he mede here as in any part of the world, and that we possess an abundence of lumber for ell purposes connected with this business. There is perhaps no product of the mechenic arts which more fully indicates the social and esthetic state of a people than the taete displayed in the matter of household furniture. The ancient Egyptians, the most refined and advanced people of their ege, devoted much study and great expenss to furnishing their dwellings. While other nations, of pretentions to refinement, employed mats and stools, they nsed chairs in great variety and elegance, formed of ebony and other rare woods, and of ivory inlaid with gold and silver and elegantly upholstered with the most costly tissues. The same may be seid of the Greeks and Romsus. But with the decline of civilizetion these elegancies of household furniture gradnelly disappeared, and for many oenturies domestic furniture wes everywhere very scanty and plain. A bed and chest with benches in the diuing hall and a few rough, nncouth apologies for chairs were the chief appendages of the dwellinge of our Anglo-Norman ancestors.

With the revival of literature snd civilizetion, however, a remarkable improvement in house conveniencea and decoration began to appear. Gothic panelings and appropriate oervings osme into vogue, while scarlet, blue, gold end other costly upholstering and hangings begen to fill the dwellings of the wealthy. Cabinets, reading desks, secreteries, etc., hegan eleo to appear as something new in the line of furniture—euch things having been unknown to the ancients. As civilization continued to progress and improve, e more subdued yet equally rich taste wes developed throughout Europe, taking for its starting point Italy, the earliest sest of European literature and taste. England wee the last of Europeen countries to enter npon such innovations, and long remeined conspicuous for lack of taste in that direotion.

The modern predominance of France in the manufacture of furniture is due to the considerate action of her Prime Minister, Colbert, who, about 1670, brought together from all parts of the continent the best workmen to be fonnd, and esteblished a royel furniture factory at Psris, where new styles were atudied and produced under the direction of the best masters in the world. Novelty and magnificence were the great features simed at, and these were much sought sfter by veried treetment of surfacee, as inlays of metal, ivory, enemels, shells, precious stones, etc. In this direction the femous artist, Boule—the heed of the royal mannfactory—made himself famous, and gave his name to the style still known as Buhlwork, a very elegant set of which wes imported to this city some years since by one of the proprietors of the *Bulletin.*

This style of work became very populer during the last century, and the products of the royal mannfactory were scattered very generally throughout Europe. The finest piece of work of this kind ever gotten up is said to be a secretary, which was constructed at a cost of $17,000. In later years, and especially during and since the French Republic, this style has been less popular, and Greece and Rome have been looked to as steudards, in furniture as well as in polities. This letter innovetion was encouraged by the greet Nepoleon, who, as well ss the late Emperor, devoted much attention to fostering this ancient French industry. Soon after the revolution a more general prevalcuce of mediæval taste became popular, and sharp-pointed Gothic ornamente and construction were not intrequently the cause of tormente to those who sought their rest on fashionable Freuch furniture. This retrograde taste, however, is passing awsy.

If any special style can be considered prevalent at this time in the United Statee, it ie what may be called a modification of thet of Louis Quartorze of France, and the Elizabethau style of England. French is the prevalent style. Our moet costly furniture ie nearly all executed from French designs. Since the finer specimene of mohogany have hecome scarce, the public largely favor rose-wood, obtained chiefly from South America and the West Indies. This, however, has latterly been supplemented by hlack walnut, and more latterly by our own beautiful laurel. The beauty end substantial character of the California laurel has now become so well known and appreciated, that the demand for it muet soon become very general throughout the United States; so much so that ite cnltivation as a forest tree will eoon be demanded to keep up the supply.

In the general manufacture of furniture, France still rnlee the world, and derives therefrom a large national income. Not lese than 40,000 workmen are employed in this business in the city of Paris alone, the annual value of whose products reaches nearly $25,000,000,

Useful Information.

Hints to Painters.

You are generally working in ill-ventilated shops, and handling poisonous pigments the year round, one of the most dangerous of which is white lead; therefore, it is imperatively necessary that you be cleanly in your habits and person. If you eat with unwashed hands, and wear clothing saturated with paint you must expect to absorb large quantities of poison, and suffer in consequence, and perhaps bring on paralysis or kidney disease, which will render you, if not entirely unable to work, so weak and prostrated in mental and physical power as to be but a shadow of your former self, and suffer always from general weakness. Once banish white lead from the shop, and one of our worst enemies will be got rid of, and it is coming to this soon. Different substances have been introduced of late years to take its place, some of which I know from experience to be equal if not superior to lead for carriage-work. Old fogy may poh-poh as much as he likes at such innovations, but these different substances have been used with an encouraging success.

All carriage painters should wash their hands before commencing or resuming work, and should do it as often as possible during the day. They should have a strong decoction of oak bark also to wash in, the tannin of which would not only harden the skin, but would protect it against the action of lead and other poisons. This is where the British coach painters are ahead of us; you will always find plenty of oak bark in their shops. You should also keep your hair cut short, and wear a light cloth or paper cap while at work. Be sure that your hands are well washed before partaking of food. I am very sorry to say it, but the truth must be told sometimes, you often eat your noonday meal with unwashed hands. The mouth should be well rinsed with water before eating food. The body should be sponged as often as possible with cold water, and the hair should be thoroughly washed every day; you will find it better than hair oil. Your food should contain a large proportion of fatty substances; avoid all strong drink; drink milk in large quantities; rest or sleep five or six hours, and my word for it you will have no painter's colic or cross wife.—*Carriage Monthly.*

Flood-proof Bridge.—The rise of water in our streams during the heavy rains in the coming winter months always results in the removal of a number of road bridges of the ordinary plank and timber kind, and as the accident is a frequent and widely extended one, it may be worth while to mention the form of bridge which has stood the test of this and other freshets, when the level bridge has been swept away, a description of which we first noticed in the New York *Tribune*. Let the timbers be laid so that when the planks are spiked on, the side of the bridge *down stream* will be considerably higher than the side up stream; then as the water rises it will strike the upper side first, and, before it can rise high enough to float the bridge, its buoyancy is opposed by its impetus acting upon the inclined plane formed by the bridge's surface, a return current is formed beneath the bridge, and the structure is fixed as firmly as if it were of stone.

Roofing.—Plastic slate roofing does not consist properly of asphaltum and slate flour, as suggested, but is made by uniting in proper proportions coal tar and slate flour, and spreading the mastic on the foundation of the tin or felt, as mortar is spread with a trowel on lathing. Asphaltum, sand, peat, street dust, clay and numerous other substances have been employed to make roofs; but, in numerous instances, the work has utterly failed to produce the desired results. Hence such roofs have come into extreme disrepute in certain localities. By producing the genuine slate flour, rolled finely and free from all sand and dirt, and applying it when of the proper consistency by spreading it on well with a trowel, there is no other roofing material that will subserve the purpose more satisfactorily, as far as economy and durability are concerned. If the materials are good, the plastic will become in a few weeks like real slate, and will then be as durable as that from the Vermont quarries.

Cleansing Bottles, etc.—A good mechanical method is that noted in the Press of last week—using wire clippings. This is not always sufficient. Bottles that have had medicine in them may be cleansed by putting ashes in each, immersing them in cold water, and then heating the water gradually till it boils. After boiling an hour let them remain in the water till it is cold. Wash them in soapsuds, and rinse them till clear in fair water. Pie-plates that have been long used for baking are apt to impart an unpleasant taste on account of the rancidity of the butter and lard imbibed. Put them in a brass kettle with ashes and cold water, and boil them an hour.

Dr. Vogel, of Berlin, in a letter to the Philadelphia *Photographer*, says that old daguerreotypes that have turned yellow, blue or black will often become as bright as new if simply placed in a solution of cyanide of potassium.

Calculating Horse-power.—The rule is to multiply mean effective pressure in pounds during stroke, by piston speed in feet per minute, and divide the product by 33,000.

Shrinking of Seasoned Timber.

The various kinds of oak, and some other kinds of valuable timber, will shrink more or less every time the surface is dressed off even a small fraction of an inch. Wheelwrights accustomed to work in oak are well aware of this fact, and a correct appreciation of it often enables them to turn out work of a superior character, even of ordinary materials, by first blocking out the pieces roughly, then allowing the timber to season, and afterwards working the various parts by degrees, as the seasoning process becomes more and more complete. White-oak spoke timber, for example, may be allowed to remain in the rough state for half a score of years, under shelter, without becoming seasoned so thoroughly that the timber will not shrink after the spokes have been dressed out.

Carriage-wheels have often been made of the choicest quality of oak timber after every spoke had been seasoned for several years, and to the great surprise of the wheelwright, every spoke would work in the joints before the vehicle had run three months. The defect in such instances could not be attributed to inferior timber, nor to perfunctory workmanship; but simply to this one circumstance—that the parts of the wheels were put together before the timber had ceased to shrink.

To prove that the best quality of oak will shrink, after a spoke has been dressed out, let a tenon be made on one end, and be driven immediately into a mortise; after a few days' exposure in a warm workshop, the spoke may be withdrawn with little difficulty. The same fact will hold good in the manufacture of woodwork of any kind where oak is employed for tenons. In order to make joints that will never start, the piece on which the tenons are to be made should be dressed over several times, until the shrinkage has ceased. Then let the tenons be made. After these have shrunk, while, exposed to the drying influences of a warm workshop, the spokes, or other parts, may be driven into their respective places, with the assurance (especially if they are dioped in oil paint previous to driving) that the timber will shrink no more.

Many kinds of farming implements, in the manufacture of which oak and ash are employed, render very unsatisfactory service, simply because the seasoned timber was not allowed to shrink before the tenons were driven into the mortises. In like manner, oak chairs, and other oak furniture, will frequently shrink to such an extent that the pommels, rungs, dowelpins and banisters will all work loose, if the precaution we have described is not observed.—*Am. Homestead.*

Ochre and Umber.—Ochre is a variety of fine clay containing iron. The common colors are yellow and red, the latter being colored by sesquioxide of iron, and the yellow variety by the hydrated sesquioxide. Umber is an ochreous ore of iron, or a brown or blackish-brown color, consisting of oxide of iron, oxide of manganese, silica, alumina and water. They are found principally in Europe, although they are widely distributed. The ocher is found in beds some feet in thickness, which lie generally above the oolite, and are covered by sandstone or quartzose sands, more or less ferruginous, and are accompanied by gray plastic clays, of a yellow or brownish color; all of them substances which contribute more or less to its formation.—*Sc. Am.*

According to a French veterinary surgeon, a simple method of preventing flies from annoying horses consists in painting the inside of the ears, or any other part especially troubled, with a few drops of empyreumatic oil of juniper. It is said that the odor of this substance is unendurable to flies, and that they will keep at a distance from the parts so anointed. If this treatment should accomplish the alleged results, it may, perhaps, be applicable in repelling mosquitoes from the faces and hands of tourists and sportsmen, when passing through woods or meadows.

Sediment in Lake Water.—The following figures are given, as representing the number of grains of solid matter held in suspension and solution in the water of various lakes: Lake Hopatcong, 1.79; Bala lake, Wales, 1.63; Loch Katrine (supplies Glasgow), 1.63; Norwich, Conn., reservoir, 1.84; Cochituate lake, 3.11; Lough valley, Ireland (supplies Dublin), 3.11; Croton lake, 4.78; Geneva lake, Switzerland, 8.87; Lake Ontario, 6.01; Lake Erie, 6.49; Lake Michigan, 6.68.

To Stain Wood.—Take green walnut shucks; boil out the strength and boil the dye down a little. Then, to a gallon of dye add one spoonful of extract of logwood, and one-half teaspoonful of salts of tartar. It will stain wood a bright red. A little aquafortis added will make a dark brown. Make the dye in a large vessel, for the salts make it foam. The shucks must be green.

For a substitute for copper in the Daniells battery procure sheets of the ordinary sheet tin of commerce, brighten and plunge into a very weak copper plating solution, in connection with a voltaic battery of very low quantity. In 15 to 18 hours a tenacious film of copper will have been deposited upon the tin, and the plate can then be bent in shape for a Daniells battery.

Many of the railroads now have in use a valuable lamp, called the "quick signal railroad lamp," which is simply a red light and a white light combined in the same lantern.

Good Health.

Food and Work.

In a recent number the *Journal of Chemistry* explained how "a day's work" is measured in foot-tons, and its average amount, including both the "external" work, or that performed in labor or walking, and the "internal" work, or that done by the organs of circulation, respiration, digestion and other vital processes. The former averages from 300 to 500 foot-tons, the higher figure representing an exceedingly hard day's work. The latter may be reckoned taking the average of the best estimates, at 260 foot-tons. As might be expected, it is difficult to measure this internal work with precision, and the estimates of different physiologists vary widely, those for the heart alone ranging from 122 to 277 foot tons. The former is the amount calculated by Haughton, who puts the respiratory movements at about 11 foot-tons for the 24 hours, while others have set them as high as 44 foot-tons. The exact value is of no importance for our present purpose. Taking the lowest estimate, the internal work is no insignificant addition to the other labor performed by the wonderful mechanism of the body of ours.

Where does all this force come from? What keeps the machine going? The idea of "perpetual motion," or a self-moving machine, is as absurd here as in any other department of mechanics. A steam-engine may as well be expected to run without its boiler and furnace, as the body without its equivalent for boiler and furnace; and both alike must have fuel to keep up their fires. We need not dwell on this point, for the fact that the *food* we eat maintains the heat of the body, builds up and renews its muscular tissues, and nourishes all its varied energies, has been familiarly explained. It has been shown, moreover, that the food is literally *burned* to produce this heat and force, and that the air we breathe supports this combustion, which is a process of oxidation, and dependent on a constant supply of oxygen, precisely like the fire under the boiler of the steam-engine.

Now, we know that it is impossible to calculate just how much work a pound of coal burned in the furnace of an engine is capable of doing. The heat generated in the combustion is equivalent to something more than 11,000,000 foot pounds, and if none of it were wasted it would actually do that amount of work. In the steam engine, however, only about a tenth part of the energy stored up in the fuel is realized as work.

May we not calculate in the same way what work the food we eat, considered as fuel, is capable of doing, and compare this result with the actual amount accomplished by it in the body? The problem is somewhat more complicated than in the case of the steam-engine, but several physiologists have tried their hand at it, and have attained reasonably consistent results.

Dr. Frankland has determined the "mechanical energy" of various kinds of food, both when burnt in oxygen and when consumed in the body. The amount is sometimes smaller in the latter case than in the former, because the combustion is not so complete. For example, an ounce of albumen generates a certain amount of heat when burnt in oxygen; but in the body some of its constituents are only partially oxidized, being excreted in the form of urea. An ounce of sugar, on the other hand, is generally all burnt up into carbonic acid and water, and its actual energy in the body, under whatever form it appears, is equivalent to its theoretical energy.

Disinfectants and Deodorizers.

To deodorize an ill-smelling room or locality intelligently, substances must be used, which, by causing a new chemical combination, destroy the odor altogether; but if the decomposition continues to go on, other odoriferous particles begin to arise requiring a new application of the deodorizer; on this account all deodorizers are efficient only temporarily; hence the only rational method is either to remove the offending material or employ disinfectants which arrest further decay. If the material both arrests the decay and destroys or absorbs the ill-smell, then it is doubly valuable. Two hundred grains of chloride of zinc in an ounce of water is a powerful agent in neutralizing bad smells and in arresting both animal and vegetable decomposition in ships, hospitals, dissecting rooms, cellars, privies and water-closets, without having any ill-smell of its own: for disinfecting purposes, mix one part of the above fluid to four gallons of water.

There are three powerful disinfectants: carbolic acid, but its smell is objectionable; chlorine and permanganate of potash; these disinfectants act by combining with deleterious substances and rendering them harmless, while antiseptics prevent and arrest the decomposition of animal substances.

The only perfect disinfectant is habitual cleanliness and thorough ventilation; next to that is a dry heat of 250 degrees.

The most common and availing disinfectant and deodorizer is copperas, crude copperas, sold by druggists at a few cents a pound under the name of sulphate of iron, one pound to two gallons of water, to be used as often as necessary to render all odors imperceptible, acting at the same time as an antiseptic, deodorizer and disinfectant, and if instantly thrown over what passes from the body in cholera, is one of the cheapest and best means known for preventing its communication to others.—*Ex.*

Imagination Power.

Many persons are sick merely from the effect of imagination or habit, the old woman, for example, who had been bed-ridden for years with her rheumatics. She was left alone one summer day at the farm house with both front and rear doors open. She saw a mad bull tearing across the pasture in the direction of the house, and feeling that it was "neck or nothing" she bounced out of that bed in double quick time, barred both the doors, and never complained of rheumatism afterward.

Many cases are given in the medical journals of persons who have been bitten by dogs, and have afterwards taken to foaming at the mouth, shuddering at the sight of water, and imitating a dog's bark, imagining that these are signs of hydrophobia, and have actually died in convulsive agonies, the facts being that mad dogs don't foam at the mouth, never bark, and can drink water "like a fish." So far from running about in desperation as if a hundred thousand dilapidated tin pans were tied to their caudal prolongation, really mad dogs are the quietest individuals in the world, make no noise, seem to want to be alone, keep their mouths shut, the distinctive symptoms of such madness being great restlessness, pawing the face and eating their own fresh dejections. Mad dogs do not run after people, but will snap at anyone who comes in their way, especially individuals of their own kind; they seem to trot or run as if looking at something straight ahead. Infinite mischief is done in publishing cases of persons becoming hydrophobic one, ten, and even 20 years after the last remembered biting of a dog, the reporters of such tales not having taken pains to inquire if there has not been a later biting. Such monstrous absurdities are well calculated to keep nervous persons, who have been once bitten by a dog, in a state of wearying uneasiness all their lives long afterwards. If a person has been bitten by a dog supposed to be mad, the animal should be put in a quiet room and let alone, only slipping in food and drink from time to time; if really mad death will take place in a day or two, and if not mad there will be a complete recovery.

Only one bite in 20 of dogs supposed to be mad is fatal.

A dog in New Jersey last year bit a woman, and ran under the sofa; her husband dragged him out by the tail, held him up and whipped him; in this position the dog got a chance of biting his master, who died in a few days of hydrophobia; this shows that the state of mind of the animal gives virulence to the bite. A mother nursing her infant child was thrown into a sudden, a tempestuous rage; as soon as it was over, she finished nursing the child, which was at once taken with convulsions; the state of mind of the mother imparting virulence to the milk of her bosom. A lady saw at a distance a window sash falling immediately on the ends of the fingers of her little grandchild; the child's fingers were crushed—those of the grandmother were similarly affected. This is given on the testimony of the distinguished Dr. Brown Sequard. The lesson is, seek to control the imagination and to guard against intense mental excitement by habituating the mind to take a calm, measured and deliberate view of all the circumstances of life. Intelligent people should bear these things in mind. The greatest throat swabber of the age began to think he had sore throat too, and swabbed himself every day; and when he died his throat was found to have been as well as anybody's.

The best way to escape imaginative diseases is to be just as busy as you can in doing something useful, profitable or good; to have the mind fully employed in some commendable object; it is thus that the washerwoman is often happier than the wife of the millionaire; the hod carrier, than he who has "retired from business."—*Hall's Journal of Health.*

Proposed Law Against Quackery in Texas. The committee appointed by the Texas Medical Society to examine the act to regulate the practice of medicine in that State, have presented the following amendment, among others, to be recommended to the legislature: "Any person who is not a citizen of Texas, entitled to vote, who shall come into the State and advertise to perform surgical operations, or cure diseases, shall, before entering upon such practice, pay into the county treasury the same tax as is paid by persons exhibiting a circus performance or menagerie, and, for violating this act, parties guilty of the same shall be subject to the same penalties, to be collected in the same way, as for circus and menagerie exhibitions."—*Boston Medical Journal.*

Rinz has found that pus or matter is able to reduce potassic chlorate to the chloride, whereby it must itself undergo decomposition. Burrow has already observed that finely-powdered potassic chlorate, when strewn on gangrenous ulcers and tumors, helped them, and we may suppose that it is due to the oxidizing power of the salt upon pus.

Formula for Summer Catarrh.—Dr. Hoover, in the *American Medical Journal*, recommends a solution of chlorate of potassa, 60 grains, sulph. morph., 12 grains, to six ounces of water to be used as an atomizer. He says it will give relief immediately, and effect a complete cure in a few days.

A writer in an English medical journal considers it well established that "some relation still exists between a depressed state of the barometer and the prevalence of frontal headache."

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, Sept. 26, 1874.

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THE HAYDEN EXPEDITION.—Advices from the Hayden Expedition state that Professor Gardner, in charge of the triangulation for work of the Hayden Expedition, has been eminently successful, and has completed the check base line in San Luis Park. It is five and a half miles long, and was measured twice, the measurement agreeing within two and a-half inches, which, considering the unevenness of the country, is a remarkable piece of work. During a period of eight days the party ascended six peaks, three of which are each 14,000 feet high, while the others are 13,000 feet. Professor Gardner and his party spent one night on the very top of Pike's Peak, and nearly had their feet and hands frozen. They are now at work in the San Juan country, where they will remain until cold weather drives them in.

DREAMING.—In a mining camp not a thousand miles from where the Plumas *National* is published, is a man who has spent considerable money and some six years' labor, all on the strength of a dream, in which he supposed was revealed to him the direction of a certain rich gold-bearing lead. His work has proved to others that his "dreams were vain," but he still has faith, and if able would extend his operations to the limit of his lifetime.

A LARGE mill is being built at the Pacific Iron Works for a mine in Santa Barbara county. It is a large piece of mill work, and in strength and finish is in keeping with the production of this foundry, which has acquired an enviable reputation under the management of Messrs. Rankin & Brayton.

THE NORTH ALMADEN MINES.—These quicksilver mines are in the Silver creek region, about 10¾ miles southeast of San José. The furnace is only of 3½ tons capacity. The first run of metal was made on the 14th inst. Some 22 men are at work on the mines.

THE Whelpley & Storer ore mill, of Geo. D. Wyman, formerly of 215 Main street, is now located at No. 413 and 415 Mission street. These works were established in 1871. A complete set of the Whelpley & Storer machinery may be seen in operation at these works at any time.

ANOTHER silver ledge has been discovered and located in the Calistoga district, by J. A. Conlee, a miner recently from Utah. The location is about a mile beyond the Calistoga mine, on the southern slope.

THE Hollister *Advance* understands that another quicksilver mine has been recently discovered on what is known as Chalmer's ranch, about 17 miles south of the town of Tres Piños.

Remarks on California Coal.

At the last meeting of the California Academy of Sciences, Dr. J. C. Cooper, formerly connected with the State Geological Survey, made some remarks on "California Coal" which are of interest. Dr. Cooper, while on the Geological survey, traveled all over the State and had abundant opportunity for close examination, much better in fact than many who have given opinions on the subject, opposed to those given by him. While regretting that the geological facts are against our having any true coal measures, we must recollect that we are more favored than any other part of the world in the extent and variety of our other mineral deposits.

Dr. Cooper said that the papers contain every day several notices of discoveries of coal in California, and always mention them as excellent indications certain to be rich. From these one might suppose that California would soon eclipse all other parts of the world in coal production, but the fact is, that in 99 cases out of 100 these discoveries are of no value whatever. He had examined such coal strata in over 100 localities between San Francisco and San Diego, beside some in Sonoma and Marin counties.

Although the unscientific sneer at geological facts and fancies as not practically useful, they are really the only reliable guide in determining the age and probable value of coal deposits. The true coal of the carboniferous rock in other countries was formed from tree-ferns, algæ and other plants of low organization.

None such had been found on this coast, and from the fact that ours contained remains of coniferous and dicotyledonous trees, geologists had long considered it all as lignite, but practically it was as good as much of the older coal—at least that of Vancouver's Island, Bellingham bay, Coos bay and Mount Diablo. The most northern localities mentioned had been determined beyond doubt by the fossils as of cretaceous age, but there is still some doubt as to those of California, which may be partly or entirely above the cretaceous strata, like the Rocky mountain coal, which is generally considered eocene.

This, however, does not affect the value of fossil evidence, as all the species of both these formations are extinct, and any coal found associated with fossils of living species mostly of later date.

No paying beds of coal have been found anywhere of later date than these. It does not follow, however, that because a stratum is cretaceous, it will pay. Numerous strata in that formation in the Coast range are too thin to pay, though of pretty good quality. None will pay if less than two feet thick, and in most places a thickness of four feet is necessary, if the coal is no better, nor more accessible than that of Mount Diablo. Much of the cretaceous strata is also so metamorphosed that the coal has been ruined by infiltration of iron and silica, with other minerals, the surrounding sandstone being converted into jasper or serpentine.

The fossil shells found in connection with this coal show that it was formed by accumulation of trees, etc., in shallow bays, at the mouths of rivers in fresh or brackish water, and therefore along the shores of older continents or large islands. Often these deposits have been sunk afterwards, and strata with marine shells have accumulated above them to a great depth, when all would be again raised above the sea. In the Coast range, cretaceous coal-strata exist, above which miocene tertiary strata full of shells of living kinds were deposited to a thickness of 1,000 feet, but afterwards removed sufficiently to show the coal beneath.

The beds of undoubted tertiary age are numerous in the Coast range and usually show the vegetable structure so plainly as to be recognized as lignites by everybody, besides differing from coal in a more or less brown tint. Some lignites may pay for working, for local use especially, as they do in some parts of Europe.

Nearly all of that in the Coast range is, however, in either too thin beds, or too full of sulphur and other impurities. In a few places it has been purified and hardened so as to resemble anthracite, apparently by the action of subterranean heat, when the strata are in contact with igneous rock beneath them.

The lignite beds of Ione valley and Lincoln appear to be of one age. The former is described by Prof. Whitney in the State Geology, Vol. I, as being very soft material, approaching peat, and useful only for local consumption. It forms a bed seven feet thick, occupying several small basins in the foot-hills, apparently the beds of former lakes. Numerous fossil plants are found in it, and are considered by him to prove its pliocene tertiary age. The large deposite found near Lincoln, at a much lower elevation, show that this pliocene lignite probably occupies large portions of the Sacramento and San Joaquin valleys, where marine pliocene fossils have long been known to exist, as well as fresh water and terrestrial fossils, which occupied it successively as the country rose above the level of the sea. Much of this coal was, no doubt, formed in lakes, which in filling up left the present marshes.

Phocene coal is also found in the Coast range, but nowhere in paying quantity. Strata from an inch to a foot thick may be seen by any one visiting Long beach, south of Lake Merced, where the pliocene strata, full of marine fossils (which prove their age by the large proportion of living species), are uplifted with a dip of 30° to 40° to the northeast.

In an article in the Proceedings of the Cal. Acad., Vol. IV, p. 244, Amos Bowman described and figured this pliocene formation as one of his "terraces," most of which exist only in his imagination. As seen from east of the bay, the top of the ridge at this point appears tolerably level, but the strata along the beach are plainly inclined 30° to 40°, and were so described in Cal. Geology, Vol. I.

At a distance of 10 to 20 miles many such "terraces" may be seen along the ridges around the bay, but none of these ridges are really terraced in the upper strata, which are everywhere highly inclined. True pliocene terraces do not exist at low levels around the bay and in Livermore valley, containing fossil remains of land animals. Dr. Cooper was investigating these when the survey was suspended last spring. The marine terraces described by Prof. Davidson, in Vol. V., part 1, do not extend within the mouth of the bay, or very near it.

There is a fresh-water deposit in the basin of San Pablo creek, containing thin beds of good lignite, full of fresh-water shells, indicating a lake deposit of probably the miocene age.

The strata have been very much disturbed by volcanic action in all the places where Dr. Cooper has examined them, and are not likely therefore to be profitable. Indications of the effects of the great volcanic convulsions about the end of the pliocene epoch, which destroyed the then existing tropical fauna and flora of California (as described by Prof. Whitney) are to be seen in the coast strata of all the counties so far explored north of the bay, as well as in the gravel terraces containing the remains of the tropical animals and plants, so far known chiefly by the collections of Dr. L. G. Yates, of Centerville (described by Dr. Leidy in a recent publication on the "U. S. Geological Survey of the Territories"). Why does not California see the importance of retaining and publishing such interesting discoveries within her boundaries?

The Pacific Electro-Depositing Works.

There are two or three electro-plating works in this city, but the Pacific Electro-Depositing Works is the only one which plates with nickel, silver, gold or copper, as the proprietors are sole owners of the patent rights for nickel plating on this coast. They plate to order all descriptions of machinery, military arms, car and carriage mountings, cutlery, pistols, plumbers' ware, saloon fixtures, table ware, instruments and hardware. The works are situated on the upper story of No. 134 Sutter street, in the same building with the Electrical Construction and Maintenance company.

Silver-plated copper plates for quartz mills are made to order at these works. They are made of any size and with any weight of metal, according to the wants of purchasers. The plates are made of fine, smooth copper. One side of this sheet is waxed, and it is then put in the bath, and the silver deposited on the other side. The usual quantity of silver used is about one ounce to the square foot, but the silver surface can be made heavy or light, as desired. The advantage of silver-plated copper plates is so well known that it is useless to repeat what has been spoken of so often. Many of the prominent mills use no other kind of plates.

These works only started business on the 1st of May. They have a capacity equal to any on the coast. They do here all the nickel and silver plating for the Kimball Manufacturing company, and a large amount of work for the carriage makers. Samples of their plating can be seen on any of the carriages at the Mechanics' Fair. Old ware of all kinds is replated so as to look like new. Plumbers' goods, hardware and house-furnishing goods are plated here, mostly with nickel, but some with silver. The nickel will not stand salt water well, but ordinary moisture does not affect it. Plated plated with nickel never rust at all when carried in the pocket. Mr. H. G. Ogden is superintendent of these works, and three or four men are kept very busy all the time. The baths are all firmly placed on a thick asphaltum floor, and everything about the works is of a substantial character. Several mining plates for the Idaho mine, Grass Valley, were being made at the time of our visit, and others were ready to receive their silver coating.

MARTIN VICE, boat-builder, No. 22 Mission street, has just finished a handsome barge 32 feet long, 7 feet beam and 28 inches deep. The back-board bears the arms of the Mexican Government, and she is intended as a custom-house boat. She is built of Eastern oak and California cedar, coppered and copper-fastened. The boat is double-banked for 10 oars. She has gratings fore and aft, and when fitted out with sails, awnings and cushions, will cost about $1,200.

THE government reports on mining statistics are hereafter to be published under the supervision of the director of the Mint. It is the intention of the Department to secure the best information regarding the condition of the various mining districts, also regarding new discoveries of the metals, the yield each year, and as near as it can be approximated the probable yield in the immediate future.

Rich Specimen—The Diltz Mine.

We examined this week a finer and richer specimen than we have seen for some time. It was taken from the mine of John S. Diltz, Sherlock creek, Mariposa county, California. This specimen showed as weighed 106 ounces, and was worth $1,800. It was broken in two while being taken out of the mine, and some $500 taken from the softer part of the rotten rock. What remained of it weighed 106 ounces, as stated above. The under portion of the piece was covered with a comparatively flat surface of solid gold, while the upper part was formed of round lumps of gold, some of them as large as the end of a man's thumb. There was a much larger proportion of gold than of quartz in the specimen. The gold from the claim is worth, after melting, $17.55 per ounce.

Few if any of the mines of Southern California have been equal to those of Sherlock creek, in Mariposa county. This is true as to the amount of yield and fine quality of gold. These rich placers very naturally gave inquiry as to the source of the gold, and led to the discovery of the Diltz lode and its partial exploration. This mine is on the north side of Sherlock creek, about five miles northwest from Mariposa. The general course of the lode is north 15° east. The dip is to the eastward at an angle of 50°. The vein is from two inches to three feet in width, and the inclosing walls, talcose slats. The regularity of course and dip indicate a true fissure vein. By inspection of the map of the property, it appears that the explorations on the lode are very limited; yet the mine has yielded bountifully for the amount of work done.

The mine is situated at the head of Rich gulch, about 300 yards from Sherlock creek. This little gulch has been worked since 1849, latterly by Chinamen, and has yielded over $100,000. Mr. Diltz has bought the gulch as an outlet for his tailings. On the other side of the hill the mines yielded very large amounts of money by washing. These claims are also owned by Mr. Diltz, who has a patent for 10 acres of ground on which his ledge is located. He located the ground at the head of the gulch 10 years since, and washed off the surface, getting good pay. About three years ago, while washing off the surface, he struck a ledge of rotten quartz. The ledge was much broken up but was quite rich, and he has worked it ever since, hydraulicing in the winter and getting out rock in the summer. He has never had any crushed at a mill, as he keeps but few men at work, and washes the rotten rock, pounding up the richest in a mortar. He struck the vein at a chimney, and brought down about $5,000 soon after striking it.

The mine is now in a first-rate shape to work. One air shaft in the hill is 60 feet deep. A car level is run in on the vein 240 feet. There is also a large open cut on the vein. The top of the hill has been hydrauliced off and everything paid well. There is no machinery of any kind on the mine, but he has a large quantity of rock ready to crush at any time. The owner digs out the vein, casing, etc., and washes it out. It is then screened and the lighter stuff washed again, the rock being laid aside.

Mr. Diltz intends sinking a shaft at the end of the tunnel. This tunnel, 240 ft. long, is at the end 70 feet below the surface. The shaft will be sunk down past this until it is 400 or 500 feet deep. The tunnel is above the water level, and when continued under the summit of the ridge, will be 130 feet beneath it.

Mr. Diltz located 500 feet of his ground and has bought 700 feet of it. He works three or four men. He owns three-quarters of a water ditch, which supplies his claim with water. There is a rich hill claim just below his mine, belonging to Breen & Levy. They hydraulic in the winter and get out their dirt in the summer, being at work at that now.

THE Australian Polar Expedition, according to late accounts in London journals, was frozen in at the north point of Nova Zembla in August, 1872, and was driven in a northwestern direction with ice. The crew worked five months in vain during the summer of 1873 to free the ship. In the autumn of that year, when north of the 80th degree of latitude, an unknown land was discovered, whose boundary-line, north and west, was not to be seen. A thin line was explored in sledges from the 9th of March to the 4th of May, 1874, up to the 83d degree. In honor of the Emperor of Austria this was named Franz Joseph Land. There were no signs of animal life. On the 20th of May, 1874, the crew of the ship "Tegethoff," in four sledges, and after traveling 96 days, reached Nova Zembla, where they met some Russian seamen, and were taken to Wardoe, in Norway, after undergoing indescribable sufferings and privations.

A DISCOVERY of a very rich quartz ledge has been made on Deer creek, near the Dikeman dam, four or five miles northwest from Grass Valley. Six pans of quartz gave gold to the value of $106, and two pans subsequently gave $60 worth of gold.

A PARTY of prospectors who have been prospecting in the Blue mountains, and over as far as the Snake river country, returned lately, and report the discovery of gold in several places, but not in paying quantities.

Rotary Steam Engines.

The conversion of the reciprocating, rectilinear motion of the piston of a steam engine into a rotary motion required an effort of even the genius of Watt for its successful solution; and having happily accomplished that desideratum, without which the steam engine would have continued nothing but what it was originally—simply a pump, and nothing more—Watt immediately saw the importance, and applied himself to the task, of obtaining a rotary motion from the direct elastic force of steam. This end he never attained; but finally satisfied himself with placing two pistons in such a position as to work by cranks at right angles to each other, as is now done on all railway locomotives and most marine engines.

Many have contended that such a device accomplishes substantially all that a rotary engine could do; but such is not the fact, although the argument in proof of the assertion would be too lengthy and complicated for insertion in this connection, and moreover would not be appreciated by many of our readers.

Many rotary engines have been devised of late years, but all seem to have been attended with defects which render them too impracticable for competition with engines of ordinary construction, and especially with oscillating engines, and all others which work steam expansively. Inventors of rotary engines seem to have generally found it necessary to introduce too much complication of parts to render their inventions practicable; and the usual neglect of the important principle of expansion has of itself been fatal to most devices hitherto brought forward. A want of steam surface, and the proper leverage on the axle for the space occupied and steam used, has also been found an important defect. Time was when several of the rotary engines introduced might have come into practical use; but in the present advanced state of the steam engine, any one which ignores the important matters of expansion, a proper steam surface with reasonable leverage and simplicity of parts, must be considered impractical if not utterly worthless. In the machine invented and exhibited at the Pavilion by Mr. R. D. Milne, an effort has been made to overcome several of these defects, especially those in relation to simplicity of parts and expansion. There are no eccentrics, sliding valves, cranks, connecting rods, beams, or other accessories, inseparable from the reciprocating engine. The steam surface and leverage are both ample and reached in a very simple manner. The principle of expansion has also been introduced in a very effective and ingenious manner. All these advantages are added to the direct application of the elastic force of steam to rotary motion. The engine is exhibited as a working model, but we are not aware that any one of practical working size has yet been put to actual use. The principle seems to be well worth the attention of engineers.

Referring to our illustration, *H* represents a sectional view of the engine, while the large figure shows it in perspective, with the cylinder head removed. The engine takes steam through the pipe, *J*; *C* and *D* are exhaust pipes, with a secondary exhaust at *E*. The cylinder, *F*, is eccentric and stationary as shown, within which a secondary cylinder, *A*, revolves on an axle eccentric to and above the center of the cylinder heads of *F*. The upper portion of the secondary cylinder revolves in constant contact with the upper inner wall of the stationary cylinder, *F*, and forms with it a steam-tight joint. The bulkhead, *B*, *B*, which serves as the piston, with each revolution slides back and forth, with its outer extremities in constant steam-tight contact with the inner walls of the stationary cylinder, *F*. The sectional figure, *H*, shows this bulkhead in another portion of its revolution, having slid considerably from its position, as shown in the larger figure.

It will be observed, particularly in the sectional Fig. *H*, that there are two exhaust ports. It will be evident to every mechanic that but one can be used at a time, the other being closed, and opened only to reverse the action of the engine.

Looking at the sectional figure—and supposing the engine to be in motion from right to left—it is just taking steam through the left-hand steam port, while the steam already shut off will continue to work expansively until the right extremity of the bulkhead passes the right-hand exhaust port. It will be observed that the elastic force of the steam is applied directly to the driving shaft, which may be considered a very important advantage.

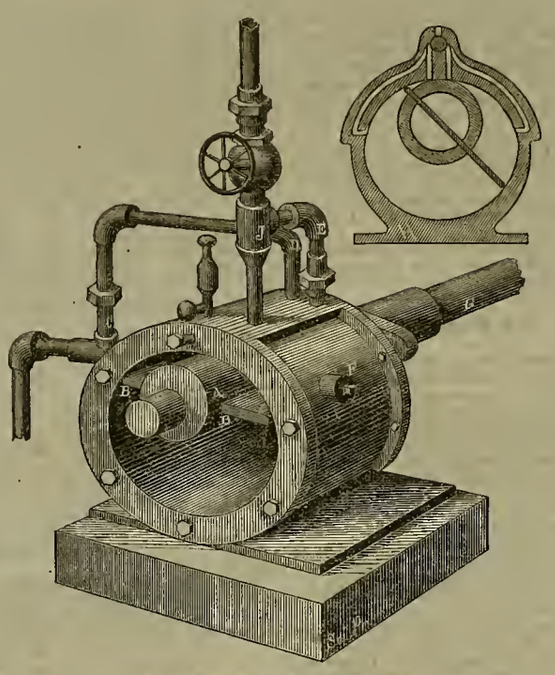
Ventilating Funnel.—The new ventilating funnel at the Consolidated Virginia mine, on the Comstock, is found to work perfectly. The *Enterprise* says it is simply a large wooden chimney, which starts about fifteen feet below the top of the shaft and rises some fifteen feet above the roof of the hoisting works. There being an opening through the side of the shaft into the bottom of the chimney, the steam rising from the reeking lower levels is drawn off and carried up and out into the open air. This leaves the atmosphere clear at and about the top of the shaft, allowing the cable and cages to be seen by the engineers and by the man sending down and taking off cars.

The Lava Bed saloon, the only building left by the fire at Yon Bet, Nevada county, was also destroyed by fire on Friday night, and now nothing remains of what was once a prosperous mining camp.

The Furniture Exhibit at the Mechanics' Fair.

On page 198 will be found some remarks on the furniture exhibit at the Mechanics' Institute Fair, which we continue on this page.

We presume there are few of our readers who had any adequate idea, previous to the opening of the exhibition, of the large amount of elegant furniture which is manufactured in this city. It is only by exhibitions of this kind that the capabilities of our mechanics and manufacturers can be properly brought before the public. Any attempt at a full description of the numerous beautiful articles of furniture now on exhibition, within anything like moderate limits, would most certainly be a failure. There are in this class something like twenty different exhibitors, each of whom has received more or less special mention in these columns. The exhibitors, as a whole, display a great variety of articles, constructed after various designs, either for show or use. Many of the designs, as well as the workmanship, are truly elegant; but the chief feature appears to be utility and convenience. In some of the exhibits very beautiful carvings of flowers, animals, etc., are introduced. In others, the upholstery work, panels of fancy woods and other ornamental devices make an exhibit of great beauty and elegance.



MILNE'S ROTARY ENGINE.

We have already made very full reference to the really elegant exhibition of the California Furniture Company. Goodwin & Co. also make an elegant exhibit of parlor and chamber furniture, manufactured expressly for the Crystal Palace Hotel, corner of Montgomery Avenue and Kearney street. Kimball & Co. exhibit some sample articles of furniture, designed for the Palace Hotel, now being constructed on Market street. The fact that our leading hotels are thus able to have their furniture manufactured here, and are disposed to thus patronize home industry, is a most hopeful sign of the times.

The Pacific United Workingmen's Furniture Manufactoring Co., on Brannan street, also make a fine and varied exhibit of elegant rosewood and plain chamber sets, chairs, dressing-cases, secretaries, etc. Accompanying the exhibit is a large placard, upon which we are told that the furniture shown has been placed there as samples of their work, and not gotten up especially for exhibition. We are pleased to accord this evidence of success of what we suppose to be a co-operative association of workingmen. Such associations are becoming quite common in this city, and have already shown what can be done in the way of co-operative effort, with the employment of but little capital, beyond that involved in the skill and earnest individual labors of the co-operatives.

The show of billiard tables is quite superior to anything which has ever before been seen in this city, and gives evidence that the business of their manufacture has become an industry of much importance.

The number of people now employed in furniture manufacture in this city cannot be less that 2,000; while the annual value of the products is estimated at fully two and a half millions of dollars, and yet about one-half the furniture sold is imported. It is to be hoped that the time is not far distant when the full demand for this product will be met by our own artisans. It has been found that many of our woods, and notably the laurel, are much better adapted to cabinet work than was formerly supposed. Every year some new wood, or other material, is being discovered on the Pacific coast, or its islands, which is found to come in some way advantageously into the manufacture of furniture; and it is now found quite unnecessary to import for such work anything but a few of the hard, dark woods, to give variety to our manufactures. Bedding manufacture, which may be considered one branch of the furniture business, has met with many improvements and modifications here, within the past few years, by the discovery and application of new materials and devices. Eureka hair (soap root) and palm are notable in this connection, as well as the great multiplication in the devices for the application of wires and springs, which the ingenuity of our inventors has brought out.

Newel Posts and Stair Building.

We cannot, in justice, dismiss this subject without a brief allusion to another important part of house decoration and convenience, although it may not come strictly within the department of furniture—that of stair building. In the east gallery of the Pavilion, and near the center, may be seen, in a small but very neat enclosure, several samples of elegantly wrought staircase newels, and specimens of hand railing placed on exhibition by Sanborn & Byrnes, one of the two leading firms making stair-building a specialty in this city. Few know the intricate mechanical difficulties in this branch of architecture—the nights of study and the days of toil and experimenting that every mechanic must give who masters the art.

It is remarkable that the elegant and luxurious staircases we now enjoy are of comparatively recent invention. Vitruvius, a Roman architect, who flourished about 15 years B. C., makes no mention of a staircase as an important part of an edifice; indeed, his silence seems to lead us to the conclusion that the staircases of antiquity were not constructed with the luxury and magnificence to be seen in more recent buildings. Hence, we infer that the manners and customs of domestic life at that period rendered unnecessary a staircase of more than very ordinary description. As near as we can ascertain, no staircases having a complete circular form or partly circular well-hall, with continuous hand-rail, were invented or put up until nearly or about the middle of the eighteenth century.

The earliest method of forming a wreathed rail was by constructing a cylinder parallel to the well to suit the inside of the circle of the rail, and around this bending and gluing together several thicknesses of thin wood sufficient to complete the size of the rail. The next step in advance of this was to get the rail out of solid wood by the use of patterns. The first known author on this subject was Mr. Price, who published in England a book on the subject in 1792. Next came Peter Nicholson, with a more practical and scientific exposition of the whole subject; showing how to cant the plank two ways, and thus get the wreath piece out of much less thickness of stuff. For this discovery Mr. Nicholson was awarded a gold medal by a scientific society of London, and although various other works on the subject have been published since his day, yet the method is substantially the same, all intricate, hard to acquire; and none but thorough mechanics are able to master the art.

Messrs. Ellsworth & Washburn, of Stockton, have also placed three newel posts near this stand, the most notable peculiarity of which is the fact that they have been made from wood grown in the Court House square, at Stockton, in thirteen years from the seed. We have here another evidence of the remarkable rapidity with which valuable timber-producing trees may be grown in this State.

The Powder Companies at the Fair.

The display made by the different powder companies at the Mechanics' Fair is, through force of circumstances, a small one, and not at all in proportion to the value of the industries represented. Probably very few people realize to what extent gunpowder is used, and many suppose that its principal use is in time of war. This is by no means the case, for sportsmen consume large quantities, and blasting operations in mines, quarries, railroads, roads, etc., use up an immense amount annually. Very large quantities of powder of the various kinds are used on this coast; but blasting powder especially is in demand on account of its extensive consumption in mining operations. There is very naturally considerable rivalry among the powder companies as to the best brands for this purpose; but with this we have nothing to do, simply wishing to tell the public something about the varieties of powder which are exhibited at the Fair.

The California Powder Works

Manufacture their powder at Santa Cruz, California, and their office is at 314 California street in this city. They manufacture several varieties of sporting as well blasting powder. The capacity of the mills is 640 kegs of mining powder per day, each keg holding twenty-five pounds. The capacity for manufacturing sporting powder is 20,000 kegs of twenty-five pounds each per year. They employ constantly 200 men and make all the packages, both iron and wooden, at their own mill. The sizes of grain of the sporting, rifle, musket and cannon powder, made by this company are designated by figures and not by letters. The old method of using letters is not considered satisfactory, because there is no standard of F, recognized by the different powder companies. The numbers 1, 2, etc., in the powder made by this company and the letters FFF, FFFg, etc., on that of some other manufacturers, indicate the size of the grain, but have no reference to quality. This company begins with No. 1 for fine grain powder and increases in coarseness as the numbers increase, No. 2 being coarser than No. 1, etc. The finer grains, Nos. 1 and 2, are mostly used in dry weather, and for quick birds; while Nos. 3 and 4 are often used for larger game and longer range, it being a well-known fact that a medium coarse powder shoots stronger than fine, while it is easier on the shoulder.

The company manufacture several brands of Santa Cruz sporting powder as follows: The "Cabinet" is a special brand of powder lately introduced for fastidious hunters. It has a diamond grain, and is the best sporting powder manufactured by the company. It is put up in green canisters. The "Eureka" is put up in red canisters, and is an extra quality of powder, with a crystal grain, and of double extra strength. The "California Sporting" is made more especially for duck shooting, different manufacturers having a custom of making a brand for this purpose. The "Pacific Rifle" is a fine-grained powder, put up in black canisters, and claimed to be a very superior article. "Quail Shooting" is a brand for sportsmen generally, and is designed more particularly for use in shot-guns for all kinds of game. "Sea and River Shooting" is a powder of extra quality, made in view of our long, wet winters and for use about the bays and marshes where so large a portion of the feathered tribe have their homes. "Valley Mills" is a common gunpowder suited for all kinds of uses, hunting, sporting and musket shooting. "Pistol Powder" is manufactured expressly for use in pistols, and is of special fine grain and extra quality. Of course there are different numbers from 1 to 4 of each of these brands.

The California powder works also turns out large quantities of different brands of blasting powder. Of these O signifies coarse; FC, fine coarse; FM, fine medium; F, fine; FF, double fine; and FFF, triple fine.

This company also manufacture Hercules powder for hard rock, pipe clay and cement, XX Hercules (or double strength) for very heavy rock, boulders, etc. This powder is manufactured of nitro-glycerine, and other compounds best known to the makers, and, as they say, "is compounded on strictly scientific principles." The materials of the mixture are chemically prepared, and the manufacturers claim for it safety and economy over other blasting powder.

The works of this company are on San Lorenzo creek, Santa Cruz county. Both steam and water power is used. There are 15 different buildings in the works, besides the small village of cottages occupied by the employees, which is a short distance from the factory. There is an extensive cooper shop connected with the works, where 640 wood and iron kegs are made daily.

We shall refer to the display made by the other powder companies in a future article.

The Winnemucca *Silver State*, of Sept. 17th, says: Rich gold quartz and silver ores have been discovered in Paradise district, which is attracting considerable attention at present. James Herndon, a resident miner of the district, says that a great many claims have been located, three of which are being systematically developed. Two of these—the Credit Mobilier and Rob Roy—are rich in gold, and the other, the Governor Flanders, is rich in silver.

Work on the Palace Hotel.

We have several timea referred to tbe large hotel now being erected in this city. The Palace Hotel will huve 650 rooms above the first floor, or nearly 800 on all floors, making its provisiona for the accommodation of guests aotually stupendous. Its ground area is 350x275 feet. Its great size is not obvious to ths casual observer. No one can fully appreciate the immensity of the work without a visit to the place, a personal obaervation of the manner in which the great army of workmen employed in its construction is manipulated, and the extraordinary regularity and rapidity with which the work goea on. A *Chronicle* reporter has been visiting the building and we condense the following information from his notes, concerning the building.

The Bricklayers.

A phalanx of 225 bricklayers are employed in laying tbe 26,000,000 of bricks that are going into thia immense hotel. They are under the competent superintendence of E. R. Shain, assisted by nine foremen, each of whom directs the labora of 25 men. The men are further divided into sections of 15, each carrying the walls of two rooms. When they are at work there is very little superfluous space. Each section is tended by four laborers, who supply brick and mortar, which are in the proportion of aix wheel-barrow loads of brick to four of mortar. The brick and mortar are brought up by the elevatora, the former from the cellar, the latter from the first floor. The bricklaying goes on swiftly and without jar. The bricks are dumped in the strest, loaded into the barrows, run in on the same level on to the elevators, jerked up to the floors where they are wanted, run off and tumbled at the feet of the man who is to lay them in a apace of time incredibly brief. Tbe elevators carry at each ascent aix barrow-loads of brick or four of mortar, running by tbe chronometer and making a trip every minute. 190,000 bricks are laid daily, and the force employed is capable of running up one wing of tbe building a full story in 10 days. Bricklayiug, for greater ease and expedition, is only carried on on two of the winga of tbe hotel aimultaneously.

Cement and Mortar.

The baaement walls were laid in cement; above the ground tbe walls are laid in simple mortar. The amount of this material required is immense. It is prepared in aeveral rooms of the vast cellar, and accumulates in huge piles far in advance of the needs of the masons. 50,000 feet of mortar will be required for tbe benchwork, an amount that can hardly be imagined by the unpracticed mind. 18,000 barrels of lime and cement are used in making it, and the daily consumption of lime ia now 250 barrels. Santa Cruz lime is used, and each of the men is expected to slack nine barrels daily. Even this portion of the work is scientifically arranged according to tbe rules for the division of labor. A squad of men does tbe slacking, then turns the slacked lime over to the mixers, who unite it with the sand and pile it up for ths hod-carriers. The sand lies close at hand, that wbicb fills the basement beiug of the best quality. The rooms of the baaement are all whitewaahed inside to make them lighter.

Carpenters and Other Workmen.

Two hundred and forty carpentera are employed, though the legitimate work of that special branch of business on the hotel can scarcely be aaid to have commenced. They are in no particular place, but all over the growing atructure whersver their labor is needed upon temporary or permanent woodwork. The blacksmith shop ia on the east side of New Montgomery street, just aouth of the Grand Hotel, and furnishes employment to 15 men. The plumbers occupy a large room in the basement, that will in due time be devoted to the ball and cue, where they have benches, a forge, and all the various paraphernalia of their trade. A corps of riggers is employed for the manipulation of the many ropea in nse here and there about the walla. The plumbing and gaafitting proceeda as the walls go up, under the superintendence of Mr. Milne, of the firm of Buah & Milne. The soil, gas and water-pipes of the building will have a lineal meaaurement of 30 miles. The putting of the iron-work into piace, which, by the way, has delayed the woodwork, givea present occupation to nearly 100 workmen, who are under contract, and do not, consequently, appear on the regular pay-roll. These varioua departments of labor give employment to many persons of secondary mechanical importance, who cannot well be classified, but who help to awell the great total of workmen to an aggregate of more tban 1,000. Eighty cars are in continual use, which require the active attendance of about 100 persons.

The Ditch.—It is a matter of congratulation with the miners and ranchers along the line of the North Fork ditch and in the village of Ashland and vicinity, that the new dam across the North Fork of the American, commenced last year, will soon be completed, and guarantee an abundant water supply for the purposes of mining and irrigation for years to come. It wae feared that inasmuch as the dam was left in an unfinished state last fall, that the surging floods of the winter might have done it considerable damage; but it has happily turned out otherwise, for the simple reason that it is a staunch structure, built on scientific principlea and on a bed-rock foundation.—*Folsom Telegraph.*

California Slate.

The *Independent* has frequently referred to the fact that valuable quarries of slate were known to exist in this State, yet up to the present time little has been done to develop this important interest. Slate quarries in the Eastern States are considered very valuable, and the article is extensively used for roofing, for sidewalks, etc., in many of the Eastern cities, where the demand is so good that the business of quarrying it is found very profitable.

There should be a great demand for the article in this State, as it is a much better material for roofing than anything now used. It will last for years without requiring frequent coats of paint like tin, and it is an equally good protection against fire. It is strange that no greater effort has been made to bring this valuable product into use, as it is evident that were a supply of roofing and flagging placed upon the market a demand would soon be created for the article.

Mr. Emil Hedsch, of Copperopolis, Calaveras county, proprieter of the Pacific State Quarry, near the town, has left at this office specimens of the article that will compare very favorably with that taken from the most celebrated quarries of the East. Among the specimens shown is one set in a frame about 12x16 inches in size, which shows as smooth a surface, and is equal in every respect to the best school slates sold by dealers in that kind of articles. Mr. Hedsch informs us that pieces of almost any size can be readily obtained from the quarry, and that he has found no difficulty in obtaining them eight and ten feet square. They also easily split to the required thickness, and when the necessary machinery is erected to cut the blocks the required size, he will soon be able to place large quantities upon the market. Arrangements have been made for the erection of the necessary machinery to cut the blocks, and it is expected that within the next year this quarry will be turning out aa good slate as can be obtained in the East, and that it will be furnished at a price so low that it can be generally used for roofing, flagging, etc. It is to be hoped that this enterprise may prove a success, as it will add materially to the business of a portion of the State that is not at present particularly prosperous.

The Black Hills.

A careful examination of the best maps of the War Department shows that the east line of Wyoming territory in longitude 104 degrees passes nearly through the center of the Black Hills, north and south. General Custer entered the region from the northwest side of the Black Hills, about latitude 44½ degrees, and traversed nearly the entire western side, down to about latitude 43 degrees, thence bearing southeast into Dakota. The gold discoveries were, in large part, therefore, on the western side of the Black Hills in this territory.

Now, it is well known to everybody that there is no Indian reservation in Wyoming territory anywhere near this locality; but it is also perfectly well known that there is a Sioux reservation in Dakota, which embraces the eastern side of the Black Hills. The present agencies at Red Cloud and Spotted Tail are not upon the Indian reservation proper, but are in the State of Nebraska. It would be time enough for the Government authorities to prohibit trespassing upon the Sioux reservation when they put the Indians upon the reservation. At present they are not upon the reservation, and insist that they will not go there so long as they can prevent it. Why should the Government hold a vast track of rich country for the Indians and not put them upon it, but permit them to reside within the limits of a State where the people do not want them, and where there is no reservation?

There is no reservation for any Indians on the west side of the Black Hills in this territory, and it is in this region that the richest gold discoveries were made. The Indians claim these lands in Wyoming, and as far west as the summit of the Big Horn mountains, and so far south as Cheyenne and North Platte, as unceded lands. They claim that we have no right to the lands along and north of the Union Pacific railroad. At Mr. Brunot's pow-wow with the Sioux chiefs last year, at the old Red Cloud agency, the Indians explicitly said they had not given up these lands, and wanted all white people to move off and go east of Plum creeek, in Nebraska.

The Government, of course, does not propose to accede to any such proposition as this, and yet these are part of the unceded lands and claimed by the Indians; but not a foot of ground formerly occupied by the Sioux, from the northern boundary of Wyoming to the mouth of the North Platte, and thence south to the Republican river, has ever been transferred to the Government by the Sioux. It follows, therefore, that if the people have a right to settle along the line of the Union Pacific railroad, and along the North Platte and other streams in these unceded lands, they have the same right to settle on the unceded lands in the Black Hills. There is no land set apart by Congress for the Sioux in this territory, and certainly there is no Indian reservation near the Black Hills in Wyoming. People have the same right to go into that country which they have to settle in northern Nebraska and around Fort Laramie and Fetterman. The Indians claim the entire country, but the Government does not propose to give it to them; and while by treaty they are permitted to hunt on unceded lands in Wyoming and Nebraska, the authorities do not recognize their right to hold these lands or to prevent white people from going upon them if they choose. General Sheridan can prevent miners from going upon the permanent reservation of the Sioux on the east side of the Black Hills, in Dakota, but he cannot prevent them from entering upon any part of the public domain, claimed and owned by the United States Government, and not set apart by Congress as a military or Indian reservation, nor do we understand from his order that he has any notion of interfering with anybody excepting those who go upon the reservations proper in Dakota.

It is admitted that the rich discoveries made by Custer, including Custer's gulch, are in Wyoming, on the west side of the Black Hills, not upon any Indian reservation, and it follows then that miners or others may go there and settle or work the mines without interference from Government authorities.

The route from this city recommends itself to all who will glance at any reliable map. It is only 200 miles from here to the Black Hills, or about sixty days' travel, with excellent roads, no Indian reservations to pass through, with military posts, mail routes, ranches, etc., to within 50 miles of the mines.—*Cheyenne Leader.*

Silk Manufacture Again.

In our late review of silk manufactures on exhibition at the Mechanics' Institute Fair, we expressed regrets that the Ribbon Manufactory of Mr. J. Green, of Oakland, was not represented. We subsequently, however, found a case of goods from Mr. Green in the western gallery, where they speak for themselves, and afford a practical demonstration that we should have no need to go to France for the very best articles in that line, if our capitalists only had the enterprise to engage in such manufactures here. Mr. Green has demonstrated that a comparatively poor man, unaided and alone, can set up a ribbon manufactory in his dwelling house and turn out at a profit as good ribbons as can be found in our largest importing houses. But, strange to say, he meets with opposition rather than encouragement, in his laudable endeavors to introduce a new and important industry upon this coast. His goods are acknowledged to be superior, while he is willing to put them in the market at prices as low as foreign goods of the same quality can be afforded; but as he lacks the means to manufacture on a large scale, importers refuse to buy of him, and if milliners and other retailers venture to buy his goods, they are at once refused those business accommodations by the importing dealers, which are extended to those who persist in confining their purchases to the imported article. At least we are informed by Mr. Green that such is the fact; and from repeated complaints of the same kind from other quarters we are led to believe that this mode of discouraging home productions is by no means confined to any particular product.

There seems to be a determination on the part of importers, generally, to discourage production and manufactures on this coast. No sooner does a new home product make its appearance in this market than there is an apparent combination among the importers of the article to break down the manufacture here, by importing more largely than ever, and dropping the price down to the lowest possible living figure. The Eastern or foreign manufacturer often joins in the attempt, and by such combination and the greater command of capital too frequently succeeds in the effort. Many an entsrprise has thus been checked in this city, and as many more are not in existence today from the fear of just such opposition. There is also a lamentable lack of patriotism displayed in this matter of encouraging home industries on the part of consumers, who so generally persist in buying foreign products and manufactures, when those made at their very doors are as good or better. We shall never meet with any large measure of success as a manufacturing people until the masses are more inclined to call for and support home productions in preference to those imported, and to frown upon all such unwarranted action as Mr. Green and others complain of as coming from many of our large jobbers and importers.

The Belcher Air-shaft. — Good work—almost unprecedentedly good work—has been done in the construction of the new Belcher air-shaft. The shaft required an excavation to be made 8x16 feet in size. Work was begun on it on the 25th of May last. When the opening of this shaft was proposed by Mr. Donnelly, foreman of the mine, he agreed to complete it to the 850-foot level within four months and at a cost not exceeding $40,000. The shaft reached the 850-foot level last Monday—in 106 days from the time of breaking ground—and the cost has been only about $25,000. The shaft does not stop at the 850-foot level. Work is now progressing between that level and the 900. By next Saturday night it will be completed to the latter level. From that point to the 1,500-foot level it will be continued in the form of an incline, yet it will resemble an immense chimney reaching from the bottom of the mine to the surface. In drawing up from the lower levels the foul and heated air with which they are loaded, this huge chimney will be of almost incalculable benefit. Already its beneficial effects are beginning to be seen in those parts of the mine into which it has penetrated.—*Enterprise.*

Electrical Signals for Mines.

At the Ophir mine all the signals required to be made between the surface and the lower levels are now given by means of electricity. Electrical signal machines, manufactured by the Electrical Construction company of San Francisco, are placed at the stations on all the levels, with plain directions for operating them, and no mistake has ever occurred since these have been in use. The man wishing to signal to the surface has only to press his thumb on a knob, when there is instantly a stroke given on the engineer's bell at the surface and a return stroke on a small bell before him. Every stroke on the bell above is repeated on the bell before him, therefore no mistake can be made. When a bell-rope is used it requires a very strong pull at the depth of 1,500 or 2,000 feet, and then the man pulling the rope don't know whether or not the bell above has been sounded. By this machine no return signal can be made until a signal has first been struck on the engineer's bell. D. H. Birdsall, the electrician in charge, is now engaged in putting in a new style of signal box for cages. A wire connected with the battery above goes up and down with the cage, winding up and unwinding as the cage ascends and descends. By means of this invention a man standing on the cage may signal at any point of his ascent or descent by pulling a small knob ready to his hand. As many wires are seen running in various directions about the works as would be found in a first-class telegraph office. At the shaft they are all gathered together and go down the shaft in a bunch through gas pipes. Besides the signals for raising and lowering the cage, there is another set for calling the foreman from below. When the knob of the box used for this purpose is touched it makes the signals at the stations on all the levels simultaneously. A certain signal made on this box also sounds at all the stations, and means, "Send up the cage immediately."—*Virginia Enterprise.*

Iron near Auburn.

Everybody, doubtless, knows of the large mountain of No. 1 iron ore near the railroad a few miles above Auburn. That this will someday be a source of great value, not only to its owners, but to the entire country, none will doubt. The world wants iron, and is willing to pay a good price for it; and that a mountain of this most valuable mineral, located near a great railroad thoroughfare, is going to stand forever unappropriated is preposterous. For lack of money or enterprise, or perhaps both, it still bears the hand-marks of nature. That this iron field is extensive receives additional evidence from discoveries made within the past week. Croppings of rich iron ore have been found over a space of 40 acres, some distance from the iron mountain, but doubtless on the same lead. Many of the people are anxious for the establishment of manufactories, so also are many of the newspapers, and it is a worthy desire. The opening of these iron mines would be a grand step towards the consummation of that desire. These mines once opened, and smeltings works erected, the heavy cost of transportation would be saved, and the cost of iron would be proportionately lessened. Cheap iron makes machinery cheap; and cheap machinery would materially lessen the cost of building manufactories. The price and demand for the manufactured articles being the same, the inducement would thus be increased. Besides this, cheap iron would lessen the cost of ship building, and thus give an impetus to that important business on this coast; it would lessen the cost of railroads; it would lessen the cost of substantial structures of every kind, and in doing this would give additional substance to the prosperity of the country.—*Placer Herald.*

The Van Camp Pavement.

Five samples of this pavement are on exhibition at the Mechanics' Pavilion, on the east side of ground floor. They have been placed there by the Crushed Rock and Asphaltum Paving Co. The invention was patented at Washington in 1869, by Dr. A. Van Camp. This pavement has been in use on the Drexel boulevard, Chicago, and around two squares on Market street, Louisville, Kentucky, where it is reported to have given entire satisfaction. The pavement is made of crushed rock and pure asphaltum free from coal tar. The work is all done by machinery. After being crushed it is heated in a cylinder twenty feet long, and as it comes out drops into a steam mixer, where the asphaltum in a melted state is thoroughly mixed with the rock. Thus prepared it drops from the mixer into carts, and is taken to the place where it is wanted and spread with rakes and rolled with a heated roller of one thousand pounds weight. The material is very heavy, its specific gravity being greater than granite. It is also claimed to be fire-proof, as was demonstrated in Chicago, where this pavement remained intact after the great fire. It is free from odor, and does not soften in the heat of the sun nor become slippery. It is next to everlasting, being very tough and hard, and slightly elastic. It is expected that this pavement will be used around the Palace Hotel. This material is recommended for streets as well as side-walks, and the company propose to transform our rough, noisy, cobble-stone, horse-killing streets into smooth, durable, and comparatively noiseless and pleasant carriage drives.

Resins.

Ths resins best known to commerce and used extenaively in medicine aud several of the mechanical arts, sre nine in number, aud are known as copal, lso, amber. dammar, common resin, elemi, sandarac, mastic and caramba wax. All thess resins can bo reduced to powder, and all can be dissolved by a union either with acids, oils, or alcoholic preparations. Gum copal is the concreto juice of a tree growing in certain sections of South America and the East Indies. The substance when pure is hard, shining, transparent, citron-colored, snd inodorous. It is uot soluble in water or spirits, hut may be dissolved in linseed oil, when snbmitted to a heat a little less thou sufficient to boil or decompose tho oil. When the solution is dilnted with spirits of turpentine, it forms a beautiful transparent varnish. Shellac, or more properly, lac, is a resinous substance obtained mainly from the *Ficus Indica*, or hauyan tree, on which it is deposited by an insect. It is composed of fivo different but very similsr kinds, each of which is united with a small quantity of soveral other foreign substances, particularly a red-colored matter. Stick-lac is ths compound in its natural state, incrusting small twigs. When broken off and boiled in watar it losea its red color, and is called seed-lac. When melted, strained and spread into thin plates, it is called shell-lac. United with ivory black or vermilion it forms red or black sealing-wax; when lac is dissolved in alcohol or other solvents, and submitted to different methods of preparation, it constitutes various kinds of varnishes and lacquers. Lac is readily dissolved by a union with caustic soda. Amber is a yellowish resin, and resembles copal. It is found on ths sea-shore snd frequently on sllnvial soils with beds of lignite. It is capable of receiving a fine polish, snd is used for ornamentsl purposes, to adoru pipes, walking-sticks, etc. It is also the basis of a fine varnish. By friction it readily becomes elcctric. Amber will not dissolve in alcohol, but it yields to the action of oonccntrated sulphuric acid, which will dissolvs all resins except carsmha wax. The nnion with the sulphnric acid gives dsmmar a brilliant red tint, bnt to other resins a dark brown color. Dammar is obtained from certain trees indigenous to the East Indies; among others the dammara and the dammar pine. It is principally used for making varnish. Dammar dissolves easily in sulphide of carbon, oil of turpentine, linseed oil and henzol. Common resin is the prodnct of the sonthern pine, and is readily solnble in alcohol and the essential oils. Elemi is a concrete substance obtained from several species of trees growing in the tropics, but having mnch the same appearance, and undonhtedly allied in origiu. It is nsed by the medical profession in oiutments and plasters, and hy mechsuics as a base for the manufacture of varnish. This resin dissolves with difficulty in alcohol and linseed oil, bnt gives way under the action of turpentine snd benzol. Mastic exudes from the mastic tree, which grows on the island of Scio in tbe Mediterranean sea. It rnns freely when sn incision is made in the body of the tree, but not otherwise. It is of a yellowish-white color, is semi-transparent, of faint smell, and is nsed as an aromatio and an astringent. It is also used by painters as an ingredient in drying varnishes. Sandarac is the prodnct of a tree growing in Barbary. It is obtained in what is known as transparent tears of a while color, and is nsed principally for incense, and the manufacture of varnish, aod when pulverized and mixed with other snbstances in a pounce as a perfume. The following resins will become pasty before melting: amber, lac, elemi, sandarac and mastic; the others will hecome liquid at once. Ammonia will slowly dissolve oopal, mastic and sandarac; but on the othor principal resins it has very little effect.—*British Trade Jour.*

Nickel.

The demand for nickel for coinage, alloys, electro-plating and other nses has so increased during the past year or two as to considerably exceed the supply, and the manufacturers of the alloy known as German silver have petitioned the Parliament of the German Empire not to still further increase the demand by the introduction of nickel money into tbe country. The cost of German silver, which contains about one-third of its volume of nickel, has gone np nearly $12 per 220 pounds within a single mouth. The aggregate annnal product of nickel (exclusive of the American product), does not exceed 600 tons, of whioh English industries alone use one-half. It is used in the token coinage of this country, Belgium and Switzerland, and the manufacturers say that if Germany should use a similar coinage the supply would not be snfficient to enable manufacturers to use it in the production of cheap imitation of silver ware on account of its increased cost.

Most of the nickel of the world, until within a few years, came from Germany, but the discovery of mines in America has entirely driven the foreign article from the market, and considerable quantities are now exported to Europe. Bnt one deposit is being worked in America, and is believed to he the largest yet discovered in the world. The mine lies in Lancaster county, Pennsylvania, about three miles south of the Gap station, on the line of the Pennsylvania railroad. It is on the high land separating Chester and Pequea valleys, a region rich in minerals; for, beside the copper found in connection with the nickel, there are large deposits of iron snd limestone s short distance south. Ths existenos of copper there was known many years ago; indeed, it was taken out seventy years ago, but the mining was never prosecuted with much vigor, and afforded little profit.

The copper was impnre, but nbout the year 1856 the material mixed with it was discovered to be nickel, snd as the depth of the mine increases so it predominates. The ore is very hard, and tho mining is carried on sltogether by blasting. There are a few Cornish miners to take the lead, but the rest are Americans. A Cornish pumping engine of 75 horse-power drawa half a barrel of water at every stroke from the mine, which is 240 feet deop, and another brings the ore to the surface. Ths ore, in appearance, is iron gray, very hsavy, and in soms pieces the bright copper ore is very prominent. The amount taken from the mine varies from 400 to 500 tons per month. The mining and manipulation of this amount requires 175 hands employed here and at the furnaces. The ore has to be hauled in wagons about a mile to the furnaces, which are situated on very high grounnd, snd overlooks the beautiful Pequea valley. This sitnation was chosen partly that the wind might carry away the noxious smoke and gas, snd partly because of the stores of limestone and flint in the neighborhood.

Ths process adopted is first to throw the ore between the jaws of a ponderous iron bresker, by which it is redneed to smsll frsgments, weighing about half a pound each. Thence carts convey it to the kilns, which are constructed very much like the old-fashioned lime-kilns, except that these have a very tall smoke-stack, to increase the draught. A kilu, holding 80 or 90 tons, is filled with ore and kindled with a little wood. It burns about six weeks, its own gas supplying the fnel for burning out the impurities. The first step toward purification is followed by a process almost precisely similar to that to which iron to subjected. There are three large furnaces, and into these the ore is put, mixed with powdered flint and limestoue (the former predominating) and coke. Abont three draws are made in twenty-four hours, for the work does not stop either night or day, two set of hands being employed. The prodnct of the furnaces is passed through iron rollers and crushed to powder, in order that it may more easily he transported to Camden, New Jersey, where the final process of separating the nickel snd copper, and preparing each for the market, is effected. No waste is allowed. The ore dnst, large quantities of which are made in drilling and blasting, is is mixed with finx and clay, baked in squsre bricks, nnd reduced in the furnaces, just as is the rest of the ore.

The pure nickel commands a high price, varying, ot course, according to the demsnd, hnt averaging over two dollars per pound. Not only does this mine supply all the material for the nickel coins, but nickel is heing extensively nsed in plating iron and other metals, and in various compounds. The whole property is owned by a Philadelphia gentlemau, who has, by his energy and capital, not ouly opened up a new branch of industry to the American artisan, but has taken another step toward making the American independent of other nations. —*Iron Age.*

The Kossuth Works.

The new hoisting works of the Kossuth Mining Co. are not only very neat and substantial, but are also suffioiently powerful to sink their main shaft to the depth of 1,500 feet. They are now well fixed in every respect for the speedy exploration of their mine. Ths main building over their works is 40x80 feet in size, and adjoining this are wings containing the carpenter shop, blacksmith shop, boilers and the like. All these wings are substantial and commodions structures. The pumping engine is of 80-horse power, and the pumping apparatus is all of the most approved pattern, and runs without the slightest hitch or jar. At preseut they have but little water to contend with. The pump running at five strokes per minute, six-foot stroke, keeps the water out of the way of the men working at the bottom of the shaft. While they were freeing their shaft of the water the pump was run at the rate of 26 strokes per minnte, and this rapid motion no more affected the machinery than does the preseut slow stroke. The main shaft is down 220 feet in ground that works very freely. It is the intention to sink to the depth of 400 feet before starting out with another drift. All about the works is most conveniently arranged, everything being after the plans of P. H. Scott, the superintendent of the mine. A very good and labor-saving arrangement is a small reel, carrying a small wire cable, which is used in handling the pump column. By means of this reel a section of column can be let down into the shaft or hoisted out very easily and expeditiously; whereas, by the old plan of raising and lowering by means of a capstan it would be a great job. The hoisting is done by means of twin engines, which are so arranged as to be under admirable control. The foundations of all the engines are on the firm country rock and are as immovable as a mountain. The machinery, which was manufactured at the Gold Hill foundry, was nll put in place and arranged by James Floyd, the present engineer in charge. The works are a credit to the company and to all concerned. We may state as a fact worthy of note that the amount of fuel oonsnmed each 24 hours is bnt one cord and three-quarters of wood. Two boilers are nsed, one of which is 60 inches in diameter and 16 feet long, while the other is 54 inobes in diamter snd of the same length as that first mentioned. Just north of the Kossuth stands the firm and snbstantial hoisting works of the Dayton Mining Co., and a short distance to the southward those of the Daney Co. All three of the first-class works ars s short distance sonth of Silver City, and their erection is an assurance to the people of that towu that their place is bonnd to grow and prosper. Tho three sets of works named are the first ever erected in that section of Silver City district worthy of the name of hoisting works.—*Enterprise.*

It is said thst an admirsble way to preserve sutnmn leaves is to lron them fresh with a warm—not hot—iron, upon whioh spermaceti has been lightly rnbbed.

Mr. Thomas Sutton, the photographer, states that, if calico is dipped for an instant in diluts sulphuric acid, it is rendered waterproof.

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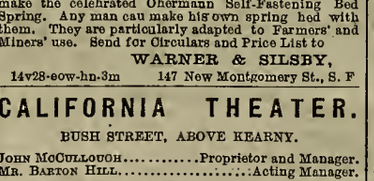

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Pacific Coast Products.

Nothing is more wonderful in history or romance than has been the progress of the States and Territories of the Pacific Coast—and, written aright, neither the grandest epic nor the most powerful novel ever composed by poet or novelist, could equal it. The world at large has always regarded California as the real embodiment of all that was ever imagined or written of the fabled El Dorado, but few ever had a tangible idea of what that wealth really was, or of the wondrous capabilities of it and its sister States and Territories, extending as they do from the Dakota Black Hills paradise to the Golden Gates, and from the placers of Britisb Columbia to those of Sonora. The occasion of holding the Ninth Industrial Fair, which represents in a certain measure this wealth, past and progressive, and bas seemed to us to be a fitting occasion for publishing some reliable statistics to sbow wbat the Pacific Coast bas added to the wealtb of the world from the days of '49 to the no less prosperous ones of the present. Naturally the first tbing that strikes one in this connection is

The Wondrous Wealth in Gold and Silver,

Which has been sent forth to circulate among the various channels of trade, and to revivify the commerce of the world. As may be seen from the annexed table, taken from the San Francisco *Journal of Commerce*, this has been, or by the end of the present year will be, not less tban $1,683,386,241, or $1,385,309,503 in gold and $298,076,738 in silver. That is an amount equal to the total gold and silver coin in circulation in the tbree great commercial nations of tbe world, the United States, Great Britain, and France.

Gold and Silver Production.

Year.	Gold.	Silver.	Total.
1848	$5,000,000		$5,000,000
1849	23,000,000		23,000,000
1850	59,000,000		59,000,000
1851	60,000,000		60,000,000
1852	59,000,000		59,000,000
1853	68,000,000		68,000,000
1854	64,000,000		64,000,000
1855	58,000,000		58,000,000
1856	63,000,000		63,000,000
1857	61,000,000		61,000,000
1858	59,000,000		59,000,000
1859	59,000,000		59,000,000
1860	52,000,000	$90,697	52,090,897
1861	50,000,000	2,275,256	52,275,256
1862	52,000,000	6,247,074	58,247,074
1863	57,000,000	13,486,238	70,486,238
1864	55,967,600	16,797,585	72,765,185
1865	57,496,800	16,184,877	73,681,677
1866	61,000,000	17,000,000	78,000,000
1867	53,000,000	22,000,000	75,000,000
1868	51,000,000	16,000,000	67,000,000
1869	47,000,000	16,000,000	63,000,000
1870	48,000,000	18,000,000	66,000,000
1871	42,357,000	24,246,000	66,603,000
1872	42,688,103	27,548,811	70,236,914
1873	35,400,000	44,600,000	80,000,000
Grand total	$1,342,909,503	$240,476,738	$1,583,386,241
1874 (estimated)	42,400,000	57,600,000	100,000,000
	$1,385,309,503	$298,076,738	$1,683,386,241

If to this aggregate is added $1,000.000,000, in silver taken from the mines of Mexico and the Western Coast of South America, making the wbole $2,683,386,241, it will be seen the Pacific Coast of North and Soutb America has given to the world one-half of all the gold and silver in it, and an amount equal to the value of all tbe gold and silver coin in the world, outside of China and India. What the United States would have done without all this flood of wealtb poured through its commercial veins and extracted from the placers and the bowels of tbe Sierras it is not easy to conjecture. It has been supplied with money for coinage and for foreign trade, and without this inducement to extravagance we would bear little of the balance of trade that has been so large in their foreign commerce against tbe States of the Union. The greater part of the vast capital represented in this way has been absorbed by England, the United States not retaining more than $400,000,000 in coin and manufactures of gold and silver, and the Pacific Coast the great producer, not more in this way than $50,000,000. England has lent it many times over to all the nations of the world, and her money kings now derive imperial revenues from it. One of the most notable things in the above table is tbe steady decrease of gold production, and the increase of tbat of silver, and it seems as though silver mining in future years is to be the great specialty of the mining districts of the coast. Tbe production by States and Territories is shown in the following table:

Year.	California.	Nevada.	Montana.	Idaho
1848	5,000,000	.....	.....	.....
1849	23,000,000	.....	.....	.....
1850	59,000,000	.....	.....	.....
1851	60,000,000	.....	.....	.....
1852	59,000,000	.....	.....	.....
1853	68,000,000	.....	.....	.....
1854	64,000,000	.....	.....	.....
1855	58,000,000	.....	.....	.....
1856	63,000,000	.....	.....	.....
1857	61,000,000	.....	.....	.....
1858	59,000,000	.....	.....	.....
1859	69,000,000	.....	.....	.....
1860	$52,000,000	$90,697	.....	.....
1861	50,000,000	2,275,256	.....	.....
1862	51,500,000	6,247,074	$500,000	.....
1863	50,000,000	12,486,238	8,000,000	.....
1864	35,000,000	16,797,585	13,000,000	$6,474,085
1865	36,029,000	16,548,879	14,500,000	6,551,440
1866	26,000,000	15,000,000	18,000,000	7,000,000
1867	25,000,000	20,000,000	12,000,000	8,500,000
1868	22,000,000	14,000,000	15,000,000	7,000,000
1869	21,000,000	14,000,000	12,000,000	7,000,000
1870	25,500,000	16,000,000	9,100,000	6,000,000
1871	24,450,000	22,500,000	9,000,000	5,000,000
1872	20,000,000	36,000,000	4,000,000	2,400,000
1873	25,000,000	44,000,000	4,000,000	2,500,000
Total	$1,119,819,938	$263,794,690	$121,942,131	$58,969,576

Year	Or. & Wash.	Utah.	Other Ter.
1864	$1,493,520	.....	.....
1865	1,335,369	.....	.....
1866	3,000,000	.....	8,000,000
1867	3,000,000	.....	8,500,000
1868	4,000,000	.....	5,000,000
1869	3,000,000	.....	6,000,000
1870	3,000,000	1,200,000	4,800,000
1871	2,500,000	2,300,000	4,853,000
1872	2,131,086	5,521,000	5,030,676
1873	1,680,000	9,000,000	7,000,000
1874	1,500,000	10,000,000	10,000,000
Total	$26,619,906	$31,151,000	$89,183,676

From this it will be seen tbat California has produced two-thirds of the whole, and its production has been nearly all gold. Of the balance, Nevada, which is making gigantic strides year by year, has produced nearly one-balf, cbiefly silver. Utah, the great development of wbich as a mining region is shown by the table, like the neighboring State of Nevada, produces chiefly silver. Of the balance of the States and Territories represented, the yield of all, save Colorado and New Mexico, bas been rapidly decreasing. But tbese Territories, as well as Utah and Nevada, bid fair to rival California itself, in its palmiest days. As for Idaho and Montana, with the introduction of capital and macbinery we may expect to see them look up again and become as famous as of yore. Oregon and Washington, as well as British Columbia, will never take any great position as Gold and Silver mining States; but Arizona, when life and property are secure from Apache deprcdations, will probably equal in importance any portion of the Pacific Coast. But only a small portion of tbe vast wealth of this girdle of mountains has been as yet extracted, and we are of opinion that they are destined to flood the world with wealtb for centuries to come.

Lumber.

The immense extent of the mighty forests that clothe tbe sides of ihe Sierras and the inferior ranges—in fact the whole mountain system, from Panama to Icy Cape on the Arctic Ocean, has been known by but few. Few eitber have known that there is lumber enougb

To supply the World a Thousand Years,

And tbat all civilized countries will by and by have to look to tbe Pacific Coast for their needs in this regard. Such however is the fact, and though we have been nibbling away at it for a quarter of a century, and have in round numbers manufactured

Four Thousand Million Feet,

Wortb in this city say forty million dollars, we havs yet, as it were, only nibbled at these mighty woods. The following table sbows the amount exported to forcign countries from San Francisco. The total amount exported from Puget Sound etc., is about double this:

Year.	Feet.	Value.
1859	3,750,000	$ 86,49
1860	3,445,731	75,808
1861	3,337,839	73,748
1862	9,197,631	175,140
1863	6,559,062	159,586
1864	11,488 610	248,951
1865	2,091,913	255,038
1866	7,732,567	155,498
1867	5,482,693	129,629
1868	7,660,801	172,858
1869	8,314,116	182,760
1870	13,224,990	240,199
1871	31,662,000	300,297
1872	16,010,000	314,192
1873	17,441,000	346,370
Total	143,529,463	$2,918,714

In modern days the great agents of civilization have been

Coal and Iron.

Of the former there has been mined and sent so San Francisco in the course of 14 years, ending January 31st, 1873—1,821,605 tons, wortb $14,000,000—the whole amount produced being a trifle in excess of this. Oregon Pig Iron commands to day the bighest price in our market, and California will soon bave as good Pig Iron as Oregon. The following table shows tbe Coal of domestic sources imported into San Francisco since 1860:

Year.	Vancouver.	Coos Bay.	Bellingham.
1860	6,685	3,143	5,458
1861	6,473	4,688	8,136
1862	8,963	2,815	11,245
1863	5,744	1,155	9,175
1864	12,449	1,300	9,376
1865	18,726	1,525	12,370
1866	9,635	1,753	11,475
1867	14,757	5,235	8,615
1868	23,397	10,524	13,868
1869	14,894	14,758	26,552
1870	13,138	21,710	13,976
1871	15,160	26,731	20,724
1872	23,063	31,227	4,100
1873	31,435	37,888	31,210
Total tons	206,424	164,432	170,308

Year.	Seattle.	R. Mt.	Mt. D.
1860	.....	.....	.....
1861	.....	25	6,620
1862	.....	116	23,402
1863	.....	.....	43,198
1864	.....	.....	37 458
1865	.....	.....	60,530
1868	.....	.....	84,024
1867	500	.....	109,490
1868	.....	.....	133,539
1869	.....	.....	148,722
1870	.....	.....	129,760
1811	4,545	.....	133,455
1872	13,063	1,809	164,322
1873	12,572	1,904	170,000
Total tons.	32,737	3,854	1,243,850

Total Yield of Coal.

Mt. Diablo	1,243,850 tons.
Vancouver	206,424
Bellingham Bay	170,308
Coos Bay	164,432
Seattle	32,737
Rocky Mountain	3,854
Grand total	1,821,605
Worth	$14,000,000

California Copper

Used to be of much commercial importance, and doubtless will be so again. We bere give particulars of its export, wbich will also pretty nearly represent its total products:

Year.	Tons.	Value.
1861	1,759	$122,581
1862	3,389	293,194
1863	5,933	512,925
1864	14,315	1,394,660
1865	25,830	1,821,360
1866	19,613	1,393,892
1867	7,833	421,546
1868	5,077	227,925
1869	2,542	113,733
1870	2,254	113,732
1871	2,552	121,950
1872	2,193	115,970
1873	1,832	114,852
Total	95,322	$7,371,830

We divide with old Spain the honor of supplying tbe world with

Quicksilver.

But whenever Spain bas it in rills we have it in streams, as the numerous discoveries every day taking place prove. The following are the details of its export;

Year.	Flasks.	Value.
1859	3,357	$126,262
1860	3,893	3 8,330
1861	35,218	1,112,654
1862	35,707	1,169,197
1863	26,060	966,748
1864	41,252	1,527,964
1865	41,256	1,733,238
1866	30,789	1,082,940
1867	28,824	929,726
1868	43,507	1,330,054
1869	24,385	747,671
1870	12,959	402,051
1871	11,244	852,125
1872	14,721	875,414
1873	6,168	462,495
Total	369,400	$13,656,883

Value of Pacific Coast Products since 1848:

The total addition made to the wealth of tbe world by the Pacific Coast, may be seen from the following table:

Gold and Silver	$1,683,386,241
Manufactures	600,000,000
Wheat produced	300,000,000
Wool do	45,000,000
Lumber do	40,000,000
Coal do	14,000,000
Wine exported	5,117,974
Salmon do	1,554,052
Copper do	7,371,630
Quicksilver exported	13,656,883
Hides do	8,675,611
Tallow do	452,259
Other prodnce	20,000,000
Add for Consumption	15,000,000
Add for 1874	15,000,000
Total	$2,769,214,700

Merchandise and Treasure Exported.

We append a table sbowing the total exports of Treasure, Domestic Produce and Foreign Produce since 1848:

Year.	Merchandiee.	Treasure.	Total.
1848-50	$2,000,000	$66,000,000	$68,000,000
1851	1,000,000	45,989,000	46,989,000
1852	1,500,000	45,779,000	47,.79 000
1853	2,000,000	54,985,000	56,985,000
1854	2,500,000	52,045,633	54,545,633
1855	4,189,611	45,161,731	49,351,342
1856	4,270,516	50,697,434	54,967,950
1857	4,369,753	48,967,697	53,346,450
1858	4,770,163	47,548,026	52,318,189
1859	5,533,411	47,640,462	53,173,873
1860	8,532,439	42,325,916	50,858,355
1861	8,883,972	40,675,788	50,564,830
1862	10,565,294	42,561,761	53,127,055
1863	13,877,399	46,071,920	59,949,319
1864	13,371,752	55,107,201*	68,978,953
1865	14,554,130	44,426,172	58,980,302
1866	17,281,849	44,365,668	61,647,516
1867	22,421,295	40,671,797	63,093,083
1868	22,744,235	36,358,096	59,202,331
1869	20,946,349	37,287,114	58,133,163
1870	11,762 742	22,983,139	50,752,881
1871	13,992,283	17,253,346	31,245,629
1872	23,698,598	29,330,433	53,029,031
1873	29,711,371	24,641,041	54,352,412
Total	$271,381,275	$1,039,536,390	$1,310,917,660

*—Including $5,000,000 dutiee.

THERE are 69 quartz mills in Nevada county, California, 42 of which are run by steam and ths rest by water powsr.

THE Brunswick mill, Carson river, is being rnn to but balf its capacity, owing to tbe low stage of water.

UTAH bas fivs narrow-gauge railroads, four of whicb ars in operation, and the fiftb will bs opsn on tbe 1st of November.

A CHILENO found a gold nugget wortb $99 wbils bunting quail in the monntains near Colusa.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Sept. 22d, 1874.

FOR WEEK ENDING SEPT. 8TH, 1874.*

ARTIFICIAL FLOWERS.—Mary Barnss, Truckee, Cal.

TIE-LINK FOR CHAINS.—Wm. Quinlan, Mayfield, Cal.

MINING LANTERN.—Coolidgs B. Brown, Placsrvills, Cal.

TRADE MARK.

FOR CANNED SALMON.—Cutting & Co., S. F., Cal.

*The patents are not ready for delivery hy the Patent Office until some 14 days after the date of issne.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

LEATHER.

WEDNESDAY M., Sept. 23, 1874.

Leather is firm and quiet. Tranactions for the week have been small.

City Tanned Leather, ₱ lb	25@2
Santa Cruz Leather, ₱ lb	25@2
Country Leather, ₱ lb	24@28
Stockton Leather, ₱ lb	25@29
Jodot, 8 Kil., per doz	$50 00@ 54 00
Jodot, 11 to 19 Kil., per doz	66 00@ 80 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55 00@ 72 00
Cornellian, 12 to 16 Ko	57 00@ 67 00
Cornellian Females, 12 to 13	60 00@ 64 00
Cornellian Females, 14 to 16 Kil	66 00@ 74 00
Beaumcrville, 15 Kil	60 00@ —
Simon, 18 Kil., ₱ doz	61 00@ 63 00
Simon, 20 Kil. ₱ doz	65 00@ 67 00
Simon, 24 Kil. ₱ doz	72 00@ 74 00
Robert Calf, 7 and 9 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 35
California Kip, ₱ doz	40 00@1 60
French Sheep, all colors, ₱ doz	8 00@ 15 00
Eastern Calf for Backs, ₱ lb	1 00@ 1 25
Sheep Roane for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roane for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 4 50
Best Jodot Calf Boot Legs, ₱ pair	5 00@ 5 25
Good French Calf Boot Legs, ₱ pair	4 00@ 4 75
French Calf Boot Legs, ₱ pair	4 00@ —
Harnese Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 20
Wax Side Leather, ₱ foot	17@ 1
Eastern Wax Leather	—@—

METALS.

WEDNESDAY M., Sept. 23, 1874.

Contrary to expectations the price of Quicksilver has not yet advanced. Advices from New York and Europe would have seemed to warrant such a movement, but the market has no doubt been influenced by the very favorable prospects now held out by newly developed mines.

American Pig Iron, ₱ ton	— —	@	42 00
Scotch Pig Iron, ₱ ton	46 00	@	47 50
White Pig, ₱ ton	— —	@	42 00
Oregon Pig, ₱ ton	— —	@	45 00
Refined Bar, ₱d assortment, ₱ lb	— —	@	— 3½
Refined Bar, good assortment, ₱ lb	— —	@	— 4
Boiler, No. 1 to 4	— —	@	— 6¼
Plate, No. 5 to 9	— —	@	— 5½
Sheet, No. 10 to 13	— —	@	— 5¾
Sheet, No. 14 to 20	— —	@	— 5¾
Sheet, No. 24 to 27	— 08	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	— —	@	— —
Norway Iron	— 8	@	— —
Rolled Iron	— 6	@	— —
Other Irons for Blacksmiths, Miners, etc.	— —	@	— 4½
COPPER.—			
Brazlers'	— 31	@	— 32
Copper Tin'd	— 45	@	— —
O. Nie'l's Pat	— 50	@	— —
Sheathing, ₱ lb	— —	@	— 24
Sheathing, Yellow	— —	@	— 25
Sheathing, Old Yellow	— —	@	— 12½
Composition Nails	— 24	@	— —
Composition Bolts	— 24	@	— —
TIN PLATES.—			
Platee, Charcoal, IX ₱ box	13 00	@	14 50
Plates, I C Charcoal	12 75	@	14 50
Roofing Plates	11 50	@	14 00
Banca Tin, Slabs, ₱ lb	— 31	@	— 33
STEEL.—English Cast, ₱ lb	— 24	@	— 25
Anderson & Woods' American Cast	— 10	@	— 17
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC.—			
Zinc, Sheet	— —	@	— 11
NAILS.—Assorted sizes	— 5¾	@	— 8
QUICKSILVER, per lb	— —	@	1 45

GENERAL MERCHANDISE.

WEDNESDAY M., Sept. 23, 1874.

Bags are still depressed. Coal is stronger. Coffees continue weak. In Oils an advance is noted in Linseed and China Nut. Rice shows an upward teudency. Among Spices, Cloves, Cassia and Allspice have adva ced. Tobaccos are firm.

BAGS.			
Enc. Stand Wht.	—	12¼@	12½
Detriok'e Machine Sewed, 22x36 E	—	—@	13
do 22x36, do E W	—	—@	13¾
do 20x30, do A	—	—@	14¾
Flour Sacks ¼s	—	9½@	11½
" " ⅛s	6	—@	7
Stand. Gunnies			
double seam	15	@—	
single seam	12¾	@	14
" Wool Sacks	65	@—	
Barley Bags 24x36	—	@	14
do 22x40	—	@	14½
do 24x40	—	@	16
do 23x36	—	@	16
Oat Bags, 24x40	16	@	16½
do 23x36	—	@	17
Hessian 40-in.gds	9½	@	10
do 45	10½	@	11
do 60	—	@	15
CANNED GOODS.			
Asst'd Pie Fruits in 2¼ ₱ cans	2 75	@	3 00
do Table do	—	@	2 75
Jams & Jellies	3 75	@	4 25
Pickles ½ gl	—	@	3 50
Sardines, qr box	1 80	@	—
do ½ box	1 20	@	—
COAL—Jobbing.			
Anetralian, ₱ ton	10 00	@	—
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11 —
Cumberl'd, cks.	22 00	@	23 00
do bulk	18 00	@	20 00
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	19 00
Liverpool	11 00	@	12—
Wcet Hartley	12 50	@	—
Scotch	9 50	@	10 00
Scranton	15 00	@	17 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ sk	75	@	—
Coke, ₱ bbl	—	@	60
COFFEE.			
Sandwich Island		@	22
Central America	19	@	20
Costa Rica per ₱	21	@	22
Guatemala	19	@	20½
Java	—	@	28
Manilla	20	@	21½
Ground in oss	—	@	30
Chicory	9	@	10
FISH.			
Pac. Dry Cod, new	5	@	5
cases	6	@	8
do boneless	11	@	12
Eastern Cod	7	@	8
Salmon in bbls.	9 00	@	9 25
do ½ bbls	5 00	@	4 75
do 2½ ₱ cane	3	@	3 00
do 2 ₱ cans	2 65	@	2 75
do 1 ₱ cans	1 75	@	—
Do Col. R. ½ ₱	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l. No. 1, ½ bbls	8 00	@	8 50
" Extra	—	@	9 00
" No. 1	—	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess. ½ bs	—	@	12 00
Sm'k Her'g, bx	50	@	60
NAILS.			
Assorted size, ₱ keg	5 00	@	7 25
OILS.			
Pacific Glue Co. Neat F't No. 1	—	@	1 00
Pure	1 25	@	—
Castor Oil, No. 1	—	@	1 75
do No. 2	—	@	1 60
Cocoanut	45	@	50
Olive Flagniol	5 00	@	—
do Possel	4 25	@	—
Palm	9	@	—
do Bagicalupi	—	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in os	82½	@	90
do bulk	75	@	80
Sperm, crude	—	@	1 40
do bleached	—	@	2 20
Coast Whalers	25	@	40
Polar, refined	50	@	55
Sperm	1 40	@	1 50
Lard	1 00	@	1 10
Coal, refiued Pet	37½	@	40
Oleophine	—	@	24
Devoe's Bril't	25	@	28
Long Island	—	@	34
Eureka	37½	@	40
Devoe's Petro'm	25	@	29
Barrel kerosene	20	@	25
Olive	4 00	@	9 50
Downer Kerose'e	35	@	40
Gas Light Oil	—	@	34
PAINTS.			
Atlan. W. Lead	7½	@	12½
Whiting	—	@	2
Putty	4	@	4½
Chalk	—	@	2½
Paris White	2¾	@	—
Ochre	4	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ₱ lb	6¾	@	6¾
do 2, do	5½	@	5¾
Japan	—	@	6½
Siam Cleaned	7	@	—
Patna	5¼	@	5¾
Hawaiian	7¼	@	8
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmeon Island	11 00	@	13 00
Liverpool fine	20 00	@	23 00
do coarse	16 00	@	20 00
SOAP.			
Castile ₱ lb	10	@	11
Local brands	5	@	8
SPICES.			
Allepice, per lb	15	@	16
Cloves	55	@	60
Cassia	22½	@	25
Citron	—	@	30
Nutmeg	1 20	@	25
Whole Pepper	20	@	22
Pimento	—	@	15½
Gr'nd Allepr'd	—	@	12½
do Cassia do	—	@	50
do Cloves do	—	@	50
do Mustard do	—	@	25
do Ginger do	—	@	40
do Pepper do	—	@	30
do Mace do	—	@	2 00
SUGAR, ETC.			
Cal. Cnbe per lb	11½	@	—
Partz' Pro. Cnbe bbl or 100 ₱ bxs	—	@	11¾
do in 50 ₱ bxs	—	@	12
do in 25 ₱ bxe	—	@	12¼
Chile A crushed	—	@	11½
Powdered	—	@	11¾
Granulated	—	@	11
Dry granulated	—	@	11½
Hawaiian	8	@	10½
California Basts	—	@	10½
Golden C	—	@	10½
do Key'g grade	—	@	5½
Cal. Syrup in ole	—	@	5½
do in ½ ble	—	@	55
do in kegs	—	@	60
Hawaiian Molasses	25	@	27½
TEA.			
Oolong, Canton, ₱ lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingeuey	46	@	80
do Moyune	50	@	90
Gunpo'der, Cant.	30	@	42½
do Pingeuey	50	@	90
do Moyune	55	@	1 25
Yng Hy. Canton	28	@	40
do Pingeuey	40	@	70
do Moyune	65	@	85
Japan, ½ oheste, bulk	30	@	75
Japan, lacquered bxs, 4½ and 5 ₱s	45	@	67
Japan do, 3 ₱ bxe	45	@	90
do pl'n bx, 4½ ₱	35	@	65
do ½ ₱ paper	30	@	55
TOBACCO—Jobbing.			
Bright Navys	50	@	60
Dark do	45	@	55
Dwarf Twist	57	@	62½
12 inch do	57	@	62½
Light Pressed	65	@	70
Hard do	60	@	70
Conn. Wrap'r	40	@	50
Penn. Wrapper	20	@	30
Ohio do	7	@	15
Virgi's Smok'g	60	@	95
Fine ot ohe'g, gr	8 50	@	9 25
Fine cut ohew-ing, bucts	60	@	75
Banner flae cut	—	@	90
Eureka Osia	8 75	@	9 00
TURPENTINE.			
Eastern	60	@	65

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none hnt worthy men.

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SCIENTIFIC PRESS.—The attention of our readers is called to an interesting article on the Mining Interests of Northern Sierra, on the first page of this issue, from the SCIENTIFIC PRESS, San Francisco. This is the ablest, most instructive and influential Mining Journal published in the Great West, and should be liberally patronized by all our mining friends.—*Mountain Messenger*, April 25.

Froiseth's New Sectional, Topographical and Mineral

MAP OF UTAH.

SIZE, 40 BY 56 INCHES; SCALE, 8 MILES TO AN INCH.

Handsomely engraved on stone, colored in counties, and mounted on cloth, showing the Counties, Towns, Rivers, Lakes, Railroads, Mines end Mining Districts throughout the Territory, end all GOVERNMENT SURVEYS made to date. Price, mounted, $8; Pocket form, $5.

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Showing the boundaries of the principal mining districts, some 30 in number, adjacent to Salt Lake City. Price, pocket form, $2.50.

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A MAMMOTH FREE PAPER.

—THE—

MECHANICS' FAIR

DAILY.

Having been awarded the publication of the Daily Newspaper in the Pavilion during the Fair of the Mechanics' Institute of the City of San Francisco, commencing August 18th, 1874, we would respectfully announce that no efforts will be spared to issue a

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13v29-tf

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"*The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated.*"

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Black Mountain Coal Mining Company.

Principal place of business, City and County of San Francisco, Cal. Location of works, Santa Cruz County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 28th day of August, 1874, an assessment of 5 cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 402 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinqnent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 2d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

F. H. WELLS, Secretary.

Office—No. 402 Montgomery street, room No. 23, San Francisco, Cal. sep5

Confidence Mining Company---Location of

Principal place of business, San Francisco, Cal. Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the nineteenth (19th) day of September, 1874, an assessment of thirty (30) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 217 Sansome street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the twenty-sixth (26th) day of October, A. D. 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the sixteenth (16th) day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. S. ANDERSON, Secretary.

Office—No. 217 Sansome street, San Francisco, Cal. sep26-4t

Eagle Quicksilver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, Santa Barbara county, California.

NOTICE.—There are delinqnent upon the following described stock, on account of assessment (No. 8) levied on the 23d day of July, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Hawley, E K	unissned	2	$300 00
Paine, Mrs Sarah D H	unissned	1	150 00
Paine, Geo	unissued	5-10	40 87½
Paine, Orlando	unissned	5-16	46 87½
Erskine, Laura	unissned	4-16	37 50
Erskine, Laura Paine	unissued	2-16	18 75

And in accordance with lew, and the articles of agreement of said company, and an order of the Board of Directors, made on the 23d day of Jnly, 1874, the whole or such undivided part of each delinqnent share in said mine as may be necessary, to pay said assessment upon each, will be sold to the highest bidder, at public auction, for cash, in United States gold coin, at the office of the company, rooms 5 and 6, No. 302 Montgomery street, San Francisco, Cal., on Monday, the 28th day of September, 1874, at the honr of 2 o'clock P. M., of said day, to pay said delinqnent assessment thereon, together with costs of advertising and expenses of the sale.

WM. H. WATSON, Secretary.

Office—Rooms 5 and 5, No. 302 Montgomery street, San Francisco, Cal.

El Dorado North Mining Company—Location of

principal place of business, San Francisco, California. Location of works, Philadelphia Mining District, Belmont, Nye County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the fonrth day of August, 1874, the several amounts set opposite the names of the respective shareholders as follows:

OLD STOOK.

Names.	No. Certificate.	No. Shares.	Amount.
E McFaddin, Trustee	10	100	$100 00
M J McDonald, Trustee	45	5000	5000 00
M J McDonald, Trustee	49	500	500 00
M J McDonald, Trustee	50	500	500 00

NEW STOCK.

E A Richardson, Trustee	6	100	50 00
J B Warren, Trustee	11	50	25 00
J B Warren, Trustee	12	50	25 00
J B Warren, Trustee	20	50	25 00
E A Richardson, Trustee	26	100	50 00
E A Richardson, Trustee	32	100	50 00
E A Richerdson, Trustee	41	100	50 00
E G DeOrano, Trustee	40	50	25 00
E G DeCrane, Trustee	52	100	50 00
J B Warren, Trustee	59	20	10 00
D Driscoil & Co, Trustees	05	10	5 00
Schmiedell, Hochstadter & Co, Trustees	69	20	10 00

And in accordance with law, and an order of the Board of Directors, made on the fourth day of August, 1874, so many shares of each parcel of such stock as may be necessary will he sold at pnblic enction at the salesroom of Maurice Dore & Co., No. 326 Pine street, San Francisco, Californie, on Tnesday, the sixth day of October, 1874, at the hour of 1 o'clock P. M., of such day, to pey delinquent assessments thereon, together with costs of advertising and expenses of the sale.

FRANK SWIFT, Secretary.

Office—Room No. 4, Heyward's Building, No. 419 Oelifornia street, San Francisco, California. sep19

Electric Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 3d day of September, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public anction, and onless payment is made before, will be sold on Wednesday, the 4th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—No. 318 California street, San Francisco, Cal. Room No. 13. sep5

Germania Mining Company—Location of

principal place of business, San Francisco, State of California. Location of works, Tintic District, Juab County, Utah Territory.

Notice is hereby given that at a meeting of the Directors, held on the fifth (5th) day of August, 1874, an assessment (No. 2) of one dollar per share was levied upon the capital stock of the company, payable immediately, to the Secretary, at the office of the Company, 408 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the twelfth (12th) day of September, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the second (2d) day of October, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. W. TRIPP, Secretary.

Office—No. 408 California street, room 16, San Francisco, Cal. ag15

Kincaid Flat Mining Company---Location

of principal place of business, San Francisco, Cal. Location of Works, Sonora, Tuolumne County, Cal.

NOTICE—There are delinquent upon the following described stock, on account of assessement levied on the eighteenth day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L Thompson	17	10	$20 00
L Thompson	18	10	20 00
L Thompson	53	20	40 00
L Thompson	54	20	40 00
L Thompson	126	5	10 00
L Thompeon	127	5	10 00
A Ludlum	19	10	20 00
A Ludlum	20	10	20 00
A Ludlum	21	10	20 00
A Ludlum	22	10	20 00
A Ludlum	40	5	10 00
R H Coruell	132	10	20 00
T D Melville	136	20	40 00
T D Melville	137	12	24 00
T D Melville	138	10	20 00
I D G Isham	140	50	100 00

And in accordance with law, and an order of the Board of Directors, made on the 18th day of August, 1874, so many shares of each parcel of said stock as may he necessary, will be sold at public enction at the auction house of R. D. W. Davis, 217 Sansome street, San Francisco, on the twelfth day of October, 1874, at the hour of one o'clock, P. M., of said day, to pay said delinqnent Assessment thereon, together with costs of advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office—217 Sansome street, (up stairs,) San Francisco, California. sep26

Manhattan Marble Company of California.

Location of principal place of business, San Francisco, California. Location of works, Oakland, Alameda County, State of California.

Notice is hereby given, that at a meeting of the Directors, held on the 26th day of August, 1874, an assessment (No. 5) of two dollars per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary of the company, at his office, No. 212 Sansome street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 29th day of September, 1874, shall be deemed delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 20th day of October, 1874, at 12 o'clock M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. A. B. CLASON, Secretary.

Office—No. 212 Sansome street, San Francisco, California. sp29

Oceanic Quicksilver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, San Simeon Mining District, San Luis Obispo County, California.

Notice is hereby given, that at a meeting of the Directors, held on the 12th day of september, 1874, an assessment (No. 1) of forty cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company, 438 California street, up stairs, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 13th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 10th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. F. CRONISE, Secretary.

Office—No. 438 California street, San Francisco, Cal.

Saw Pit Flat Gravel Mining Company

Consolidated—Location of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Pinmas County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 17th day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Allen, D H	48	25	$125 00
Clark, J W, Trustee	22	66	330 00
Clark, J W, Trustee	23	10	50 00
Clark, J W, Trustee	24	10	50 00
Clark, J W, Trustee	25	10	50 00
Clark, J W, Trustee	26	10	50 00
Clark, J W, Trustee	27	3	15 00
Clark, J W, Trustee	28	3	15 00
Clark, J W, Trustee	29	3	15 00
Clark, J W, Trustee	30	3	15 00
Clark, J W, Trustee	31	3	15 00
Clark, J W, Trustee	45	6	30 00
Dexter & Co	47	25	125 00
Dond, E S, Trustee	63	20	100 00
Doud, E S, Trustee	54	20	100 00
Doud, E S, Trustee	65	5	25 00
Dond, E S, Trustee	66	5	25 00
Engelbrecht, H	51	5	25 00
Engelbrecht, H	52	5	25 00
Engelbrecht, H	53	5	25 00
Engelbrecht, H	54	5	25 00
Engelbrecht, H	55	5	25 00
Engelbrecht, H	56	6	30 00
Garuess, J R	68	25	125 00
Garuess, J R	69	25	125 00
Garuess, J R, Trustee	70	12	60 00
Hinckley, Geo E, Trustee	71	10	50 00
Hinckley, Geo E, Trustee	72	10	50 00
Hinckley, Geo E, Trustee	73	10	50 00
Hinckley, Geo E, Trustee	74	10	50 00
Hinckley, Geo E, Trustee	75	5	25 00
Hinckley, Geo E, Trustee	76	5	25 00
Hinckley, Geo E, Trustee	77	5	25 00
Hinckley, Geo E, Trustee	78	5	25 00
Hinckley, Geo E, Trustee	79	3	15 00
Lewis, S & Co	2	3	15 00
Levy, H	57	5	25 00
Levy, H	58	5	25 00
Levy, H	59	5	25 00
Levy, H	60	5	25 00
Levy, H	61	5	25 00
Levy, H	62	6	30 00
Phillips, D L	44	62	310 00
Phillips, D L	67	1	5 00
Slawson, J S	32	11	55 00
Sherp, Wm H	82	125	625 00
Small, A E H Mrs	80	20	100 00
Thomes, J H	3	10	50 00
Thomas, J H	4	10	50 00
Thomas, J H	5	10	50 00
Thomas, J H	6	10	50 00
Thomas, J H	7	10	50 00
Thomas, J H	8	10	50 00
Thomas, J H	9	10	50 00
Thomas, J H	10	10	50 00
Thomas, J H	13	6	30 00
Thomas, J H	14	5	25 00
Thomas, J H	15	5	25 00
Thomes, J H	16	5	25 00
Thomas, J H	17	5	25 00
Thomas, J H	18	5	25 00
Thomas, J H	19	5	25 00
Thomas, J H	20	5	25 00
Thomas, J H	21	5	25 00

And in accordance with law, and on order of the Board of Directore, made on the seventeenth (17th) day of August, A. D., 1874, so many shares of each parcel of snch stock as may he necessary will be sold at public anction at the office of said company, on Thursday, the fifteenth (15) day of October, 1874, at the hour of two (2) o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of the sale.

J. W. CLARK, Secretary.

Office—No. 418 California street, room No. 2, San Francisco, Cal.

Stanislaus River Mining Company—

Location of principal place of business, San Francisco, California. Location of property and works, Stanislaus River, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees held on the 23d day of September, 1874, an assessment (No. 4) of twenty cents per share, was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 113 Leidesdorff street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Tuesday, the 27th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 13th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

WILLIAM STUART, Secretary.

Office, 113 Leidesdorff street, San Francisco, California. sep26

Taylor Mill and Mining Company--Location

of principal place of business, City and County of San Francisco. Location of works, Garden Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 21st day of September, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 607 Montgomery street, in the City and County of San Francisco.

Any stock upon which this assessment shall remain unpaid on the 28th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 23d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

SAMUEL S. MURFEY, Secretary,

Office, No. 607 Montgomery street, City and County of San Francisco, California. sep26

Tuolumne Hydraulic Mining Company.

Location of principal place of business, City and County of San Francisco, State of California. Location of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 3, levied on the nineteenth day of August, 1874, the several amounts set oppoeite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J M Briceland	49	500	$62 50
J M Briceland	50	500	62 50
J M Briceland	51	500	62 50
E Van Santen, Trustee	14	100	12 50
E Van Santen, Trustee	15	100	12 50
E Van Santen, Trustee	16	100	12 50
E Van Santen, Trustee	17	100	12 50
E Van Santen, Trustee	18	100	12 50
E Van Santen, Trustee	19	100	12 50
E Van Santen, Trustee	20	100	12 50
E Van Santen, Trustee	21	100	12 50
E Van Santen, Trustee	22	100	12 50
E Van Santen, Trustee	23	100	12 50

And in accordance with law, and an order of the Board of Directors, made on the 19th day of August, 1874, so many shares of each parcel of snch stock as may be necessary, will be sold at public auction, at the office of the Secretary, Room 14, 302 Montgomery street, San Francisco, on Monday, the twelfth (12) day of October, 1874, at the hour of 12 o'clock M., of anch day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

I. T. MILLIKEN, Secretary,

Office—Room 14, (up stairs,) 302 Montgomery street, San Francisco, Cal.

Machine Builders.

THE RISDON

Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of Iigbt and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
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MANUFACTURERS OF
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Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
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HAMMERED IRON
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☞ The highest price paid for Scrap Iron.

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CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
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STEIGER & BOLAND,
IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the Hepburn Rolling Pan and Callahan Grate Bare, suitable for Burning Screenings.
NOTICE.—Particular attention paid to making Superior Shoes and Dies. 20v26.3m

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Brace, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch
☞ PRICES MODERATE. ☜
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MANUFACTURERS OF
MACHINERY OF EVERY DESCRIPTION.
SOLE MANUFACTURERS OF
MOORE'S PATENT STORE HOIST.
N. D. ARNOT, Manager,
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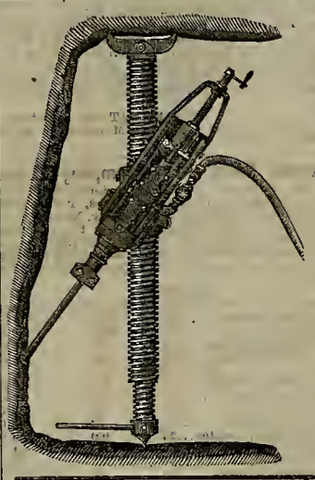
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.
LIGHT AND HEAVY CASTINGS,
of every description, manufactured. 2av16qr



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PNEUMATIC DRILLING MACHINES,

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Sole Agents for States and Territories west of the Rocky Mountains, 108½ Leidesdorff street, Hayward's Building, San Francisco, Cal. 21v28-3m-bd14p

DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

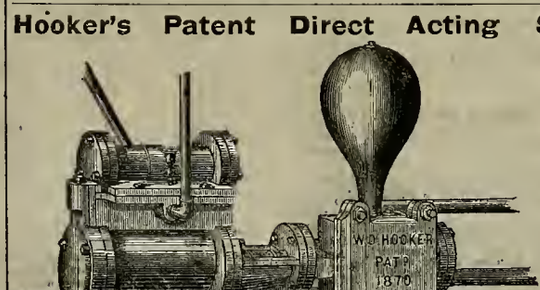
NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	5	6	6	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches	2	2½	3	3½	3½	4	5	5	6	7	8	9
Stroke of Piston, in inches	6	6	7	8½	10	11-6	12-6	13½	15	15½	18	18
Capacity per double Stroke, in gallons	1-6	¾	1	1½	2	2½	3	3½	4½	6	8	10
Capacity at ordinary Speed, per minute	15	45	85	100	135	165	240	300	360	675	900	1200
Number of Strokes they will supply	40	80	80	120	150	225	350	425	600	...	...	...
Diameter of Steam Pipe, in inches	¾	1	1	1½	1½	1½	2	2	2½	2	2	2½
Size of Exhaust Pipe, in inches	¾	1	1	1½	2	2½	3	3	3	3	3	4
Size of Suction Pipe, in inches	1	1¼	1½	2	2½	2½	3	4	5	6	6	6
Size of Discharge Pipe, in inches	¾	1	1½	1½	2	2	2	3	3	4	5	6
Weight of Pump, in pounds	185	235	400	435	810	875	1180	1500	1612	2450	3375	4800
Length over all, in feet and inches	8-4	3-4	3-10	3-10	4-11	4-11	5-4	5-6	6-6	6-10	7-7	8
Height over all, in feet and inches	2-3	1-9	2-3	2-3	3-1	3-1	3-7	4-3	4-8	4-7	5-7	6
Width over all, in feet and inches	1-6	2-3	1-1	1-1	1-3	1-4	1-6	1-10	1-10	2-1	2-9	2-10
PRICE	$ 9	$ 10	$ 1-1	$ 1-1	$ 1-3	$ 1-4	$ 1-6	$ 1-10	$ 1-10	$ 2-1	$ 2-9	$ 2-10

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS, No. 4, 24-in. Stroke, $
No. 5, 24-in. " $
No. 6, 30-in. Stroke, $
No. 7, 30-in. Stroke, $
No. 8, 36-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

Hooker's Patent Direct Acting Steam Pump.



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SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.
The Best Pump in Use.

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Manufacturers of Quartz and Amalgamating Machinery. Hoisting Machinery, Saw and Grist Mill Irons, House Fronts. Car Wheels, and Castings of every description made to order.
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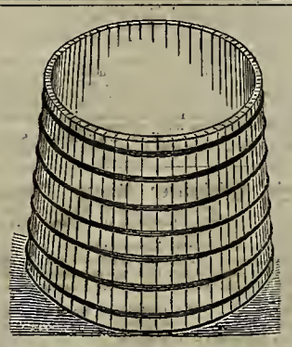
Machinery and Castings of all kinds.



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Machinery.

THE
AMERICAN TURBINE WATER WHEEL

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ¾ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "These are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

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SAN FRANCISCO, CAL.

Sole Agents for the Pacific States and Territories.
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BALL'S

SWEEPING DREDGE,

A NEW AND VALUABLE

CALIFORNIA INVENTION,

Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a *basis* of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

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BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st., between Fremont and Beale, San Francisco

THEODORE KALLENBERG.

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

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Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by
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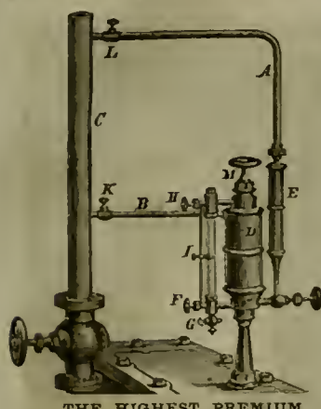
N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; 1, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Man factured by California Brass Works, 125 First street, S F. 24v23tf

EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)

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Parties desirous of building above furnace, or for any information on same, address,

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FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy.*

Die. Shoe

Will wear three times longer than any iron Shoes

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Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.
All orders promply filled.

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Examination solicited. 9v28.1y

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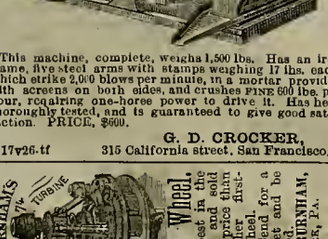

This machine, complete, weighs 1,500 lbs. Has an iron rame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

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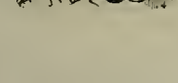

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The best in the Market, and sold at less price than any other first-class Wheel. Send for a Pamphlet and be convinced.

N. F. BURNHAM, YORK, PA.
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Improved Cast and Forged STEEL SHOES & DIES FOR QUARTZ MILLS.

[PATENTED MAY 26TH, 1874.]

To Superintendents of Quartz Mills and Mining Men Generally.

We guarantee these SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent cheaper. They are gradually coming into use in all of the principal mills on this coast.

Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.

Address all orders, with dimensions, to

CAST STEEL SHOE & DIE CO.,
Room 1, Academy Building, San Francisco.
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THE SELDEN DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
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Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

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FRANCIS SMITH & CO.,

MANUFACTURERS OF

HYDRAULIC PIPE

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Artesian Well Pipe.

Having the Latest Improved Machinery, we can make it an object to

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WATER WORKS,

TO CONTRACT WITH US FOR

SHEET IRON PIPE.

ALL SIZES MADE AND ALL WORK GUARANTEED

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TRADE MARK

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Manufacturers of Files of every Description.

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Sold by all the principal hardware stores on the Pacific Coast. 18v25.1y

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The undersigned, owners of LESCHOT'S PATENT for DIAMOND POINTED DRILLS, now brought to the highest state of perfection, are prepared to fill orders for the IMPROVED PROSPECTING and TUNNELING DRILLS, with or without power, at short notice, and at reduced prices. Abundant testimony furnished of the great economy and successful working of numerous machines in operation in the quartz and gravel mines on this coast. Circulars forwarded, and full information given upon application.

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Brittan, Holbrook & Co., Importers of Stoves and Metals, Tinners' Goods, Tools and Machines; 111 and 113 California St., 17 and 19 Davis St., San Francisco, and 178 J St., Sacramento. mr.-1y

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JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

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Chemical Apparatus and Chemicals,

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We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

ASSAYERS' MATERIALS

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Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

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Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

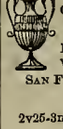
The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Millmen are invited to examine these pans and setters for themselves, at the office, 229 Fremont Street, San Francisco.

Important to Miners and Mill Men.

Silver-Plated Copper Amalgamating Plates, for Saving Gold.



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We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

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Vessels, Apparatus, Sheet, Wire, Etc., Etc.

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Ores worked by any process.
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Special attention paid to the Mining and Metallurgy of Quicksilver.

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ADVANCES MADE

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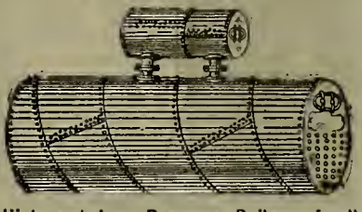

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SHEET IRON WORK of every description done at the Shortest Notice.

All kinds of JOBBING and REPAIRING promptly attended to. 17v25-3m

ARE YOU GOING TO PAINT?

THEN USE THE BEST.

THE AVERILL CHEMICAL PAINT

WILL LAST THREE TIMES AS LONG as the best lead and oil, without CHALKING; is of any desired color. It is prepared for immediate application, requiring no Oil, Thinner or Drier, and does not spoil by standing any length of time. It is equally as good for inside as outside work; over old work as well as new; in fact, where any paint can be used the AVERILL CHEMICAL PAINT will be found superior to any other. Any one can apply it who can use a brush, which truly makes it the FARMER'S FRIEND.

IT IS JUST THE PAINT FOR THE AGE.

IT IS SOLD BY THE GALLON ONLY.

One gallon covers 20 square yards 2 coats.

For further information send for sample card and price list.

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The California Chemical Paint Company.

TYLER BEACH, Pres't. M. C. JEWELL, Sec'y.

Office—Corner Fourth and Townsend streets, San Francisco. 16v7-eow-hp-3m

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

Standard sizes of railroad Car Wheels, with special patterns for Mining Cars. These small wheels are made of the best Car Wheel Iron, properly chilled, and can be fitted up with the improved axle and box—introduced by this company, and guaranteed to outlast any other wheels made in this State.

☞ All kinds of Machinery made and repaired.

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NONPAREIL OIL.

140 Degrees Fire Test, for Family Use.

OWNERS OF MILLS AND MANUFACTORIES, your attention is particularly called to this beautiful and safe ILLUMINATING OIL. Its use is urgently recommended by the New York Fire Commissioners and Insurance Companies. For sale to the trade in lots to suit. A. HAYWARD, 224 California St.
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BIRCH, ARGALL & CO.,

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Keating's Sack Printing Presses,

THE ECONOMY HYDRAULIC HOIST FOR STONES,

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PURCHASERS please say advertised in Scientific Press.

THE KNOX & OSBORN QUICKSILVER FURNACE.

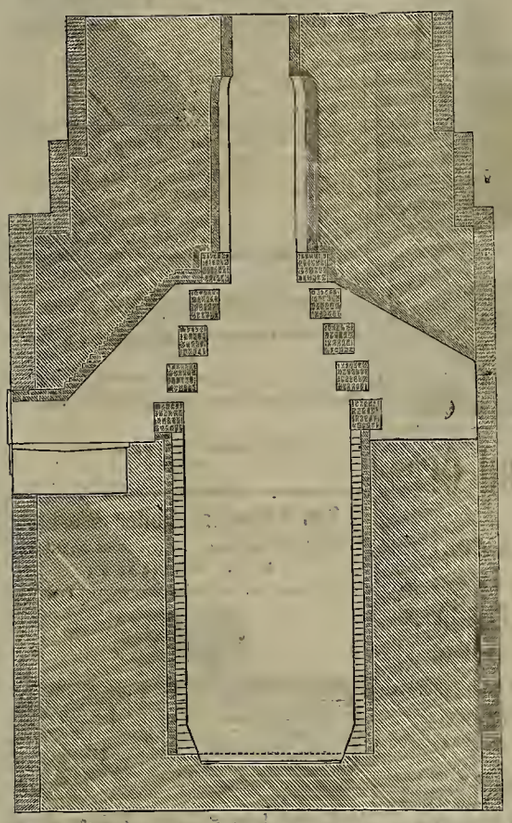

Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches. 16v28-eow-3m-16p

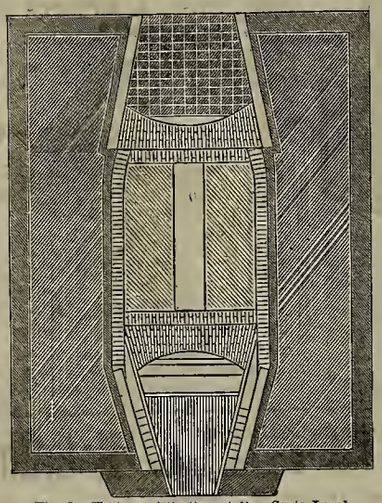

Fig. 3.—Horizontal Section at Fire-Grate Level.

THIS FURNACE REDUCES CINNABAR, AND

WORKS CLOSER TO AN ASSAY

And at **LESS COST** per ton than any other furnace. It will work continuously Twelve to Twenty-four months without stopping.

No Man Has Ever Been Salivated

Or otherwise affected by the mercury about the furnace, either in opersting it or making repairs. For full particulars, plans, etc., apply at

19 AND 21 FIRST STREET, SAN FRANCISCO,

TO KNOX & OSBORN.

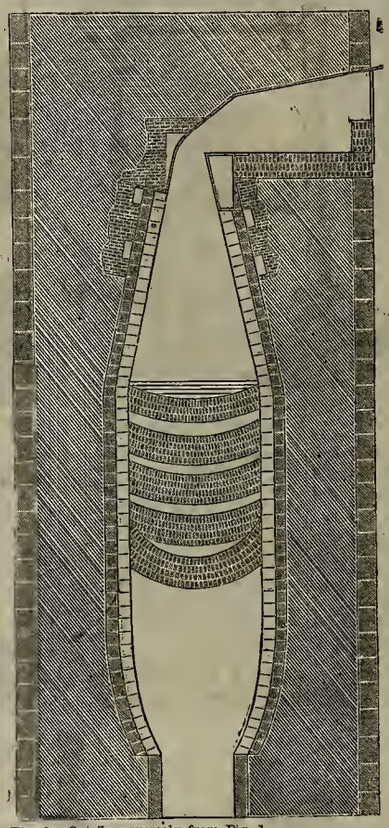

Fig. 2.—Cut Transversely from Fig. 1.

TO MILLMEN AND MINERS.

ASSIGNEES' SALE IN BANKRUPTCY.

NOTICE IS HEREBY GIVEN THAT THE UNDERsigned, under and by virtue of the power and authority vested in them, and by virtue of an order of the District Court of the United States for the District of California, made and entered on the 16th day of September, A. D. 1874, in the matter of the MENDHA SILVER MINING COMPANY, Bankrupt, will sell at public auction, in the city and county of San Francisco, at the auction salesroom of John Middleton & Son, No. 310 Montgomery street, on

Friday, the 23d day of October, A. D. 1874

At 12 o'clock, M.,

All that certain mining and mill property and premises situate in Highland Mining District, near Pioche, State of Nevada, described as follows, to-wit:

One twenty-stamp mill and machinery, together with the appurtenances belonging to the same and necessary for the proper working thereof;

Also, the mill site and the spring known as Mendha Spring, and the tract of land surrounding the same to the extent of twenty(20) acres;

Also, all the water-pipe connecting the springs with said mill;

Also, the buildings, office, stable, boarding-house, etc., upon said land and adjacent to said mill;

Also, the "Stetefeldt" furnace in said mill;

Also, the following named mines, to-wit:

Mendha Mine;
Mendha West Extension Mine;
Regent Mine;
Arizona No. 2 Mine;
Chief Mine;
Crown Prince Mine;
Sadowa Mine;
Alaska Mine, and
Mendha East Extension Mine;

Also, the hoisting works, machinery and all other appurtenances connected with said mines, mill and premises.

Said property is known as the Mendha Mill and Mines.

Terms of Sale—Cash in U. S. gold coin; ten per cent. on fall of hammer, balance on confirmation by U. S. District Court.

For particulars respecting this property apply to the undersigned, at their respective places of business, and to J. M. SEIBERT, Agent of Wells, Fargo & Co., at Pioche, Nevada

Dated San Francieco, September 17, 1874.

WILLIAM A. SCOTT, JR.,
At Wells, Fargo & Co.'s, San Francisco.
And HENRY C. HYDE,
Room 21, No. 411½ California street, San Francisco.
Assignees of Mendha Silver Mining Company, Bankrupt.
John Middleton & Son, Auctioneers. sep26-4t

Cazin's Combination Ore-Sizer and Concentrator—One Plunger System.

[Covered by Letters Patent of July 2d, 1872, and recent applications.]

Containing a sizing apparatus, (revolving screen) delivering four sizes of ore to four rows of sieves, each row independent of the other, and each having 5 sieves, each row concentrating according to specific gravity the special size automatically fed unto it, resulting in the simultaneous continual delivery of separated materials, working 3d and 3d-class ores into 1st-class ores of perfect cleanness. It thoroughly separates native gold or copper from quartz or any other lode matter;—galena and silver sulphurets from pyrites, baryta and quartz; and pyrites from quartz.

Added to a battery of stamps this machine constitutes a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 12 or 15 tons per 24 hours.

For particulars apply to,

F. CAZIN, M. & C. E.

At Denver, Colorado. Lock-Box 2225, or 243 Sixteenth street. ag8-16p

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MINERS write for your paper.

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Manufacturers of
STEEL AND CASE HARDENED SET MACHINE AND CAP
SCREWS
QUALITY AND FINISH UNSURPASSED.
7 & 9, S. JEFFERSON ST. CHICAGO.
SCREWS FOR ALL PURPOSES
MADE TO ORDER

13v29-12t

GIANT POWDER.

Patented May 26, 1868.

THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,

For hard and wet Rock, Iron, Copper, etc., and Snbmarine Blasting.

GIANT POWDER, NO. 2,

For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.

☞ The only Blasting Powder nsed in Europe and the Eastern States.

BANDMANN, NIELSEN & CO.,
General Agents, No. 210 Front Street.
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GUIDO KUSTEL, - - - Superintendent.

WILL PURCHASE GOLD AND SILVER BEARING ORES, CUPERIFEROUS SILVER ORES, GOLD SULPHURETS, ETC., AT THE HIGHEST RATES, OR WORK THE SAME FOR ACCOUNT OF OWNERS.

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N. W. SPAULDING,

Saw Smithing and Repairing ESTABLISHMENT.

Nos. 17 and 19 Fremont Street, near Market.

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SPAULDING'S

Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect.

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

W. T. GARRATT.

CITY Brass and Bell Founder,

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MANUFACTURERS OF

Brass, Zinc and Anti-Friction or Babbet Metal CASTINGS,

Church and Steamboat Bells,

TAVERN AND LAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles, HYDRAULIC PIPES AND NOZZLES for mining purposes, Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

FOR SALE.

One 20 and one 10-Stamp Quartz Mill with Hoisting and Pumping Engines, Pumps, Columns, Tubs, Cars, &c., good as new.

A. L. FISH,
tf 9 and 11 First St., S. F.

MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, OCTOBER 3, 1874.

VOLUME XXIX Number 14.

Improved Air Compressors.

William H. Fauntleroy, of Eureka, Nev., has recently patented through the agency connected with this office, an apparatus for multiplying, accumulating and storing power to be used for the various purposes for which other and more costly power is at present employed. His improvement contemplates the employment of a hydrostatic engine which may be operated by any suitable power, for the purpose of compressing air, so that the air may be transmitted by proper means to any point or points where it can be used for motive purposes.

Figure 1 of the accompanying engravings represents a sectional elevation of the apparatus. A C M is a vessel containing water or other fluid, the surface areas of the cylinders, C, and A, being, for the purpose of illustration, as 1 to 10. D is a water wheel, E a walking beam, and B an air reservoir. F is a piston rod carrying head in the cylinder C. G is the crank which is attached to the end of the wheel shaft, and which is connected with the walking beam by the connecting rod, H. K K are guide rods connecting with the diaphragm, L, and attached to a collar around the reservoir, B. These rods play on two guides on the sides of the air reservoir B, and are connected to the beam, E, by rod O. L is a diaphragm carrying two piston heads, *i*, *n*, the lower one, *i*, on the surface of the water and the upper and smaller one, *n*, playing in the cylinder Z, which is of the same surface area as the cylinder, C. Z has air pipes, *s*, *s*, leading through the reservoir, B, or has a valve in the cylinder head opening upward and receiving air from the diaphragm space, which will be provided with air-valves opening inward. V is a valve opening upward into the air-reservoir, B. N, N, is the gallows or supporting-frame, and P is a pipe for the transmission of force when needed, now shown closed.

A pump, X, or reservoir, will be required to supply water, as it will lose by evaporation. Temperature and pressure gauges and safety valves are also provided. The metal is calculated to withstand a pressure far within the bounds of safety. Thus force and its equivalent in heat may be transmitted under pressure to distant localities.

Figure 2 is an upright cylinder which is intended to take the place of the cylinder, A, in Fig. 1, where it is desired to produce heat by compression of air. There is no difference in the construction of the machine, except that below the valve, Y, there is a very small and long aperture, or a number of them, through a solid block of metal bushed with platina or other metal, so that when the upstroke is made by the diaphragm, L, the air or gas in the cylinder, Z, will be compressed through the aperture into the air reservoir, B, with multiplied force and in consequence of the violent compression and friction the air or gas will be expanded, and a great degree of force and heat will be produced in the reservoir, B; sufficient, the inventor claims, to warm houses, cook food, reduce ores, disintegrate substances, prepare anhydrous lime, and generally for all purposes of science, art, manufacture and domestic use for which heat is now, or may hereafter be used, it being the mechanical equivalent of force.

This machine, it is claimed will produce highly expanded gas of any kind, before or after transmisson, by admitting the gas into the cylinder, Z, through the tubes connected therewith, and forcing it into the reservoir, B, through the aperture, from where it will pass through the pipe, P, to distant localities.

Pressure gauges will show the pressure. Temperature and pressure being proportional, temperature will show the pressure. These gauges afford the means of utilizing the hours of night as any given pressure may be sent in any given direction. Reservoirs of proportional area give a proportional amount of force, and the amount used may be measured by a meter. Water and all fluids may be transmitted in the same manner by means of pipes and reservoirs, provided that in no instance must the point of desired transmission be at a greater hight than the original reservoir. The inventor provides that engines and condensers now in use may be employed. The pipes and reservoirs are supplied with pressure and temperature gauges, safety valves, connections and stop cocks where needed.

The inventor does not claim the hydrostatic principle involved in this invention. He claims that by the use of force thus supplied to places more or less remote, railroad cars, vehicles, factories and vessels plying upon the navigable waters, can be propelled, and that heat can be supplied for the arts and sciences, and every conceivable domestic use, where force heat and gases are now or hereafter may be used.

In describing his invention, Mr. Fauntleroy writes as follows: "It will be observed by tracing the effect of this machine through its several parts, that it affords a clear and vast multiplication of force and heat. That in case of small cylinder head has an area of 100 square inches, for illustration, it will excel a force of 1,600 pounds to the square inch. We therefore pick up the time that was lost in the hydrostatic press" while the accumulated force has been preserved. I therefore announce that this machine affords a clear and vast multiplication of force and heat. It will multiply a water stream, a coal mine, or any other source of force many times conveniently. It will remultiply force or heat after being once obtained.

"Force and heat are proportional, and can be converted one into the other. By substituting the cylinder with narrow aperture, the air and the gases may be immediately expanded, by the very great compression and friction resulting from the force attainable by this machine. Again, if the small cylinder head in the diaph-

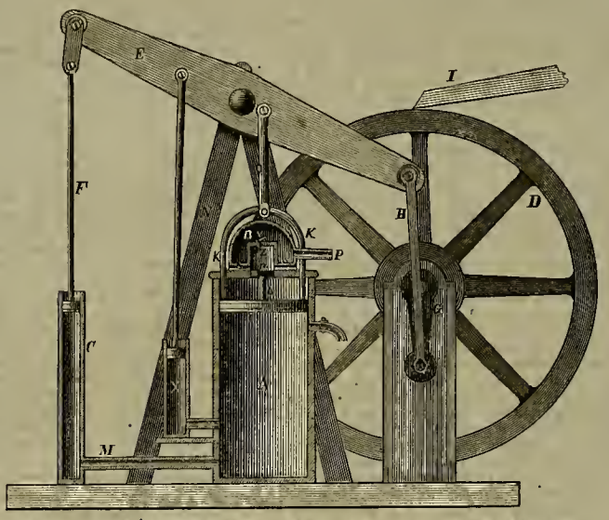

FIG. 1. FAUNTLEROY'S IMPROVED AIR COMPRESSOR

water power being the source of supply, its run without fuel and without attendance, except to keep it clean. If the force on the wheel be 4,000 pounds, then on the crank, which is one-fourth of the semi-diameter, it will exert a force of 16,000 pounds, minus the friction; and it will be 16,000 pounds on the small cylinder,

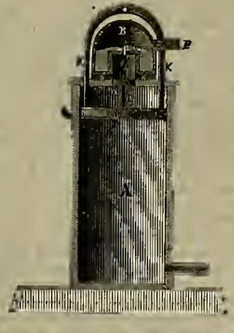

Fig 2. Cylinder to Produce Heat.

C, minus the friction, which is small, and for illustration need not be taken into account. If the small cylinder has an area of 100 square inches, then the force exerted on it will be 160 pounds to the square inch. It will also be 160 pounds to the square inch on the large cylinder, A, which may be 10 times the area, in which case the force exerted on its surface will be 160,000 pounds. We have here accumulated force at the expense of time. This is the hydrostatic press."

"Now, the diaphragm working on the surface of the large cylinder, moves with a force of 160,000 pounds, and the smaller or upper cylinder head being fixed to the large one, also moves with a force of 160,000 pounds. If the ragm be divided longitudinally, it will increase the force 100 per cent., or to 3,200 pounds per square inch in this particular case. Therefore, when heat is desired for domestic use and in the arts and sciences, it can be obtained. Thus, structures of all kinds may be supplied with heat from water power or other force. Wine may be prepared, fruit dried, brick burnt, ores calcined and crushed, mines ventilated, the flow of water increased and pumped over mountains, and all by water power or by coal consumed at the mine, absolutely multiplying a mine many times. A city may be supplied with force and heat for manufacturing and other purposes, with much less expense for water works than has been usual, while a very small pipe will convey multiplied force for extensive use. There is less deterioration than in the use of water by pipes or ditches, there being no loss by absorption. In fact, it enters into all the ramifications of business in life in the most economical manner.

"I have also caveated a high-force engine for factories, cars, vehicles, etc., which for economy and simplicity I consider unequaled. There is no fire used, and no insurance necessary. The labor and wear and tear are quite nominal. For particulars, write to the inventor at San Francisco, until further notice. An engineer will be sent with plans and specifications to utilize this invention. Exclusive rights are for sale for the United States and other countries."

THUNDERSTORM.—San Francisco and vicinity was treated on Wednesday to a display of a regular old-fashioned thunderstorm. From a few minutes before six o'clock, till about seven, vivid flashes of lightning followed each other almost continuously, accompanied by frequent and heavy bursts of thunder. But little rain fell. The storm took a north-westerly direction. It was the severest electric disturbance ever known in this region, and astonished "the oldest inhabitant." Some of our people are beginning to think that earthquakes have left us and thunderstorms taken their place.

Patronize Home Manufactures.

One of the main objects of such an exhibition as the one just concluded in this city is the facility which it affords our mechanics and other producers for advertising the fact that they are able to supply the public with all the thousands of objects which they have, collectively, on exhibition, and of which that public are in daily need. No Californian could visit the Pavilion without indulging in a feeling of pride at the really surprising exhibition which is there made of what can be done in a city of twenty-five year's growth, and which has been built up with an intervening uninhabited space of 2,000 miles extent between itself and its nearest metropolitan neighbor! If every one who thus glories in the progress which has been made by our city and State, and feels a just pride in being a Californian, would only give his countenance and support, when practicable, to California productions and manufactures, our progress would be vastly accelerated. Artists, inventors, producers and workmen, generally, are pleased when a discriminating public praises and approves their skill and industry; but approbation is of little value unless it is accompanied with the solid, substantial benefit of patronage in preference to foreign productions.

In the early Fairs of this city our own artisans had very little to present of their own workmanship; consequently visitors were called upon to look at long arrays of foreign products, and there was for that reason but little enthusiasm manifested in the exhibitions. Now all that is changed; and our home manufacturers took nearly all the space in the Mechanics' vast Pavilion, and asked you to examine the handiwork of our own artisans. Gold was then the chief product of the State. Now it is chiefly to our local manufacturers that we are to look for progress and prosperity; and surely it is not wise economy to let them starve while we fail to benefit ourselves pecuniarily or otherwise in purchasing imported articles. It is poor economy to look abroad for what we want, even when we can save a few cents or dollars by so doing. Our State's prosperity would be impossible under such circumstances.

On looking around the Pavilion we could hardly call to mind anything, except a few specialties depending upon climate rather than skill, which we cannot obtain at our very doors, and from the hands of our producers. Boots and shoes, hats, clothing of almost any kind, silks and ribbons, machinery, tools, jewelry, gold, silver and other plate, carriages and wagons, bedding and furniture either of the richest and most gorgeous description, or of the plainest and most substantial; works of art, whether in painting, sculpture or other schools, are all produced by our own artisans and artists of a quality equal to the best, and at prices as low as they can be obtained from any other quarter. Let us then resolve to ignore all unnecessary importations, and support our own manufacturers.

It is a matter of no little gratulation that the finest hotel on the continent is now being built in this city, and will be provided throughout with furniture made in our own factories. All credit to the enterprising proprietors who have resolved to do so patriotic and praiseworthy an act. The rich will make themselves richer, and vastly increase their popularity by distributing their surplus cash in encouraging the skill and industry of own our mechanics. If the wealthy citizens of San Francisco would seek out and, wherever they can be obtained, purchase for their needs only such articles as are produced on this coast, the money thus invested would return a double interest in the way of encouraging immigration, and in the increased value it would give to real estate, over what it would if invested in the same goods of foreign manufacture.

If this exhibition shall result in inducing our home manufacturers to advertise more pointedly than heretofore the fact that their products are home made, and incline purchasers to bear in mind, when they go to buy, the propriety and importance of patronizing home industry, it will have accomplished not only a great but a most patriotic work, and will be the means of adding millions to the wealth of the State.

The State University.

The Committee of the Board of Regents, appointed to prepare a reply to the memorial of the Committee of Grangers and mechanics remonstrating against the removal of Prof. Carr from the Chair of Agriculture (which memorial has already appeared in these columns), have prepared and published a lengthy reply, from which we make the followiog extracts:

What the University Is.

The committee state that the memorialists "are under a misapprehension in supposiog that the Coogressional grant, as it is called, was 'for the support of State Universities.' The grant was for 'the endowment, support and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may prescribe.' The Act of Congress does not establish a university, but a college, leaving the State great liberty to carry out the details of the plan. The University of California is established by the State of California, and includes the college referred to in the Congressional Act. The law of the State says: 'The University shall have for its design to provide instruction and complete educatioa in all the departments of science, literature, art, industrial and professional pursaits, and general education; and also special courses of instruction for the professions of agriculture, the mechanic arts, mining, military science, civil engiaeering, law, medicine and commerce; and shall consist of varioas colleges, namely: First, colleges of arts; second, a college of letters; third, such professional and other colleges as may be added thereto or connected therewith.' The University is fouuded by the State, and includes the *College* referred to in the Act of Congress."

The Mechanical Department.

The Committee deny that they have totally iguored the mechauical department; but that, on the contrary, that department was early organized with a complete four-years' course, os may he seen by consulting the annual registere published for the last four years.

The Attention Given to Agriculture.

The Regents hold that the memorialists are in error ia the assertion that they have chosea but one professor for Agriculture, while for the College of Letters they have 19 professors snd assistauts. They say that "the students of the College of Agriculture have a *right* to receive instruction from *all* the instructors," and that they are "*compelled* to receive it as a part of their prescribed course from *thirteen* of the professors."

The orgsnic law creating the University, makes it the daty of the Regents to estahlish the College of Agriculture first, and next, the College of Mechanics. This duty the Regents have faithfally discharged. Those two colleges were the first organized. They were the first eqaipped with the necessary material and apparatas. * * * The College of Letters stands precisely ss the Legislature bequeathed it to the Uoiversity.

In reply to the assertion that the College of Agrioulture has been neglected, the Regents call attention to the following facts, premising that not a year has yet passsed since the completion of the huilding and the heginning of instruction at Berkeley. They also remark that Dr. Csrr, uader oath, last winter, before the Legislative committee testified that the Regents had done ss well as they could in the time snd with the money st their disposal. He also testified that the course of instruction compared favorably with that of sgricultural colleges elsewhere. That course of instruction has not since been modified.

The Progress of a Year.

Within the past year the following, among other thiogs, have heen accomplished:

The Berkely property has been surveyed by a competent engineer, the right places marked out for agriculture, horticulture, botanical garden aud forestry, and also for roads, paths, buildings and bridges. This has also been mapped.

A special earvey has been made of the water rights of the University, so that the snpply of water for household and garden purposes and the drainage may be wisely regulated.

The grounds have been placed under the charge of a competent agriculturist, who is also by law the Secretary of the Board, residing and holding his office at Berkeley.

With him is sssociated a well trained gardener, who has charge of horticultural work.

The manual labor of the students have heen employed and paid for at good prices.

A convenient propagating house, with the necessary appurtenances, has been oonstrncted.

A barn hae been contracted for.

Additions have been made to the Agricultural and Botanical Museums.

A special appropriation of $1,000 has been made for the purchase of Auzoux models, showing the interual structure of domestic animals and plants.

The lecture diagrams made use of by the late Professor H. J. Clarke, of the Amherst Agricnltural College, have been bonght.

Four Eastern gentlemen, familiar with the agricultural schools of other states, have heen invited to come here and give special instruction to the students in agriculture, ia addition to what they will receive as heretofore from the Professor of Agriculture.

Arrangements are msking to secure the aid of California agricnlturists in the specialties of which they are devoted, and to enable the students to visit the best fsrms, dsiries snd gardens of the neighborhood.

A diploma, equal if not superior to thst given in the College of Letters, and sppropriate to aid the scientific colleges; has been engraved and given to the agricultursl grsduates of this year and the last.

A printing establishment, at an expense of some $6,000, has also been equipped, where some twenty or thirty students, under proper regulations, will find appropriste practice aud remuneration.

Why Prof. Carr was Removed.

As regards the removal of Prof. Carr the Regents give no other reason than that olready assigned; hut simply claim it their duty to "know more of the fitness or unfitness of any member of the educational stsff than their fellow-citizens of the State, in general can koow."

In relation to the expression of the memorialists in opposition to the appointment of agricultural lecturers, the Regents say in effect that the organic act mokes them the judge of this matter, and that they have acted accordiugly.

In conclnsion the committee expresses the opinion that much apprehension exists with regard to the condition and management of the University, to correct which it advises the people of the State to visit the University aud observe for themselves its administration and system of instruction.

American Metals.

With the rapid development of the mineral resources of the United States the time is not very far distant when this country will oot only be in a position to supply its own consumptive demand, but have a surplus for export.

American copper is now conceded to be the best in the world; and, although only about one-third the world's supply is produced here, the production is rapidly increasing, though in the copper trade Chili is still far ahead of us, but its export trade is now on the decline. From 1863 to 1867 the yield in this country averaged about 15,000,000 pounds. Since that time it has greatly increased, and was, last year, nearly 35,000,000 pounds. The French prefer American copper for certain pnrposes, and it often commands a premium of 3c per pound at Paris and Havre, notwithstonding England is so nesr. The exports to France last year were 1,000,000 pouads, while before the late wsr the exports were between 3,000,000 and 4,000,000 pounds. Eagland exports to this couatry, but prices are now too low here to make it profitable with the present tariff. The Lake Superior region is far ahead of other sections of the Union in the production of copper; the miaes there yield nearly 29,000,000 pounds, while the yield from all other sources was only 6,000,000 pounds. It is thought that the production of the lake mines will be much larger this year.

The demand for American lead is also steadily increasing, and the imports from Europe for several years past have heen on the decrease. Satisfactory experiments have been made with the American, and as soon as the refining of it reaches the desired standard, to which attainment due attention is now being directed, the native product will eqnal the hest Earopean. There is now a difference of ahout three-quarters of a cent in favor of the foreiga, although the native lead sells the most readily. The development of the silver mines in the far West necessarily increases the productiou. The country prodnces about 35,000 tons, distributed about as follows: Colorado, 2,000 toas; Missouri, 11,000 tons; Galena region, Ill., 3,700 tons; to this is added the quantity smelted at Chicago, Pittsburg, New York, Newark and other places.

Spelter is another metal the demand snd consequently the productiou of which is increasing in this couutry. In accordance with the action of the underwriters, a few years ago, vessels are re-metaled every three years, and instead of copper, a composition of spelter and copper, known as yellow metal, is used. Hence the increase in the demand for the former metal, and the production has been augmented to such an amount as to materially diminish the imports. The prodnction in 1872 was 5,500 tons; in 1873, 6,500 tons, while the imports in the former year were 4,000 tons, and last year they fell off to about 2,500 tons. The American spelter is as desirable as, and in point of purity superior to, the Silesian, which is said to be mixed more or less with lead. The states of Missouri, Arkansas and Illinois are steadily growing ia importance in the production of spelter.—*Iron Age.*

BREAD MADE WITH SEA WATER.—Sea water as a beverage is not considered agreeable or wholesome, but experience has shown that it may be advantageons for making bread. Bread thns made is said to be not merely agreeable, but to possess bygienic qualities. *Les Mondes* says that during a voyage of a sail vessel from Havre to California, having oa board 160 passengers and a crew of 25 men, under the command of Capt. Liger, bread made with sea water was used exclusively, and that during her long voyage—ehe was five months out—there was not on board a single case of sickness. The editor believes that sea water hread may not merely be of great service, hut even effect a cure in cases of dyspepsia, phthiseis, scrofula, and goiter. Such bread is spoken of as being very good, and keeping a long time fresh. The salt is just snfficient to flavor it properly.

Water Troubles on Carson River.

The water in the Carson river is so low thst the principsl mills are now unsble to run more thsn sbout hslf their cspscity. The men engsged in the wood trsde are also in trouble. They have lying in the river, at a point above the Mexicsn dam, a lot of ahout 25,000 or 30,000 cords of wood, which they are unable to move while the Mexican dam is running. This being the csse, the woodmen sent for Ssm Jones, snperintendent of the Crown Point mine, which mines own the Mexican mill, snd represented their csse to him. Seeing that the woodmen are regularly stuck, Mr. Jones consented to shut the Mexican mill down for ten days, in order that the whole of the water in the river may be used in floating the straoded wood down to Empire City. In case all the wood shall not be got down during the ten dsys, Mr. Lyman, superintendent of the Mexican mill, will run that remaining down throagh the large ditch lesding to the mill. The wood drive this season amoanted to 180,000 cords, the lsrgest ever put into the river. There being an unnsual quantity of snow on the mountains, it was thought that there woald not be the slightest tronble ahoat water this year, but when the banks of snow began to disappear they all went at once. The mountains being very extensively denuded of timber, there is nothing to protect the snow, and it lasts bnt a short time once it hegins to melt. Next year, or any year hereafter, ia case there shall he a light fall of snow in the mountaias, it is likely that the mills will be obliged to begin to shut down some portion of their machinery as early as the middle of July. This would donbtless have been the case this sesson, but for the unasually heavy fall of snow last winter. This beiag the situstion, it will be necessary either to pat steam-eagines into the principal mills or to constract large reservoirs in which to hold back a store of water in nse in the dry season. For all interests the latter plan would be much the best. By having at commsnd aa ample supply of water the river may be kept at such a stage thst those engaged in the wood trade will be able to float their wood to any poiat on the river without difficulty. It will also be hetter for that section of the country through which the river flows that a goodly volume of water should roll through its channel than thst it should be allowed to dwiadle away aud dry np. There are a great number of places at the head of Carson river and its tributaries where reservoirs may be easily and chesply huilt—plsces where by putting in low and short dsms at the outlets of grest flats, lakes and valleys, vast areas may be flooded. A few of the places where snch reservoirs may be built at uo great expense are the following: On the East Fork, Wolfe creek, and Fish Fall valleys; ou the Middle Fork, at Pleasant valley, and the Summit lake; on the West Fork, at the Red lakes, aud the lake in Charity valley. Of these places Wolf creek ranch, containing 2,000 acres, 1,200 acres oaa be flooded to an average depth of 15 feet; Pleasant valley, 1,600 acres, can be flooded to an average depth of 12 feet; Sammit lake, 600 acres, can he increased to 1,000 acres, with an average depth of 10 feet. There are msny other plsces quite as available as those meationed. The entire cost of damming these places and getting a full supply of water for the months of August, September and October would probably not exceed the loss entailed by the shutting down of the mills for a siagle season.—*Territorial Enterprise.*

Julia Mine.

Enlarging the main shsft of this miae is now completed to within 80 feet of the surface. When this is finished this will give a fine three-compartmeat working shaft 1,100 feet in depth. The engine has a 22-inch cylinder, 36-inch stroke, an 8-iach msin shaft, and possesses a capacity of 200-horse-power. As soon as the engine is in good rnnniag order, the water will be drained from the shaft and work will be resumed on the 1,000-ft. level. At the time of the suspension of work on this level, on account of inability of the machinery to keep down the flow of water and do the necessary hoistiag, the east cross-cut from the south drift on the 1,000-ft. level had encountered some fine prospects of ore, sufficient to iadnce the erection of the present new powerful hoisting and pnmping machinery. The new pumping engine has a 14-ft. fly-wheel, an 11-ft. driving wheel and a 2½-ft. pinion, and a capacity of 180 horse-power. Four of the plunger pumpe are now on the ground, ready to be pat in as soon as the shafc is completed. These pumps will be placed at stations 250 ft. apart in the shaft, and with an 8-iach column will be sufficient to drain with ease all the water that is likely to be encountered. The sole plates, fly-wheel, driving wheels, pump columns, and much of the other pumping machiaery, are already at the mine and more being received daily. The bed sills for the machinery and the pump rods are being manafactured out of the hest possible quality of red sprace, brought from Datch Flat, California. The excavation for the foundation of the pumping engine and the bob-pit of the pump is making fine progress, and when everything is once more in good working trim, good results may well be looked for.—*Gold Hill News.*

THE engraved cylinders for calico priuting are required to be of pure copper, and their unsoundaess, when cast in the usual way, was found to be so serious an evil that it gave rise to casting the metal under pressure.

The Fastest Time Ever Made on the Hudson River Railroad.

William H. Vanderbilt and family and the President of the New Haven railrosd and family reached Albany from Nisgara Falls in a specisl train of two dining-room cars about two o'clock yesterdsy afternoon. We do not know what time they msde on the New York Central, hnt at 3 P. M. locomotive No. 26, James Paul, engineer, hitched on the trsin at West Albany and started it for New York. Their coming hsd been telegraphed ahead, and there was clear sailing. It took about 10 minntes to do the slow traveliog over the bridge and down along the yards, and then Jimmy "pulled her oot," and awsy flew the train like a meteor. At Coxsackie and other points people gazed with terror as the cars thnndered by at the rate of a mile a minute. They could hardly be seen, but looked like one piece of wood and iron rashing through the air. There was a slight slow-up at Hadson, and in three minutes after the train dsshed by Catskill ststion with a "whir!" that wse astonishing. Gravel-stones, dust and dry sticks whirled along in the wake of the lightning-train in clouds.

Three minutes were consnmed ia Tivoli for wster, and ooce more "old 26" was measnriog iron at the rate of a mile s minute till Rhinebeck was reached. There they were repairing the telegraph wire, and part of it was aoross the trsck. Five minutes were consnmed there, when the wire was cut and the train dashed on again, the cars rocking on the rails like a cradle, and the dust flying in every direction. Over bridges and trestle-work, around curves, through deep cots it rattled away, rushing over Fallkill bridge into thie ststion at a 40-mile-an-hour gait, having made Poaghkeepsie in one hoar aud 38 minutes from Albany, and deducting 18 minutes for stops, the actual running time was one honr and 20 minntes—the best time ever made on the Hudson river railroad. —*Poughkeepsie Eagle, Sept. 6th.*

A RICH CINNABAR DISTRICT.—The Devil's caaon is a deep gorge in the Geyser mountains, so called from its great depth and the wildness of the sarrounding scenery. Its walls now echo the sound of the prospector's hammer, snd the priuts of his industrious footsteps may be seen in this lonesome retreat, besides that of its heretofore undisputed possessor, the grizzly. In the head of this wild gorge, just where the mountain gave way in the convulsion of natare which split the hills, the Oakland mine is situated, many hnndred feet below the summit of the snrroundiog mountains. A portion of the ledge seems to have washed down the caaon, which is several miles in length. The bowlders along the stream contain cinnabar, some very rich. A section of the bed of the creek hae been located ss a mine solely for this loose rock, of which there sre thousands of tons. We visited the locality hy request, and there we found a miner's cabin. Its occupsnt, Fred Salters, put a blast into one of the loose bowlders, in the bed of the creek. The shattered rock revealed some of the richest cinnabsr we have ever seen. Mr. Salters had piles of it hroken and ready for a farnace, along the stream, procured in the same way. This mine is called the Illinois. Adjoioing the Oskland mine is the Geyser. Its massive outorop forms a portion of the northera wall of the caaon. From these two ledges the immense amount of float in the bed of the stream originally came. It indicates that there is an unlimited sapply in the mother lodes from whence these hage cinnabar bowlders were torn.—*Santa Rosa Democrat.*

SONOMA AS A MINING COUNTY.—Among the chief attractions at the Sonoma and Marin Fair was a large and valuable cabinet of minerals, exhibited by R. Thompson, of the Santa Rosa *Democrat.* The collection embraces about 200 specimens, nearly all of which were obtained in Sonoma county. There were shown samples of qaicksilver from the various mines, some of the large pieces of ore containing from 40 to 60 per cent. of pure metal. One specimen from the Oakland miue, weighing about 40 pounds, is nesrly half quicksilver, and contains about $25 worth of metal. There are also specimens of gold and silver-bearing quartz, coal, chrome, iron, copper, agate and other metals. The Petalnma *Argus* says: The great richness and extent of our quicksilver mines have ceased to be a matter of douht—they are demonstrated facts. It is the opinion of Mr. Thompson aad others qaalified to judge that they are not only the richest in Califoraia, but among the moet extensive and valuable in the world. All who have examined Mr. Thompson's collection agree with us that Sonoma is entitled to be called a mining oounty.

WASHINGTON & CREOLE.—The present appearance and prospects of the Washington & Creole mine are very flattering. Yeterday we eaw in Wells, Fargo & Co.'e express office seven bars of a total valne of about $8,000, which was the prodact of about 70 tons of ore. Bullion enough to make them more bars worth $3,000 is now in the retort. Mr. Tarpey, the active and vigilant superintendent, informs us that dnring the present month, at least $15,000 will be shipped from the mine, with every prospect of a continuance of a like yield. This is good newe, though not surprising to ns, for we have never for a moment faltered in our belief, that the mines of Pioche will be as profitable as ever they were, and perhaps more so. —*Pioche Record.*

SCIENTIFIC PROGRESS.

Effect of Carbon on Iron.

A correspondent of the *Iron Age* writes to that paper as follows: The molecules of iron are pure, hnt the Iron of commerce is made up mostly of molecules of iron, and partly of molecules of other bodies, exerting the force of attraction in a greater or less degree. Therefore, every particle of foreign matter incorporated in the Iron, or taken from it, will change its resultant force. The tensile strength of iron is the equivelent of the resultant force of its physical structure; in other words, it will require no greater power to pull the structure apart then the sum of the molecular forces exerted in holding the molecules together. It is impossible to produce strictly pure iron, because its affinity for other matter is so great that it is beyond the skill of the metallurgist to exclude them entirely. The nearest approximation to pure iron thet has been atteined stands a tensile strain of about 50,000 lbs. to the square Inch. The consumers of iron demand a quality which will resist a strain equal to 60,000 lbs. to the square inch. Therefore the metallurgist, instead of endeavoring to purify the iron, incorporates such other metter with it as, by experience, he knows to exert the force of attraction in a greater degree, thus increasing the resultant force of the physical structure equivalent to the resistance of a tensile strain of 60,000 lbs. to the square inch. These additional elements, increasing the resultant force, draw the molecules closer together, and correspondingly reduce the size of the pores; hence, the purer the iron is the larger will be its pores. It ie conceived that carbon, in its atomic condition, is absorbed by the iron, and, without displacement of the physicsl structure, is retained within tnese pores in the form of monometric crystals. If this be so, then the purer the iron, the pores being larger, the greater the absorption of carbon may be; and the atomic force of attrection exerted by the atoms of carbon, in whatever degree they may be present, added to the molecular forces, will give the resultant force of the physical structnre, and a corresponding resistance to s tensile strein. It will be observed that the capacity of iron for the absorption of carbon is limited by the size of its pores. The exeot amount is not known, but it is less thsn 1 per cent. The usual range of carbon in steel is from 1-10 of 1 per cent. to 7-10 of 1 per cent.

There are other elementsry bodies which exert the force of attraction in a greater degree than iron, and which also oombioe with it, hut of all hodies known to exist, carbon exerts the force of ettraction in the most iutense degree. The diamond exhibits a structure in which the moleoales are drawn closer together than in any other matter yet discovered. The intensity of this force will be seen, when iron capable of resisting a tensile strain of 50,000 pounds, is converted into cast steel, with 5-10 of 1 per cent. of carbon, its tensile streagth is more than doubled; and with all desirable conditioas, with 7-10 of 1 per ceut. of carhou, a steel has been made capsble of resisting a tensile strsia of 180,000 pounds to the sqnare inch.

It is, therefore, within the ability of the metallurgist, by the aid of oarbon, to produce iron of any required degree of tensile strength, from 50,000 to 180,000 pounds to the squere iach. At 50,000 pounds the pores are the largest, and the molecules have the most room for undnlation; consequently, the iron is most ductile. As the force is increased, the molecules are drawu closer together, their undulations retarded, and ductility is displayed by elasticity, and es the maximum absorption has been attained, and the monometric crystallization complete, the structure is most dense, molecnlar undulations cease, and elasticity is lost in rigidity.

PROFESSOR BACHE, in his coset survey reports, mentioned that the tides of the United States sre divisible into three distinct classes. Those on the Atlentic coast are of the ordinary type, ebbing and flowing twice in 24 hours, and having but moderate differences in hight betweeu two succossive high or low waters, one occurring before and the other after noon. Those on the Pacifie coast also ebb and flow twice in 24 hours, but the morning end the evening tides vary considerable in hight. The intervals also between snocessive high and low waters may be very unequal. The irregularities are due to the moon's declination, as, when the moon travels fo the north of the equator, the vertex of the tide wave follows her, giving the highest point of one tide in the northern, and the highest point of the opposite tide iu the southern hemisphere. Hence, when the moon is in northern declination, the tide at any place in the northern hemisphere caused by her upper transit will be higher than that cansed by her lower transit. This vsriation in the hights is oslled the diurnsl irregularity, and hss a period of one lnnar day.

TEMPERATUBE OF THE EARTH.—Most of the observations have been made with self-registering thermometers, protected from pressure in the borings by being each enclosed in a hermetically sealed gloss tube. The average result thus far is that the temperature increased at the rate of 1° Fah. in every 50 ft. or 60 ft. in depth, bnt in one or two instances in different countries a oonsiderably slower rate was obtained.

Action of Water upon Lead Pipes.

Vincent says: In most great towns the water, after it passes from the mains of the water companies, is distributed to and through the houses of the inhabitants in lead pipes. Every now and then some wisecre who has learnt enough chemistry to know that plumbio oxide is sometimes formed by the nction of water on lead, creates a panic in the mind of the public hy pointing out this important fact. A great fuss is then made, and e great deal is said ahout the danger of this poison being overlooked until too late, from its being introduced iuto the human system in almost imperceptible quantities, there to accumulate until fatal consequences to health and strength are produced. Experiments are thereupon immediately directed to be made by the professional chemist of the locality, who accordingly proceeds to plunge pieces of pnre lead and lead pipe into the waters accused, into distilled water, fresh rain water, well water, etc. The results to he expected are well known, and have been well known for at least fifty yeare. The distilled water attacks and dissolves the lead with very great rapidity, rain water not quite so rapidly; the well weter hut seldom attacks it at all, and the river water, if it has traveled through any considerable distauce, never. Few people hsve had long experience of a country district without meeting with more or less of snch s panio.

The public mains aro manifestly above suepicion. It is only the short private branches which sre of lead. The result of most carefal experiments made upon the water from different sonrces, after passing through the lead branch into the house was, that in inhabited houses, that is to say where the water never remsins stationary in the leed hrsnch for more than ten to twelve hours, not a trace of lead could be discovered.

With regard to water which is allowed to remain for a considerahlo period in contact with lead, the amount of the action depends entirely on the purity of the water. In distilled wster the pretty tiny white scales of crystalline hydrated plumhic oxide form with very grest rapidity, if there is free access of air, and the hottom of the vessel coateining the lesd and water will speedily become covered with a white deposit. Freshly fallen rain wster acts nearly as well. Hence rain water for alimentary purposes should never be collected through leadeu gutters. On the other hend, however, infinitesimal the amount of lime salts in solntion may be, if they can be detected at all, the water in which they are found is positively free from all action as regards lead. Soft water dissolves lead, hard water preserves it untarnished. No other salts appear to preserve the lead so entirely free from oxide as do the salts of lime. Inasmuch, however, as it is impossible for water to percolate or pass over any considerable amount of soil without taking lime into solution, and this lime it is impossible wholly remove hy any means short of complete distillation; it follows that all river water may be conveyed with the most perfect security through lesd pipes without in any way interfering with its wholesomeness as a potable water.

GALVANIC ELECTRICITY WITHOUT CHEMICAL ACTION.—At a recent meeting of the Physical Society, Mr. Fleming showed his new battery, in which the metallic contact of dissimilar metals is entirely avoided. The arrangement consists of 36 test tubes of dilute nitric acid, and the same number of tubes of sodium pentasulphide, all well insulsted, alterneting with one another. But strips of alternate lesd and copper connect the neighboriug tubes; by which meaus the terminals are of similar metal, and a current of suffioieat intensity to violently affect a quantity galvanometer obtsined. The potential increases, as in the ordinary galvanic arrangement, with the number of cells employed, until 60 cells showed an electro-motive force exceeding that of the same number of Daniell's elements. In this new battery the acid lead is positive to copper, while in the sulphide it is negative. Mr. Fleming further showed how, by using the single fluid nitric acid, and the single metal iron, a similar battery could be construoted, provided one-half of each iron strip was rendered passive. This is au important discovery, for it seems to revive the theory that chemical action is not necessary in a galvanic apparatus to produce electricity. At all events it is of sufficient interest to merit the sound inquiry into its principles which physicists seem likely to make.

HEAT OF THE SUN.—Father Secchi has published in Rome the result of his investigations in the solar temperature, msde during last summer, and states thet his efforts were directed toward the determiuation of the relation of the solsr radiation with that of the electric light. The instrument used wss a thermoheliometer of the investigator's own invention, and the conclusion reached was that the radiation of the sun would be 96⅛ times that of the carbon points. If, therefore, the temperature of the surface of the latter is fixed at 5,432 degrees of Fahrenheit, a number not exaggerated, and supposing the radiation proportionsl to the temperature, we obtain for the potential temperature of the sun 540,848 degrees Fahrenheit.

AN inventor proposes to extract citric acid, tartaric ecid and alcohol from the temarinha plant, which is cut preferably when in a green state, aud is subjected to pressure to extrsot the juice therefrom, which is afterwards operated upon by the usual appliances or machinery by which citrio acid, tartario aoid and alcohol are generally made.

MECHANICAL PROGRESS.

Railway Inventions.

A novelty iu the way of recent railway inventions is an improved pneumatic station iudicator, which, at least, poesesses the merits of simplicity. There is a case containing a roller and a chein of name-plates. This roller is trned the width of one face et each station, to present the plates having names of the stations in front of the sight-opening; and the arrangement is such that the nsme-plate cannot be csrried beyond the point of showing the lest station on the route, in case the car should he run heyond its route on another section or division, and it is held ready for running back on its own ronte. Springs are employed to allow the roller to turn, in oase the mechanism for turning it is kept in operation efter passing beyond the terminal station, and to pull the roller back each time. The special valne of this plan is exhibited in case the car should get coupled in a train for a road or station to which it does not helong, which cars hsving annunciators for thet road, so that its annunciators would of necessity be coupled with the others, and thus have to be worked that the others might he, as is well understood in the msnagement of railroads.

Another invention of note in this line is s car-coupliag device, iatended to meet some of the difficulties existing in the arrangements at present employed. In this case the forward ends or faces of the bumper-heads are rounded off, being msde oblong or elliptical in their general form, and in the fsce of the bumper-heads is formed a high and nerrow opening, with straight ends and curved and concave sides. The coupling hook has in one end an eye to receive a holt, which passes through vertical slots in the sides of the bumper-hesds, to pivot the hook to said heads, the parts of these bolts thet pass through the slots being flattened, to prevent their turning and workiag their nnts loose. The holts may be raised or lowered to adjust the position of the hook to the hight of the adjacent car, and in the forward lower part of the mouths of the bumper-hesds there are inclined plates, for the beveled forward end of the hook to strike against and slide up ss the cars are run together.—*Railway Register*.

A NEW enterprise in gun-making is in progress at the Springfield armory, Mr. James Lee, of Milwankee, having secured from Congress at appropriation of $10,000 for the manufacture of guns upon his model, for experiment in the field. Mr. Lee's gun was before the small arms examiners in Springfield a year and a half ago, snd stood all the tests to the one of excessive cherges, when a piece of mechenicism hroke. Mr. Lee promptly remedied the difficulty, however, and taking his gun to Congress last winter so satisfied the Military Committee npon its merits as to secure from them an approprietion of $10,000 for its trial. The gun in question is of extraordinery simplicity in construction, heving only fourteen pieces in its meke-up. These few pieces sre so novel in arrangement thst seventeen patentable cisims are msde upon them. There are oaly one screw and two springs in the gun, which can be fired thirty-one times a minute. Mr. Lee considers it the strougest, simplest and safest gun in the world, and intends to patent it in Englend for competition with the Mertini-Henry rifle.

SPEAKING of the celebration of the Fourth of July in Philedelphia, the correspondent of the *Iron Age* says: The Girard Avenue bridge, the widest bridge in the world, and probably as well built as any, wss formally turned over to the city authorities and opened to the public. You have had several descriptions of this bridge, but I add again dimensions and cost: Total length, 1,000 ft.; total width, 100 ft.; number and size of spans, two of 137 and three of 197 ft.; length of sidewalk, 865 ft.; number of piers, 4; abutments, 2; width of roadway, 67½ ft.; width of each sidewalk, 16½ ft.; greatest hight from roadway to rock fouudation, 85 ft.; number of square feet of surface, 100,000; cost per foot, $4.86. The totsl cost wes $1,404,445, and, although less than a quarter of a mile long, the bridge contains as much msterial as is in a mile and a half of siagle-track railroad bridge of similar spans. A very attractive feature of the work is that each kind of material used is allowed to show whst it is, iron not being treated to resemble stone, and color beiag applied only to distinguish parts.

TWO CENTUBIES HENCE.—The following fancy picture of what may be familiar enough two centuries hence is no more improbable on the fsce of it thau our railways, electric telegraphs and the like, wonld have seemed a century ago:

"Scene—Library in the house of an elderly gent, somewhere in Australia. Old gent telegraphs to the kitchen, and waiter ascends in a halloon. *Old Gent*: John, fly over to Calcutta, and tell Mr. Johnson that I shall be very happy to have him sup with me. Never mind your coat now, but go. John leaves, and at the end of five minntes returns. *John:* Mr. Johnson says he will come; he has got to go to St. Petersburg for a moment and then he will be here. *Old Gent:* Very well, John. Now start the machine for setting the table, and telegraph to mp wife's room, and tell her that Mr. Johnson is ooming; then brush up my balloon, for I have an engagement in London at 12 o'clock. John flies, and the old gentleman runs over to the West Indies to buy a fresh orange.

French Saw-Making.

The Paris makers have almost a monopoly in the making of ribbon-saws, and of lete years they have given much attention to the production of all kinds of saws and other articles made of sheet steel. Among others, M. Dogonjon, who has steamworks at Paris, hss patented a number of improved modes of mennfac ure. The bledes, after heing rolled cold several times, in order to render the grain close and the metal homogeneous, are heated in special fnraces, from which the air is carefully excinded, and when at the proper temperatnre are plunged in a hsth of Colza oil; this is done in a dark chamber. The tempering is effected with the aid of machines, which cause the hlades to pass between cast-iron plates hested to a fixed temperatare, according to the nature of the article to he prodaced. The teeth of the saws are cnt by machinery, which requires only laborere to attend them. Since the war, which deprived the establishment of its hest men, M. Dugoujon hae effected the planishing and graining of circular end other saws aud meuy similar articles by mschinery, and, it is seid, with great advantege with respect to regularity snd stiffuess. Another introduction is the mechanical reduction of the joints of ribhon-raws. The breakiag of the joint is the only inaonvenience ahout this useful instrument. The workman, in redncing the welded part, by means of the file, scarcely ever left it of exactly the same thickness es the rest of the hlade; thus it either oreated extra friction, or was liahle to break. By the new method the redaction is made hy grinding, iastesd of filing, and as that is effected longitudinelly, instead of across the hlade, the thickaess is rendered perfectly uuiform. This invention is ssid to save 60 per cent. in wages hesides the cost of files.—*Iron*.

AN INGENIOUS INVENTION.—Mr. Atkins, Birmingham, (Eng.) has invented a process which admits of the filliug of articles of brass with molten iron. The balance weights for chandeliers, pillars, columns snd imperiel weights may be made, advantsge being taken of this process, at a much diminished cost. It is simply necessry to immerse the brass shells in water, and the molten iron is theu poured in. The shell can not, of conrse, attein a higher temperature than 212°, the boiling point of water, while the tempersture of its contents may he ahout 3,000°. In making imperial weights the shells are imbedded in iron filings, the high conducting power of which is thus turned to account. This process, simple though it be, is, from a commercial point of view, one of great importaace, as will he resdily nnderstead.

RAILWAYS IN AMERICA.—The railwsy journals believe that in the year 1880 there will he 100,000 miles of rsilroad in the Republic. The total has slready reached 70,000 miles, and as the iacrease in prosperous yeers has been as high as 13,000 miles, it would sttain the number stated in less thsn three years if the country could at once regain the rate of constraction to which the panic of last autumn gave a check. Even taking the increase of 1873 as an average, the 100,000 could be passed in four years. The railroad mileage has doubled in 10 years. Should this progress coutinue the total mileage in 1884 would be 140,000.

A STEEL yacht has been built in Philadelphis, with expectations of going 26 miles per hour. The result at the first trial was 21 miles. Her plates are 1-16 inch thick, with a bow little less than rezor sharpuess. The frames are steel, the aagles being only 1-14 inch thiok and 14 iaches apert. All the seams are double riveted. Her locomotive boiler has been tested to a pressure of 200 pounds to the square inch. Her cylinders ere 10 inches in diameter and 10 inches in stroke. The screw is four feet in diameter with seven feet pitch. This little creft is termed the Aerolite, and is destined for Egypt.

AN eagine on the New Jersey Midlaud road has been fitted with a smoke-burning arrangement in the fire-box. On one of the early trips of the engine as the fireman opened the furnece door to throw in a shovelfal of coel, the gas burst ont with such volume snd force as to throw him entirely off the engiue. In falliug, he struck on his hesd in a culvert and was killed. Another fireman was put on in the dead man's place, and in a short time he had his face terribly burned. One would suppose it would now be rather difficult to find a fireman for that engine.

FIRST LOCOMOTIVE IN AMERICA.—The first locomotive that ran on a railroed on the American continent was imported from England by the Delaware and Hudson Canal Co.; was shipped from Liverpool April 3d, 1829, and arrived in New York the 17th of May, 1829; was sent up the river to Rondout; from thence was transported by canal and arrived at Honesdale, and on the 8th of Auguet made the trial trip. This locomotive wes built at Stoutbridge, England, and the boiler is now in use at Carbondale, Pennsylvania.

BEAM END PROTECTOR.—A new invention relatee to a sheet-tin casing for the ends of wooden beems as a protection against the influence of dampuess or destruction by fire. The casing covers the beam end and so much of the contiguous portion as enters the mortise in the hrick or stone wall, and it may also be made of sufficient leugth to project a short distauce from the side of the wall.

Weekly Variations in Stocks.

(Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.)

For 6 days ending Wednesday, Sept. 30, 1874.

NAME OF COMPANY.	IN MINE.	IN MINE.	HIGHEST.	LOWEST.	ADVANCE.	DECLINE
WASHOE.						
Alamo	300	6000	25T	15½TH	9⅞	
Alpha Con	3600		3T	3T		
Alta		30000	1¼M	9⅝TH	1⅞	
American Flat	85	24000	TW	5⅝TH		
Bacon M. & M		51000	16T	10½TH	5	
Belcher	1040	104000	71W	64F	3¼	
Best & Belcher	234	22400	39F	35½	1½	
Bowers	20	5000				
Buckeye		16000	4F	2TH		1
Bullion	2500	25000	24T	17½TH	7	
Caledonia	5000	20000	33T	25½	5½	
California			63T	51T	10½	
Chollar-Potosi	2800	28000	75T	69TH	6½	
Confidence	130	24860	28F	24M	1	
Con.Gold Hill Quartz	34½	20000	6¾TH	5W		⅛
Con. Virginia	1160	108000	94T	90½TH		
Cook & Geyser	1600	24000				
Crown Point	600	100000	65W	56⅝	1	
Deney	2000	24000	4¾M	3TH	1	
Dardanelles	1200	24000	15W	14TH	1	
Dayton			8T	5¼TH	2½	
Eclipse	70	25000	10⅝M	8¾W	1⅝	
Empire M. & M	75	50000	10¾T	9⅝	¾	
Exchequer	400	8000	220T	120F	105	
Fairmount			2W	2W		
Flowery	3000	12000				
Franklin			3⅝8	2½TH		⅛
Globe		20000	2¼8	2⅛TH		¼
Gould & Curry	1200	48000	29s	27½TH	1	
Hale & Norcross	400	16000	60T	51s	9	
Imperial	184	100000	11¼T	10¼TH	⅜	
Indus						
Insurance	2000	20000				
Jacob Little						
Julia	2000	30560	7⅛W	6TH	1¼	
Justice	3000	21000	40W	24TH	24	
Kentuck	95	24000	26T	21⅝8	2¼	
Knickerbocker	1200	24000	8½T	6½TH	1⅝	
Kossuth			3¼M	1¼TH	1⅜	
Lady Bryan						
McNeans	3600	36000	35s	35s		
Mint	1600	50000				
Nevada	3000	40000	2s	1½TH	¼	
New York Con	3800	35000	5s	4⅜8		
Occidental	800	10000	4¼T	2¼F	⅛	
Opher	1400	16000	52T	37½TH	6½	
Overman	1200	37400	85T	58TH	18	
Phil. Sheridan	1200	24000				
Picton	2000	30000	90W	1.00W	40	
Rock Island		24000	Tr	4⅞8	2	
Savage	800	16000	81T	74s	12½	
Seg. Belcher	160	16000	175T	105TH	59	
Seg. Caledonia		10000				
Seg. Rock Island			2T	¾TH	1	
Senator			7⅞T	1⅜8	6½	
Sierre Nevada		24000	10½T	8TH	1¾	
Silver Hill		100000	15T	9TH	5½	
South Comstock		24000				
South Overman		24000				
Succor M. & M	7600	22800	4½TH	4F		1½
Sutro		24000	2T	2T	1	
Trench	20	40.0	9T	8M		
Tyler	2200	33000	1⅛8	1TH		⅛
Union Con	803	20000	27½M	21½TH	5	
Utah		20000	5⅝8	4⅝M		¼
Woodville	400	26000	12½F	9½F		
Yellow Jacket	1200	24000	125F	110s	8	
NEVADA.						
Adams Hill						
Alps		50000				
Amador Tunnel	800	30000				
American Flag M.&M						
Arkansas		30000	3¼8	1½F		
Belmont	300	30000	8TH	7F		¼
Bowery						
Chapman M. & M		30000				
Obarter Oak		20000				
Chief of the Hill	1000	30000				
Chief East Extension		30000				
Columbus M. & M		36000				
Condor	10000	50000				
El Dorado South		25000				
Eureka Con			2⅝TH	2M		⅛
Excelsior		50000	12¼W	10¾TH	⅜	
Harper		12000				
Hayes		30000				
Hermes						
Home Ticket	1000	30000				
Huhn & Hunt						
Ingomar	3600	30000				
Ivannoe	1000	40000				
Jackson		30000				
Josephine		50000				
Juniata Con						
K. K. Con	5000	50000				
Kentucky			4W	3F		
Kinston	1000	30000				
Lehigh	1000	30000				
Lillian Hell	1000	30000				
Louise	1000	15000				
McMahon	2400	30000				
Marion	1000	30000				
Meadow Valley		30000				
Mooking-Bird	24023	60000	10½W	5¼Tb	5	
Monitor-Belmont	1200	30000				
Murphy			1⅜TH	2T		
Newark	2000	60000				
Pacific Tunnel	800	32000	1¾W	1¼F		⅜
Page & Panaca						
Peavine	2400	30000				
Phoenix	5000	30000				
Picobe		50000				
Piocbe West Ex	1000	20000	9W	6¾TH	2	
Pioche-Phœnix		35000				
Portland		40000				
Raymond & Ely	5000	30000	23W	11¼TH	10	
Rye Patch			1⅜W	1TH		
Silver Peak		30000				
Silver West Con						
Standard M. & M						
Star Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mount		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Oreole						
Watson	200	30000	2T	1⅞TH		⅛
Yellowstone						
CALIFORNIA.						
Alpine						
Bellevue	1200	12000				
Calaveras	3000	30000				
Coderberg	3200	20000				
Chariot Mill		24000	1TH	1TH		
Con. Amador			12½W	11M	2	
Cottonwood Oreek						
Dunderberg M. & M		20000				
El Dorado						
Eureka	1680	20000	7TH	7TH		3
Gillis		24000				
Independent	1800	25000				
Keystone		10000				
Mt. Jefferson	1500	25000				
Oakville						
St. Lawrence. M. & M						
St. Patrick	1800	20000				
Tecumseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000	1¼T	1⅛TH		⅛
Golden Chariot	750	30000	4¾W	4F		⅜
Ida Elimore	1300	10000	1½TH	¾T	1¾	
Mahogany	720	10000	¾M	2¾TH		¼
Red Jacket						
South Chariot						
War Eagle	1600	20000				
WHITE PINE.	1000	10000	2TH	1½M		
General Lee						
Mammoth	1000	20000				
Noonday	1800	36000				
Orig. Hidden Treas	1000	20000				
Silver Wave	800	21333				
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
Alpine Gold M & M Co	Amador Co Cal	7	1 00	Aug 10	Sept 14	Oct 5	J F Lightner 438 California st
American Flag M & M Oo	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney 320 California st
Arizona & Utah M Oo	Washoe	10	50	Sept 12	Oct 16	Nov 4	J Maguire 419 California st
Bellevue M Co	Placer Co Cal		50	Aug 11	Sept 21	Oct 15	D F Verdenal 409 California st
Chief of the Hill M Co	Ely District	5	25	Aug 11	Sept 11	Oct 1	C S Neal 419 California st
El Dorado North M Oo	Belmont Nevada	1	50	Aug 4	Sept 15	Oct 6	G E Hongbton 215 Sansome st
Empire M Co	Idaho	7		Aug 26	Sept 30	Oct 24	Wm Willis 419 California st
Empire Mill & M Co	Washoe	15	50	Aug 13	Sept 17	Oct 8	G R Spinney 320 California st
Globe M Co	Washoe	8	50	Sept 12	Oct 16	Nov 4	J Maguire 419 California st
Globe Cons M Co	Washoe	3	50	Sept 12	Oct 18	Nov 4	J Maguire 419 California st
Gould & Curry S M Co	Washoe	23	2 00	Sept 1	Oct 6	Oct 27	A K Durbrow 438 California st
Hale & Norcross G & S M Co	Washoe	44	5 00	Sept 8	Oct 13	Nov 3	J F Lightner 438 California st
Huhn & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball 409 California st
Ida Elimore M Co	Idaho	14	1 00	Sept 21	Oct 27	Nov 14	W Willis 419 California st
Justice M Co	Washoe	11	2 50	Sept 4	Oct 7	Oct 29	F Swift 419 California st
Lady Bryan M Oo	Washoe	3	50	Sept 18	Oct 20	Nov 9	F Swift 419 California st
Mint G & S M Co	Washoe		10	Aug 24	Oct 2	Oct 28	B A Jennings 401 California st
Newark S M Co	Ely District	8	1 00	Aug 18	Sept 23	Oct 15	J W Clark 418 California st
New York Cons M Oo	Washoe	10	50	Aug 26	Oct 1	Oct 19	H O Kibbe 419 California st
North Bloomfield Gravel M Co	Oal	33	1 00	Aug 11	Sept 15	Oct 5	Thos Derby 320 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	J H Gager 507 Montgomery st
Portland S M Co	Ely District	5	25	Aug 21	Sept 28	Oct 23	B J Gray 438 California st
Raymond & Ely M Co	Ely District	1	3 00	Aug 17	Sept 23	Oct 16	T W Coburn 419 California st
Savage M Oo	Washoe	15	10 00	Sept 1	Oct 5	Oct 23	E B Holmes 419 California st
Segregated Oeledonia M Co	Washoe	2	10	June 22	Oct 14	Nov 2	A O Ryce 308 California st
Silver Peak M Co	Ely District	5	50	Sept 3	Oct 10	Nov 2	G T Grimes 240 Montgomery st
South Chariot M Co	Idaho	10	1 00	Sept 2	Oct 8	Oct 26	Frank Swift 419 California st
South Comstock M Co	Washoe	1	50	Aug 18	Sept 22	Oct 12	J M Buffington Merchants' Ex
Succor M & M Oo	Washoe	9	1 00	Aug 18	Sept 22	Oct 14	W H Watson 302 Montgomery st
Sutro M Co	Washoe		50	Aug 14	Sept 18	Oct 12	G W R King 434 California st
Teler M Co	Washoe	6	25	Aug 15	Sept 18	Oct 8	C D Squire 539 California st
Utah M Co	Wasbe	3	1 00	Sept 21	Oct 26	Nov 16	W E Dean 419 California st
War Eagle M Co	Idaho	7	1 00	Aug 21	Sept 26	Oct 17	L Kaplan Merchants' Ex
Yellow Jacket S M Oo	Washoe	18	5 00	Aug 11	Sept 15	Oct 16	G W Hopkins Gold Hill Nev

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

California Cons M Oo	Cal	1		Aug 26	Sept 29	Oct 19	B J Gray 438 California st
Cederberg G M Oo 1st South Ex	Cal	7	4	Aug 27	Oct 1	Oct 20	J N Webster 420 Montgomery st
Cons Channel M Oo	Nevada Co Oal		2 00	Sept 7	Oct 12	Nov 6	H Cordes 44 Stewart st
Consolidated Reforma	Lower Cal	1	50	Sept 1	Oct 5	Oct 28	A D Carpenter 605 clay st
Edith Quicksilver M Co	Oal	1	12½	July 29	Sept 26	Oct 26	W Stuart 113 Liedesdorff st
El Dorado W & D G Co	Cal		10 00	Sept 15	Oct 15	Oct 31	H Elias 416 Montgomery st
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 27	Chas S Healy Merchants' Ex
Gold Mountain O M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Cavallier 513 California st
Gold Run M Co	Nevada Co Cal	7	25	Aug 7	Sept 15	Oct 7	C C Palmer Cor Market & Spear sts
Great Eine Gravel Range Co	Cal	6	10	Sept 23	Oct 28	Nov 20	W H Watson 302 Montgomery st
Greenhorn G M Oo	Cal	4	70	Aug 10	Sept 15	Oct 6	J F Lightner 438 Montgomery st
Haves G & S M Oo	Nevada	5	20	Sept 4	Oct 8	Nov 3	G R Spinney 320 California st
Independence Cons M Oo	Cal		15	Aug 4	Oct 10	Oct 29	F J Hermann 418 Kearney st
James Point Oravel M Co	Cal	2	10	Aug 12	Sept 15	Oct 3	D O Ferris 223 Montgomery st
Kossuth M Oo	Washoe	2	25	Aug 25	Sept 25	Oct 14	E F Stone 419 California st
Los Prietos M Oo	Santa Barbara Co	1	25	Sept 29	Nov 2	Nov 20	S B Smith 6 Montgomery Av
Mosquito Hydraulic Quartz M Oo	Cal	1	15	Aug 12	Sept 15	Oct 3	C S Healy Merchants' Ex
New York M Co	Washoe	1	50	Aug 28	Oct 1	Oct 19	H C Blithe 419 California st
Phœnix Tunnel & M Co	Utah	6	25	Sept 6	Oct 17	Nov 7	Chas S Healy Merchants' Ex
Prussian G & S M Co	Nevada	2	50	Sept 1	Oct 5	Oct 26	R H Brown 402 Montgomery st
Red Jacket M Co	Idaho	4	1 00	Sept 2	Oct 9	Oct 31	W Wilbs 419 California st
Silver Cord M Co	Idaho	10	1 00	Sept 11	Oct 12	Nov 2	Frank Swift 419 California st
Silver West Cons M Co	Eureka Nev	2	10	Aug 19	Oct 6	Oct 31	F R Bunker 606 Montgomery st
"Sixty-three" G & S M Co	Cal		25	Sept 2	Oct 5	Nov 2	J R Helm 411½ California st
Starr King S M Co	Nevada	7	25	Aug 6	Sept 11	Sept 30	L Kaplan Merchants' Ex
State of Maine M & M Co	Cal	7	5	Sept 17	Oct 24	Nov 10	J M Buffington Merchants' Ex
Table Mt Alpha M Co	Cal	5	25	Aug 20	Sept 29	Oct 20	T F Oronise 438 California st
Tecumseh G S & C Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark 418 California st
Ward Ellis S M Co	Robinson District	2	10	Aug 21	Sept 28	Oct 19	J M Buffington Merchants' Ex
Wm Shakspeare G M Co	Butte Co Cal	1	10	Sept 23	Oct 26	Nov 12	W R Townsend 330 Pine st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Eureka Consolidated M Co	Nevada	W W Treylor	403 California st	Annual	Oct 7
Exchequer M Co	Nevada	J S Kennedy	Merchants' Ex	Annual	Oct 19
Florel Springs Water Co	Nevada	Thos Denigan	607 Front st	Annual	Oct 8
Julia G & S M Co	Washoe	A Noel	419 California st.	Annual	Oct 12
Lady Washington M Co		Called by Trustees	419 California st	Special	Oct 17
Plymouth Rock M Co	Utah	Edward Chattin	442 California st	Annual	Oct 14
San Marcial S M Co	Mexico	Called by Trustees	426 Montgomery st	Special	Oct 21
Segregated Belcher M Co	Washoe	G D Edwards	414 California st	Annual	Oct 6
Silver Column M Co	Arizona	W H Reynolds	434 California st	Special	Oct 5

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Oal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. O. Kibbe.	419 California st.	4 00	Sept 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Sept 10
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	Sept 11
Crown Point M Co	Washoe	O E Elliott	414 California st	3 00	Sept 12
Diana M. Co.		N. G. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Veseria		50	Feb 16
Phœnix O M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

The stock market has been in an excited state during the past week, prices generally being high. Transactions have been both large and numerous in the Board, with an upward tendency in prices. News from the various mines continnee good, although with regard to the Comstocks the scarcity of water in Carson river has caused the shutting down of so much machinery in the mille that the bullion yield for September cannot he otherwise than light. How the Belcher and Crown Point will manage to pay their usnal dividends remains to be seen, as nearly all the mills of these companies are on the river. The Consolidated Virginia will not he affected, as all of their mills are driven hy steam. The minee there, according to the *Enterprise*, are looking exceedingly well, and the newly developed ore bodies are all holding out fully as well as could he expected, while in several instances they have far exceeded the expectations of even the most sanguine. Great activity prevails in all the mines, and soon all will be eo well ventilated that it will be hard to find any more work in that line upon which to employ the workmen. There will then no longer he any good excuse for delaying the work of exploration and development in the levels and drifts now closed.

The mining companies paid in September $1,077,200 as dividends, against the sum of $1,277,320 last year. Those last month were as follows: Belcher, $4 per share, $416,000; Crown Point, $3 per share, $300,000; Consolidated Virginia, $3 per share, $324,000; Chariot Mill (San Diego), 40 cente per share, $12,000; Redington Quicksilver, $20 per ehare, $20,000. Thie is exclusive of the coal companies. The mining companies paid last month in the aggregate $1,077,200, while other local incorporations only paid altogether $320,200. The monthly mining dividende of late have been ae large as was formerly disbnrsed in a quarter or eix months. The minee paying dividends last Septemher were Belcher, $520,000; Crown Point, 300,000; Raymond & Ely, $90,000; Eureka Consolidated, $50,000; Eureka, $20,000; Golden Chariot, $30,000; Minneeota, $30,000; and K K Cousolidated, $12,000.

Sewer Mining.—Every miner knowe that quicksilver is high and scarce, but few would snppose that it would pay to work sewers to get it: Still, men are now actually engaged in cleaning the city sewers at Austin, Nevada, for the purpose of extracting therefrom the quicksilver and amalgam which has passed down with the tailings from the Manhattan mill. The Reese River *Reveille* saye that two men are now at work on the sewer, and that the daily result of their labors ie abont four pounds of quicksilver and amalgam. At present prices of quicksilver these men will make good wages at that rate, especially if there is much amalgam.

Burnt River and Elk Creek.—From Z. I. Hazeltine, of Grant county, Oregon, the *Mountaineer* learns the following items of news from that eection of the State: The Burnt River gold mining distriot has turned out very well this season. Meesrs. Carpenter, Bruusen & Farmer cleaned up ahout $12,000 from their olaim for four months' work. The other claime have also paid well. The Elk Creek quartz minee are paying well. The Cahel mine is tarning ont splendid.

The water in the Carson river is getting lower, and eome of the mills will eoon be compelled to shut down. The Brunswick mill is only running to one-third its capacity. The river is still full of wood from Empire City up a distance of ten miles. A large force is employed in getting it ont, but their work will not be completed before the middle of next month.

The "Spread Mieery" lode, in epite of its name, hae proved itself to be one of the best mines in the Mosquito district, South Park, Colorado.

The Flagstaff mine, Little Cottonwood, Utah, employs from 60 to 100 men, and ships about 50 tone of ore per day.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

Santa Inez Quicksilver Mining Co.—Sept. 21. Location, Santa Inez valley, Santa Barbara county. Directors: Soiomon Heydenfeldt, Jessie S. Hall, Harvey S. Brown, W. H. High and Joseph Craig. Capital stock, $3,000,000, in shares of $100 each.

Scott Quicksilver Mining Co.—Sept. 21. Location: Santa Inez valley. Directors: George D. Roberts, R. R. Craig, C. B. Buckingham, Walter M. Rockwell and A. L. Warner. Capital stock, $3,000,000, in shares of $100 each.

Agra Mountain Tunnel and Mining Co.—Sept. 21. Location: Agra mining district, El Dorado county, Cal. Directors: Isaac Tahor, J. H. Harmon, E. O. Boohar, A. C. Hendley and N. B. Hitchcock. Capital stock, $2,000,000, in shares of $20 each.

Cosmopolitan Mining Co.—Sept. 27. Location: Story county, Nevada. Directors: A. K. P. Harmon, Robert Sherwood, H. C. Kibbe, A. P. Cox and W. E. Hall. Capital stock, $5,000,000, in 50,000 shares.

Hog's Back Quicksilver Mining Co.—Sept. 28. Location: Sonoma county. Trustees: H. L. Norton, D. H. Whittemore, James M. Gitchell, Bradburn Sanborn and S. C. Duncan. Capital stock, $1,000,000, in 100,000 shares.

American Flat South Mining Co.—Sept. 30. Location: State of Nevada. Directors: E. Strother, W. B. Boyden, S. Heydenfeldt, E. L. Stern and A. K. Grim. Capital stock, $2,400,000.

Gualala Mining Co.—Sept. 30. Location: Sonoma county. Directors: James R. Martin, J. H. Struckmeyer, George W. Deke, E. Higgins and John R. Martin. Capital stock, $3,000,000.

San Francisco Land, Building and Railroad Co.—Sept. 30. The purposes for which it is formed are to improve lands in such a manner as may be desired; to build, manage or lease a street railroad; to erect buildings and otherwise improve real estate; to secure loans by mortgage or other securities, etc. The street railroad is intended to coromence at the intersection of Mission and 26th streets, running thence along Mission street and tha county road to a point directly opposite and west of Holly Park, at the intersection of the county road with Crescent avenue; thence along Crescent avenue and over private property (with the consent of the owners), or through such streets as may now or hereafter be laid out, to a point on Silver avenue, near its intersection with Amherst street as may be most practicable; thence across or along Silver avenue and through the most practicable streets of the "University Mound Survey," to Henry street; thenca along Henry street to the San Bruno road; and thence easterly along the most practicable street or streets to a point on Railroad avenue, at or neer the present terminus of the Potrero and Bay View railroad. The estimated length of the railroad is four miles. Directors: Hiram Rosekrans, E. M. Hall, Hill Beachy, Thomas B. Lewis, N. P. Cole, W. H. Duryea, W. E. Boone, J. L. Browne, Joseph B. Haggin, J. M. Buffington and G. Howard Thompson. Capital stock, $10,000,000, divided into 100,000 shares of $100 each.

The Orleans Mining Co. have filed with the County Clerk a copy of the written consent of a majority of the shareholders that the principal place of business of the company may he removed from Grass Valley to San Francisco.

Increase of Capital Stock.—A certificate of the increase of the capital stock of the Best & Belcher mining company from $2,240,000 to $10,080,000 has been filed with the County Clerk.

Mining Summary.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned

California.

AMADOR COUNTY.

Mines about Volcano. — *Ledger*, Sept. 26: We are pleased to learn that the placer mines, at and in the vicinity of Volcano, are looking very well, indeed. Water is not abundant, but where a fair supply can be had the mines are yielding very well.

The Union Flat claims recently sold by Thos. Sorocco to Messrs. Booth & Co., of San Francisco, we learn, are proving to he very valuable, the yield from the washings unexpectedly large, with ground which it will require years to exhanst. The claims were purchaeed for $16,000, and we are informed the fortunate purchaers could now sell for $50,000.

The Alpine.—Sinking in the main shaft in the Alpine is still progressing, having reached a depth of over 500 ft. The ore in the shaft is of an excellent quality.

Volunteer Mine.—Very rich rock hae been struck in the Volunteer mine, lying a short distance east of the Kennedy. The ore is represented as being remarkably rich.

CALAVERAS COUNTY.

Slate in Calaveras.—*Citizen*, Sept 25: It is a fact that slate quarries exist in the neighborhood of Copperopolis hut up to the present time little has been done to develop them. In Europe and some parts of the United States, slate quarries are often considered valnable and there is no reneon to doubt that if a good quality of slate can be developed here it will pay.

EL DORADO COUNTY.

Items.—*Republican*, Sept. 26: The proprietors of the soapstone gold bearing ledge are now sinking from the end of their tunnel, and talk as though they were well pleased with the appearance of the mine. Capt. Woodworth's mill, on the Young Harmon, wae etarted up yesterday morning. Without donbt, the best qnartz ledge in thie vicinity, according to development, is the Gross ledge, on the east side of Big cañon. The eeveral crushings made have all gone over $100 to the ton. Another crnshing of rock from that olaim, consisting of 14 tons produced $1,704.21 this week.

Taylor Mine.—Cor. *Mountain Democrat*, Sept. 26: The incline runs at an angle of about 60 degrees and is timbered up in a snbetantial and workmaulike manner. From the bottom of the incline drifte have been and are being run along the ledge. To the north the drift is in about 109 ft. For the entire distance the ledge continues unbroken from 10 in. to 3 ft. in width, and where it can he examined between the timbers shows gold, and in some spots very rich. At the end of the drift the ledge wae about 10 in. and wae widening ont. The coa-

tract to extend this drift has been completed, and the day that I was there the company were running it by day labor. The walls were very fine and regular, and between the foot wall and ledge was a gouge, varying in thickness but always present and a great advantage in working, besides being a good indication of a regular ledge. They have out 200 tons of good milling rock. One pile of 80 tons Mr. Gibbs assured me would yield $20 to the ton. There is a 5-stamp battery on the mine, but it is too small to be profitable. They are now talking of putting up a 20-stamp mill.

KLAMATH COUNTY.

PAYING WELL.—*Yreka Union*, Sept. 26: From Ed. Mathewson we learn that the Oak Grove claim, and the Adam Sel's claim, on McAdam's creek are both paying well. They are deep drifting claims and do not suffer for want of water, as do many claims in other parts of the county.

MINES.—The claim of Pippin & Offield at Hamburg bar is said to be paying well. Other claims, on the bar and in the vicinity are also yielding satisfactory. Kettlewood & Andrews have got into their claim in the Klamath just below the mouth of Scott river and have begun to take out money. It is expected that they will do well this year.

CLAIMS ON OAK BAR.—Gregory, Ship & Co. took out of their claim on Oak bar on Friday the 18th, 10¼ ounces; on Saturday the 19th, 12 ounces, and on Monday last 8 ounces. Nothing later has been heard. Clever, Caldwell & Co. took out of their claim on Monday last, 25 ounces. Collins, Pallen & Co. whose claim has been paying from 10 to 12 ounces a day are now working high bed-rock. Varney, Swan & Little are working high bed-rock, but are making wages. Delaney & Co. who some time ago got a good prospect in their claim on Rebel bar, have since stripped off a large cut and are now ready to commence washing up. Eli Miller and the Mott Bros., opposite the mouth of Horse creek have been stripping and are about ready to wash up. The prospects on that part of the Klamath are remarkably favorable for a good season's work.

FORKS OF SALMON.—Mining matters are somewhat dull in this vicinity at present, owing to the scarcity of water in the small gulches, on which many of the miners depend for a supply.

MONTEREY COUNTY.

SILVER.—*Democrat*, Sept. 26: We hear vague reports of the discovery of silver bearing rocks at various points, in the mountains east and west of the Soledad station. There has been considerable preparation to prospect the supposed mines.

NAPA COUNTY.

QUICKSILVER.—*Register*, Sept. 26: 130 flasks quicksilver from the Redington, go down tonight by the express.

THE OAKVILLE MINE.—We understand that the owners of the Oakville quicksilver mine have a meeting in San Francisco to-day, with a view to settling up their affairs to resume active operations.

OUR MINES.—The fever does not seem to abate one iota. Everybody and his neighbor is getting rich—on paper, and don't seem to care a cent for any one. Every evening about sundown you may see people coming in from off the hills in all directions, with their pockets full of rocks, as happy as a clam at high water. The whole of the mountain north and east of Calistoga has been located, from Mt. St. Helena to Walker's cañon, a distance of 12 miles in length. A town has been, or is being surveyed near the Calistoga mine, to be called Borlandville. A town will spring up on the side of old Mt. St. Helena.

THE SULPHUR SPRING MINE.—*Reporter*, Sept. 26: Quicksilver mining in this county is by no means confined to that portion of country that lies above Calistoga. Mines showing evident indications of wealth in cinnabar are known to exist in the ranges of hills that skirt our valley on either side. Among the most prominent of these is the mine above mentioned, situated on the Smith & Calderwood ranch, near Foss valley.

CALISTOGA SILVER MINE.—This mine is indeed, "an object of interest," and all attention is given to any item of news that can be secured about it. So far about 20 tons of ore have been crushed. We are praying for good news of the clean-up next week, as Napa county is deeply interested in the future of this mine.

NEVADA COUNTY.

IDAHO.—*Transcript*, Sept. 27: The new pump of the Idaho Co. promises to be one of the best ever put up in California. The foundation is already nearly finished.

A COAL mine has been discovered above Boca. The vein is 18 in. thick, and the coal has been tested and burns freely. Nevada county can boast of the best gravel and quartz mines in the State, and the day is not far distant when silver, coal and other kinds of mines will make a good showing.

RICH STRIKE IN THE PROVIDENCE.—Very rich rock has lately been struck in the Providence mine, and the point at which it is found the ledge is as wide as usual—that is between 40 and 50 ft. Free gold is abundant, and there is every indication of its continuing as rich to another level. What the probable value of a mine is where there is a body of ore over 40 ft. in thickness, and the most of it filled with sulphurets and free gold, we leave for our readers to determine. Experienced miners have for some time regarded the Providence as one of the best mines in the State.

THE IDAHO SHOP.—Foothill *Tidings*, Sept. 26: Heavy forging is now being done at the shops of the Idaho mine near this place. In constructing the new pumping works for this mine it becomes necessary to use what is known as a V Bob. These are usually about here, made of wood, but to conform to the general character for solidity and permanency of the balance of the work, it was decided to have this of iron. It was a pretty heavy bit of forging for a country shop—the iron in it weighing over 3,000 pounds—and such work for the Comstock mine is done in San Francisco, but it was successfully accomplished this week and superintendent Coleman is engaged in drawing plans for the Balanco Boh for the same works, which will, it is said, contain at least three tons of iron. The Idaho shop contains five forge fires and can boast of some of the best smiths in the country. This heavy forging is in charge of Mr. Samuel Tyrrell.

Good reports are circulating this week in regard to the underground developments of the Empire mine.

THE Omaha incline is now down over 140 ft. and the ledge is of good size and shows well in the precious metal.

PLACER COUNTY.

ST. PATRICK.—Auburn *Herald*, Sept. 26: The St. Patrick quartz mill is pounding away, regularly, some of the time on custom rock, but mostly on rock from the company's own mine—the Bellevue and Crater. The rock now being crushed from the Crater will go at least $25.

At the Crater mine they are doing nothing in the main shaft. At the bottom of shaft No. 3 the foreman tells us they have some splendid rock. The works on the Crater are very fine, and are run in good shape, but business does not seem as lively there, as it did some time since.

AUBURN MINE.—At the time the Auburn mine was sold by the sheriff, Thos. H. Gordon and J. B. Hobson bought what rock there was on the dump. Some time ago they crushed the best of this rock, and got from it $25 per ton. They have, recently, had the balance crushed, amounting to 150 tons, and cleaned up about $1,650 as the result. Wherefore, the mine is not worked?

THE Booth mine is looking very well in the drifts. As fine a specimen as we ever saw outside a show window was taken from the east drift last week. The drift east and west is in about 175 feet, and a force of men are at work at each end, driving it further. In the face of the west drift the ledge is about 5 ft. thick, and every inch the rock pays on an average of say $22 per ton. In the face of the east drift the ledge is not quite so wide, but as yet the rock is richer. Since the mine became incorporated the working force has been increased. Besides drifting, as we said above, both ways, they are at the same time sinking.

CLEAN-UP.—From a crushing of 152 tons of rock from the Booth mine (formerly Orleans) they cleaned up, last Monday, 14½ pounds of gold, or a little over $3,500. This is over $23 per ton, and is considered very good for average rock.

BELLEVUE.—At the Bellevue proper they are at work drifting from the new shaft, and expect every day to strike the ledge. From shafts 5 and 6 they are taking out milling ore every day.

IN the Penryn quarries, owned mostly by Mr. G. Griffith, there are now 100 men employed; 100 at Rocklin, makes 200 men employed in this county in the granite business, and the quarries are not fairly opened yet.

PLUMAS COUNTY.

CARRIBOO.—Plumas *National*, Sept. 26: Most of the miners at this camp are doing well this summer. Orton & Keep are washing surface gravel and making $20 per day. Carr & Ballou have struck splendid prospects in their tunnel on the hill above Carriboo bridge. Trucks & Gardner are lying on the oars, evidently well satisfied with their summer's work on the old Hickman claim. They propose to run a new tunnel on the mine.

MINING ITEMS.—The immense mining operations on the North Fork and East Branch will have the effect of opening a wagon road down the river to Oroville. The Maxwell Mining Co. are extending the survey of their ditch down Spanish creek, and will commence work on it at once. Steam drills are being used by the North Fork Co. in their blasting operations, and are said to work splendidly. The mill of Lawrence & Young is to be put up on Barker Hill, near Dutch Hill. The North Fork Co. expect to have their ditch and pipe completed in the next 40 days. Several of the miners of Carriboo have been making big wages this summer. An old man who mined on Taylor creek, near this valley, in '52, has recently returned and will commence work there again shortly. The new ditch enterprise of the East Branch Ditch & Mining Co. is to be vigorously prosecuted. Surveyor Keddie has made a survey of part of the line of the ditch, a force of men are already at work, and more will be put on in a short time.

SAN BERNARDINO COUNTY.

PANAMINT.—*Argus*, Sept. 21: We are informed that parties largely interested in Panamint have made arrangements to have large amounts of ore hauled direct from the mines to Wilmington, and then shipped by the P. M. S. S. Co. to Swansea, in England. Teams from this valley are now already engaged, and in a short time will be at work. We do not know the particulars for the arrangements, but enough is known to warrant us in believing that our recent wealthy, enterprising and influential visitors mean business, and that incalculable advantages will accrue to San Bernardino, not alone in bringing money into circulation, but by the prominence which the county acquires.

SAN LUIS OBISPO COUNTY.

MINING SALE.—*Tribune*, Sept. 26: Theo. Sherman, of Cambria, has sold 75 ft. in the North Star quicksilver mining company, for $7 per ft. This company has a very promising prospect. It is a consolidation of several mining companies, and their lode is considered to be very rich. They will soon incorporate, and at once commence active operations.

SUTTER COUNTY.

COAL.—*Banner*, Sept. 16: Now is a good time to tunnel in the Buttes. A number of narrow seams of coal have been found, and it is thought they lead to an immense bed of coal. Some think boring would be a better way of prospecting than tunneling. The gas well bored a few years ago in prospecting for coal oil in the same locality, continues to emit a stream of carbon or coal gas, which burns freely.

TRINITY COUNTY.

STRUCK IT RICH.—Trinity *Journal*, Sept. 26: Pete Van Marte tells us that his boys are sinking down on the quartz lodge which they discovered on Mule creek a year ago last spring. They are down 30 feet, rich rock has been taken out and the ledge improves.

GREAT PREPARATIONS.—Mr. Jas. A. Johnston, of Indian creek, has purchased the interests of his former partners in the mine there, and is now engaged in fitting up the claim in the most improved manner. A 22-inch pipe will carry the water to the bedrock, where a distributor will be placed, and from this two 15-inch pipes will be taken and two Little Giants run.

THE BEST YET.—The past winter, John H. Smith and Thomas Baker have been engaged in opening a placer mine on Eastman's creek, above Lewiston. They have a 3-ft. flume, about a quarter of a mile long. The 20 head boxes were run down last week and the first bucketful of dirt taken up contained 20 pounds of gold dust, or about $4,500. The gold is heavy and a large proportion of it remains on the bedrock and in the ditches. This is the best bucketful of dirt ever taken up in the county, we believe. Smith says he don't want to sell, and wouldn't have a better claim than the one himself and partner have just opened.

TUOLUMNE COUNTY.

GRAVEL DIGGINGS.—*Independent*, Sept. 26: Some miners design to start in, the coming winter, to wash the gravel bed near Allen's ranch. They will use the hydraulic and sluice. Gravel washing promises to become a prominent feature in Tuolumne county mining.

THE small gulches near Burns' ranch will pay $2 and $3 per day, with plenty of water.

WE saw the superintendent of the Omega Table mountain gravel company the other day, and he states that the developments in the Alphe justifies the above named company to start in very soon to develop their mine.

GRAVEL CLAIM.—Burns & Connelly contemplate starting a hydraulic on their gravel claim near Marlo's, the present season. The gravel yields a good prospect.

Nevada.

WASHOE DISTRICT.

SIERRA NEVADA.—*Territorial Enterprise*, Sept. 26: There is a steady increase in the influx of water in the main shaft, but the pump easily handles it. The rock in the bottom of the shaft is of a more favorable character for sinking, and better progress in sinking is being made. The rock is becoming harder, which saves the labor of spiling. At the Sacramento chimney there appears to have been a mistake made in the survey, and the upraise has not yet connected with the drift above. At the old mine there is no change worthy of note. The usual quantity and quality of ore is being extracted and crushed in the mill of the company.

CALIFORNIA.—The two north drifts from the 1,400 and 1,500-ft. levels of the Cons. Virginia, that are advancing through this raise to connect with the two corresponding south drifts from the Ophir, are making satisfactory headway.

CONS. VIRGINIA.—The work of cutting out the 1,500-ft. station and enlarging the drifts for the purpose of more advantageously developing that level, is progressing well. The ore breasts on the 1,200, 1,300 and 1,490-ft. levels are yielding the usual quantity of rich ore, while developments on the 1,500-ft. level promise even more than was expected.

GOULD AND CURRY.—The winze near the north line from the 1,500 is rapidly sinking toward the 1,700-ft. level.

DAYTON.—The water in the bottom of the shaft is decreasing. The southwest drift, second level, running toward the Koesuth mine, has been cleaned out. The old Felix winze, 200 ft. above, has been cleaned out to the depth of 112 ft. The south ore stope on the second level has been connected with the first station level, producing a free circulation of air. All the ore-producing sections of the mine are looking fine, and the usual amount of ore is being extracted daily and sent to the Woodworth mill, Carson river.

PHIL. SHERIDAN.—At a depth of 140 ft. there has been encountered what is considered very favorable ground—a mixture of blue clay and quartz. Above their shaft the company have a long tunnel which penetrates the hill in a westerly direction. In this tunnel they encountered a very large body of quartz which assays at the rate of from $5 to $15 per ton. The prospects obtained in the tunnel were considered sufficiently encouraging to justify the sinking of a first-class shaft for the purpose of cutting the vein at a great depth.

CROWN POINT RAVINE.—The Crown Point Ravine Mining Co. have leased the Kentuck hoisting works, with the use of their shaft and a drift running west on the 450-ft. level, to be used in prospecting their vein, now opened to a considerable depth by means of a shaft. At the 200-ft. station in this shaft a drift has been run south in a continuous body of quartz for a distance of about 150 ft., and from this quartz assays ranging from a few dollars to $100 and over have been obtained.

IOWA.—Work has been resumed in this mine. The old tunnel has been cleaned out and putting shape. This tunnel was run many years ago and when work was stopped there were some very promising streaks of ore in its face.

CALEDONIA.—The main shaft is now down 42 ft. below the 1,000-ft. level. The rock at the bottom is harder than formerly. They are confident that they will be able to continue to progress at the rate of 20 ft. per week.

ANNES.—The indications met with on the first level continue of a most encouraging character. They are now engaged in drifting south on the course of the vein, the assays being from $12 to $15. The prospects are good for a fair development on this level.

YELLOW JACKET.—The main east drift on the 1,740-ft. level is being steadily advanced in ground of a favorable character.

SILVER HILL.—The several prospecting drifts on the third station level are encountering white quartz of a very fine appearance, in which bunches of very rich ore are occasionally met with.

WOODVILLE.—The ore bodies on the 200-ft. level are looking about as usual. The clean-up of the mill made last Wednesday yielded $2,000, showing that the ore produced paid about $40 per ton.

CROWN POINT.—The breasts throughout the ore-producing sections of the mine are looking and yielding well. The work of sinking the main incline below the $1,500-ft. level is being pushed ahead as rapidly as possible and good progress is being made. The main south drift on the 1,500-ft. level is going ahead as usual.

ROCK ISLAND.—Some water has made its appearance in the face of the main drift during the past two days.

UNION CONSOLIDATED.—The cross drift east from the main drift north on the 1,300-ft. level is in a very favorable formation.

LEO.—The ore in the several stopes and cross cuts is increasing in quantity and improving in quality.

SAVAGE.—Promising indications are being met with in the prospecting drifts on the 2,000-ft. level, and the sinking of the winze on the same level is progressing favorably.

LADY WASHINGTON.—The new hoisting machinery has been started up and found to work well and smoothly. Work was resumed yesterday at the 250-ft level.

OVERMAN.—The north drift on the 1,200-ft. level is still being pushed ahead in a mixture of quartz and porphyry, with occasional streaks of ore.

BUCKEYE.—The ore-producing sections are looking and yielding about as usual. The Hope mill, at Silver City, is kept in constant operation on ore from this mine.

SUNRISE.—Have increased the force of men in the mine. Have now nearly 300 tons of ore on the dump, and will shortly commence crushing.

OPHIR.—The present yield is about 60 tons per day. The Empire State mill is steadily running on ore from the mine with a considerable reserve of ore on hand. The rock worked during this month paid better than during any former month. Heretofore the yield of the mine has been taken from the winzes and raises between the 1,300 and 1,465-ft. levels, made for purposes of ventilation; now, however, they have commenced laying sill timbers on the 1,465-ft. level for the purpose of regularly mining ore, and the yield will be materially increased. The Nevada mill, on Six-mile cañon, has been secured and will soon be started up. This mill has a crushing capacity of 60 tons per day. The east cross-cut on the 1,465-ft. level is still being pushed steadily forward, and is promising well for the development of a large ore body east of anything ever heretofore found. The air compressor engine has been shipped from San Francisco.

BELCHER.—The completion of the new air shaft to the 950-ft. level has had the effect of reducing the temperature of the air on the 1,000, 1,100 and 1,200-ft. levels to such a degree that the miners now find it quite comfortable in all these sections of the mine—they are now able to work there with their shirts on. When the big shaft shall have been carried down to the bottom of the mine all the lower levels will doubtless be cooled off to such an extent that work can be carried on there as comfortably as is now being done on the upper levels. The ore-producing sections of the mine are all looking exceedingly well, and the daily yield is 500 tons.

KOSSUTH.—The main shaft is down 50 feet below the first station level. The sinking is good, there being no change either in the water or in the character of the rock encountered.

JUSTICE.—Is actively engaged in preparing for the erection of the new machinery, which is fast arriving. A fine pumping engine of 150-horse power arrived for the mine yesterday morning. The bed-plate of this engine weighs 22,500 pounds.

NORTH CARSON.—In the lower drift the workmen have encountered harder rock, and have consequently made less progress.

[Continued on Page 220.]

Manson's Atmospheric Power Hammer.

The machios which has made such a noiee and disturhanes, and collected such a crowd of peopls, night after night, in the northeast corner of he Mechanics' Psvilion, is Manson's Power Hammer. Ths esse with which this hammer is operated, ths perfect control which the operator hae over it, arresting at any point of its ascent or descent, ths wondsrful variations in the power of ths stroke, from ths enormous force given hy ths thres-foot sweep, to ths gentle tapping whioh would scsrcely crack a nut or hurt your finger — all these maks it a most intsresting machins, and thousands during the Fair hsvs eagerly watchsd its movsments. It is the invention of Mr. Wm. Manson, of Downieville. Patented Jnne 23d, 1874. It cousists of a working cylinder directly above the anvilblock, in which worke a piston and pistou-rod connected directly with the hammer. The working oylinder is of long stroke and small diameter, and is connected with the condensing cylindsr by open ports at each end. The condeniing oylinder is of large diameter and short stroke, and its piston is operated by a crank driven by a belt and pnlley. The air ie condensed alternately above and below the condensing pistou, operating upon the working piston in the same maunsr, above and below altsrnately. The length and force of the blow are regulated hy a stop-cock between the two cylindsre, and is operated by a haud lever, and can at pleasure strike any desired length of blow from one-eighth of an inch up to three feet. Thsy havs, aleo, in connection with the same condensing cylinder, small portabls hammers, connected with three-quarter rubber hoss of any required length, which can be carried abont in your hand, and applisd to rivsting, shipping and caulking, stons cutting, etc.

The principal advantsges over all other hammsrs are: sconomy of power, durability, cheapness of construction, and facility of application.

The same patent covsrs a rock drill, so light and compact that a man may carry it about in his hand and apply it in any dirsction. The drill is very effective; will penstrate hard granite at the rate of one inch in two minutes, as demonstrated at ths Pavilion. The great advantsges claimed for this drill are facility of application, economy of power, cheapness of construction, and its durability. The inventor promises to accomplish ths same results attained hy auy other drill, and at one-half the expense. The power ie communicated through the three-quarter inch rubbsr hose before mentioned. The pateut also covere quartz-crushing stamps, driven by ths same power. Several of these stamps are now in constant use. Mr. Manson claims that a two-stamp mill of this kind will crush ae much ore as a tsn-stamp mill of the ordinary styls.

Oakland G. & S. M. Co.—T. G. Nsgns, of Unionville, arrived in town last Tuesday direct from San Francisco, whsre he has been for the last two months supsrintending the construction of the machinery for a 15-stamp mill for the Oakland G. & S. M. Co., owner of the Eagle mins, a few miles south of Unionville. The machinery of ths mill was made at the Pacific Iron Works, San Francisco, and is first-claes in svery particular. Ths mschinery is all at Oreana and ths lumber for the building is all on the grouud near ths mins. Mr. Negus informs us that he will employ all the force he can use to advantage in the building of the mill, and that he expects to havs it in running order in two months from date.—*Silver State.*

Struck It.—A company compossd of Smith, Mills, Foots and others, havs been running a tunnel for eome tims ont near Cement hill, for the pnrpose of tapping ths ancient channel which is known to run through that vicinity somswhere. Althongh rspeated efforts have besn made and a great deal of money expended, bnt little encouragement has been reosived until a day or two since the tuunel was driven into the chaunel, and we are informed the gravel prospects first rate. The ground near ths place struck wss at one tims very rich, and several hnndred thousand dollars were taken ont. It is a pretty safe gusss that the owners have got a homs stake at lsst.—*Nevada Transcript.*

Mines, says ths *Transcript*, are made by opening np undevelopsd leads and veins. Thers are many veins in this county that if developed wonld make paying mines. The conuty wants men that will work the undevsloped ledges. Every man who is willing to work should he encouraged to do so. Thsrs is ons drawhack to men's doing just what is needed. There is not a ledge or a sign of a ledge in the whole country but some one pretends to own it. It may lie there 40 years and it will not bs tonched hy ths owner. But let another party commencs work with a prospect of devsloping a mine, and the ownsrship will soon bs made clear. There is somethiug wrong about it.

Virtue Mine.—In this mins, in driviug forth farther than has bsen hsretofore gons, thsy have struck a large hody of very rich rock. The vein is about two fsst in thickness. Mr. Hyde, the snpsrintendent, will run thrse drifts of 200 fest each in this mine, the contracts for the rnnning of which were let yesterday. New pump machinery has bsen ordered from San Francieoo and is now on the road here. Everything is being pnt in the hest of working order in and about thia mine, and ths public may soon hear of large clean-ups, and often, at thie mill and mine.—*Bedrock Democrat (O.)*

The El Dorado Canon Coal Mines.—W. F. Stewsrt, ths well-known ecisntiet and late editor or of the Virginia *Chronicle*, day before yesterday visited ths El Dorado cañon coal measures, and published his viswe in rsgard thersto in ths *Chronicle* of last evsning. We quote ths concluding paragrsph of his srticle, in which he sums up ths convictions in regard to ths coal formation of ths region named: "At pressnt ths company ars rnnning a drift for the purpose of draining ths uppsr ledges, but in ths conrss of a fsw weske thsy will commsnce sxtracting coal for commercial pnrposs. In conclusion, ws havs only to ssy that ths discovery of so sxtsnsivs a body of good fnsl, so closs to Virginia City, is a godsend. It will not hs long hefore our wood supply will he sntirsly exhsnsted, and, in ench predicamsnt the vaet machinery in thie locality wonld coms to a dead-lock. It is thsrefore gratifying to bs able to state from personal observation that the El Dorado coal mine is cspable of supplying for all time to come all ths fuel which may he needed in Western Nevada."—*Virginia Enterprise.*

Determining the Alcohol in Wines.—If to s known volume of water larger and larger quantitiss of alcohol are added, the deneity and the euperficial tension of ths mixtures obtsined are simnltaneonsly diminished, and consequently thsre is an increase in the numbs of drops which they form if allowed to flow slowly from a given aperturs. If this aperture has coustant dimensions, the numbsr of drops corresponding to each alcoholic mixture is constant also. Ths difference betwesn the numbers thus found is large enough to furnieh a hasis for a very sensitive alcoholio metrio method. The instrnment proposed is a pipette holding 0.3 cubic inch. It is filled with the alcoholic liquid under examination, and the number of drops eecaping is counted. From this nnmber the proportion of alcohol is calculatsd by the aid of tables which ths author hae drawn up. Slight traces of liquids more diffusible than alcohol, euch ss scetic ether, grsatly increase the nnmber of drops.—*Chemical News.*

The Carbon Light.—A uew and intensely white light has lately heen invented and sxhibitsd by Mr. William Day; of Ohio. A thin ribhon of carbon is suspended hstwsen two platinnm polss, and covered by a glohs containing dry carhonic acid gas. The ribhon receives an electric current from a battsry, and whils the atmosphere of the gas becomes brilliantly incandescsn, the carhon is not consumed, and the light is ssid to hs perfsctly constant. The method was invented by Profeesor Osborn, of Miami University, who at first thought it necesssry to use very thin strips of oarbon, but the light is now producsd with mnch larger ribbons and with little combuetion. The heat generated has nsver as yet broken the small glass globe containing the ribhon. This light heing ooustant, and not reqniring the combustion of oarhon, may prove much more ueeful to scientific lecturere than the ordinary electric or oxyhydrogen lights, b oth of which are troublesoms to hsndls.

Crystal Mining District.—A new mining district named Crystal has heen organizsd in the Fremont range, nortbeast from this town, by Ginacca, Gihtz & Co., proprietors of ths Hnmholdt reduction works. This company discovered a lode in the new district and named it "Louisa," which has been prospected hy a shaft to the depth of twsnty-five feet. At that depth the ore is three fest thick, and three car loads of it extracted in sinking hae heen taken to the mill for redncticn. Ten tons of thie ore has heen worked and it yielded $60 per ton in silvsr. The ore is decomposed, and contaiue a small percsntage of lead and antimony. Ginacca, who has had considerable expsrience in mining and knows whereof he speaks, thinks the Louisa ie a vsluable mine. The mountain in which it is situated is in plain view of town. —*Silver State.*

Mines in Saxony.—It appears that in 1871 there were in Saxony 569 minss, embracing 36,095 hectares, and in 1872 there were 630 minss and 39,000 hectares. Of the latter 312 were metallifsrons and soms other mines, 101 were collieries, and 217 were lignite mines. The minss appear to bs wsll officered, for it seems that in the metallifsrous mines there was an officsr for each seventeen men employed, whilst, taking mines of all classes, there are twsnty-two workmen for each officer, and the 1,234 officers have likewise to attend to 742 women. The nnmber of accidents, howevsr, appears to he comparatively small.

Slag.—In Belgium, ths glaes-makers ntilize slag as an ingredisnt nsed in ths prodnction of glass, and in ths same country it is turned to profitahle acconnt by the process of granulation. According to Professor T. Egleston, of the Colnmhia Collegs School of Mines, ths most valuable uss to which elag has yet been applied is the manufacturs of csment. Mr. Egleston aeserts that he has has eesn cement equal to any of the hest Portland cemsnt, made at a vsry small cost, and that from any slag, no matter how ths composition varies.

The piece of quartz found in the Burden claim, which creatsd a furors the other day, ranging in statement all the way from $20 to $500, when poundsd up turned out lsee than $40. So says the Tuolumne *Independent*. We have heard of a great many other pieces of quartz which turned ont in the same way. Estimatss of value of rock before crushing are seldom of much account, ae people are liable to exaggerate in matters of thie kind.

Aerial Navigation.—De Fonveille thinke it highly probable that the gss of a free balloon diffsrs in temperature from the external air hy 10° C., at least twice daily. This ruptnre of thermal equilibrinm mnst limit its courss to a vsry small number of days; independently of other disturbing canses, it would render a psssage across the Atlantic impossibls. Nor csn ths disturbanoe bs obviated by closing the orifice of ths balloon with a hsrmetic valvs. A small balloon of transparent csoutchouc sxplodss loudly when msrsly pisrced with a pin; this is dus to the snrprising rapidity with which the membrans is rent, although the prsssurs of the hydrogsn does not grsatly sxced that which would obtain within a largs fres balloon, whsrs it might hs sought to neutralizs ths effects of the eolar dilatation. Nor would ths grsatér resistancs of envelop obvists the disastsr. M. De Fonveille also remarks on the deepatching of pigeons from balloous at regular intervals, on the diesstrous voyags of Mountain and Bailey, and other topics.—*Academy of Sciences.*

Silvering and Gilding Iron.—S. L. Delatot, of Paris, has taken a patsnt for platiug iron with silver and gold without previously copper plating. Ths iron ie fnsed with 1.2 per cent. nickel and 1.20 per cent. manganeee. Such iron is immersed in water containing 1 per cent. slaked lims, and is immediately, without drying, put into the silver or gold solution. The former is prepared hy dissolving ½ part of nitrate or chlorids of silver, 2 parts bicsrhonats of soda, and ¾ part cyanide of potassium o eed um, in 100 parte of water, and adding ar few drops of prussic acid solution. The gold solution is made up of 100 parts of water, 1-64 part chloride of gold, 4½ parts bicarbonate of soda, 1½ parts pyrophosphats of soda, 1-16 part cyanide of soda, and a very little prussic acid. The ordinary electro-galvanic process is employed.

An extraordinary account hae appeared in a French agricnltural jonrnsl, to the effect that straw forms admirable lightning conductors. It had bssn observed that straw had the property of discharging Leyden jars without spark or explosion, and some one in the neighborhood of Tarbes had the idea of constrncting straw lightning conductors, which were formsd by fastening a wisp or rope of straw to a deal stick by means of brass wire, and capping the conductor with a copper point. It is asssrted that the sxperiment has been tried on a largs scale arouud Tsrbss, 18 oommnnes having besn provided with such etraw conductors, only ons being erscted for every 60 arpents, or 750 acres, and that the whole neighborhood has thus heen prsserved from the effects, not only of lightning, bnt of hail also.

Honey Mine.—The other day, as Mr. William McVay wse hlasting in the cliffs of mountains east of Grayson, in ssarch of qnicksilver, he was astonished at a swarm of honey hees leaving the crevice. Another blaet of powdsr and the cause wae revealed. Instsad of quicksilver hs has fonnd a mine of pnre honey of the most delicious flavor. Over 400 pounds were taken from the cave, or excavation, in good merchantable condition. It is presumed that the hses have heen at work in their rock-hound hive for some years, and would have, undoubtsdly, remained had not our enterprising prospector disturhsd them. We understand that work will now he pnshed ahead on that claim, as the finding of such a largs quantity of the sweets of life at the very outset is considsred a good omen.—*Stanislaus News.*

The Providence Mine.—We understand that the Providence mine is looking well, and that a full force of men are at work. The ledge continuee its usnal sizs and ths rock pays wsll. The snlphnret works enable the owners to obtsin all the gold in the rock without hauling a mile or two as they formerly wsre obliged to do. The work goes on quietly but thoroughly, and devslopmsnts are heing made that ehow ths mine one of great valne. The persietency of the owners in continning to expend their money under the adverse circumstancee which attended their working for the first two years after their pnrchass, is deserving of a rich reward, and they have the most flattering prospects of recsiving it.—*Nevada Transcript.*

The *Enterprise* of Ssptemhsr 25th, says: The scarcity of water in the Carson river has caused the ehutting down of eo mnch machinery in the mills that the hullion yield for the present month can not be otherwise than light. How the Belcher and Crown Point will manage to pay their nsual dividsnds remaina to he seen, as nsarly all the mills of these companies are on the rivsr. The Con. Virginia will in no way hs affected, as all of their mills are driven by steam; thsy will, therefore, produce the usual amount of bullion.

New Hoisting Works.—We noticed in passing the Murchie mines the other day, that there has heen a nsw building erected at the lower edge, the mschinery used heretofore heing moved into it, and rook is heing raised. Both mines are said to he improving steadily. New hoisting works will also soon he erectsd on ths North Star lode. The owners are all miners, and can make a mine pay if anyone can. —*Transcript.*

Clothes Cleaning. — Rnhbing champagne stains, grease epots, etc., first with ammonia and afterwards with benzine, will remove them.

Varnish Manufacture.

To the lsft and near the entrance of the Mechanice' Institute Pavilion may be seen the sxhibit of the Pioneer Varnieh Works, Hueter Bros. & Co. There sre ninetesn vsrieties of prepared varniehes arrayed in a most sttractive manner, in as many long, flat bottlee, made in New York expressly for this pnrpoee; also about twenty samples of gums from which ths varnishes ars manufactured. All thsss are arrangsd ou a handeome carved show-frame, mads in imitstion of show-framse used at the Vieuna Exposition; also an elegant show-frame containing ons hundred sampls of fine hrnehss and psncils; they also show a largs varisty of artists' materials and sealing wax of all tints. the sticke varying in size from that of a lsad pencil to a foot in length by one inch square. As the manufacture of varnish is not a common industry, the procese and msnner of obtaining the material may he considered of interest:

The subetancee from which varnish is mads are gum copal, prepared linseed oil and spirite of turpentine or benzine. Of copal there ars many different kinds, varyiug in price from 10 cents to $1 per pound. It ie a product of the copal tree (*rhus copallina*), which growe in Africa, Anstralia and the East Indies. The gums are named from the places whers they are found, Manilla, Kanri, Mogador, Sierra Leons, Bsoguela, Zanzibar, etc. The last named ie considered the hest in quality, and is chiefly ussd in the manufactnre of coach and carriage varnishee. All these gums are found emhedded in the earth from one to ten feet helow the surface, having oozed out of the treee psrhaps hundreds of yesrs ago, judging from their hardnese. It is no nncommon occurrence to find insects perfectly preservsd in eome pieces of copal, showing that the gum mnst have once heen a very thin liquid.

To proceed with the msnufscture. These gums, after bsing csrefnlly selected and cleansd, are fussd in copper and enameled iron kettles, made expressly for this purpose. This process requires grsat caution, practice, and a large amount of experience, as eaoh kind of copal musths differently treatsd (an experienced hand commande very high wages, and in the Eastern Statee is very frequently partner or sharsholdsr in the bueiness.) The linssed oil ussd in the mannfacture mnst be strictly pnre and aged, and after being prspared with driers, ie storsd away to clarify—each kind of varnish requiree a differently prepared oil. The gnm copal whsn fnsed is ready to receive the drying oil, but only combinee with the latter when it is heated to a certain degrse. After cooling spirite turpsntine or benzine is added and the varnish is then stored away in tanks, which should be surrounded by a warm, even temperature, in order to make the clarifying process a thorough one.

For several yeare ths varnish trsde hae suffered grsatly, for the reason that some unscrupulous Eastern manufacturèrehave drugged the market with varnishes largely sdultsrated with rosin. Thie product, worth from one to thrse cents per pound, will necessarily make a pale varnish, hut one of no durahility whatever. It remsins "tacky" for a long time and losss its glose in a fsw weeks. The price at which these varnishes are sold is proof conclusive that they are not made of copal. Every consumer and dealer can find the lowest price of copal, oil and tnrpsntine qnoted in our commercial papers, and must draw the conclnsion therefrom that a purs article cannot possihly be sold or manufactured at snch figures.

The proprietors of the San Francisco Pioneer Varnish Works have made it a po'nt to manufactnre none but perfectly pure and reliahle varnishes, and the numerous testimonials from leading dealere and consumers go to show that the goods they tnru ont have given nniversal satiefaction. At their new factory, built aftsr the latest improved Enropean plan, they ars able to produce from 300 to 400 gallons per day, and the dirsct importstion of the matsrial used enables them to compete with any of ths leading Eastern firms, not alons in the price, but also in the quality of their mannfactures. The firm are also agents for Harland & Sous' English coach varnishes and are dealers in fine brnshss and artists' materials. Sixteen yesrs ago, 1857, this firm, then styled Marx & Hueter, received the first diploma for varnishes mauufactured here.

Disintegration of Tin.—A manufacturing honse in Rotterdam despatched for Moscow last winter a certain qnantity of tin, in the ordinary form of hlocke. The metal, convsyed by railway in very cold weather, reachsd its destination in the form of a powder of largs orystallins grains. It had a gray color, quite differsnt from that gsnerally preeentsd by tin. Chsmical analysis showed that the metal was almost quite pnre, containing at the most 0.3 per cent. of foreign snbstances (lead and iron).

Sulphuron.—C. Roberts recommends to saturate snblimated snlphur partly with snlphnroue acid, and to use this product, whioh hs calls sulphuron, instsad of the fine pulverized snlphnr, for the destrnction of vegetable and animal paraeites living upon plants like, vinss, roes bushee, etc.

Auburn Mill.—This mill is now running on ore from all quarters of ths globs, one might almost say, and not stretch the truth. Latsly some very fine looking rock hae heen rsceived from Cornucopia. The Anburn Mill company ie making a good record for itself.

Useful Information.

Treatment of Furs.

Mr. Jos. Tussaud communicates to the New York *Tribune* an originel and effective plan devised by him for the preservation of furs. The attention of Mr. Tussaud was first called to the subject by his desire to transfer the hairs of fur-bearing or other animels to wax-figures without including the skin in which they grew. After numerous experiments he succeeded in accomplishing this and developing a new industry. The great object which he aimed to secure was the removal of the hair or fur from the natural to an artificial skin, obtaining thus a more perfect degree of preservation for any purpose whatever, while retaining the hairs in their original and natural relationship. For this purpose the piece of fur to be treated may be soaked in lime water or other suitable liquid, as practiced by tanners, for the purpose of loosening the adhesion of the hair. It is then to be washed in water, and hung up for a time to dry off the excess of moisture. It is then laid on a board, with the hair side up, and a solution of glue applied by means of a brush, taking care not to disturb the natural position and relation of the hairs. The size or glue is then allowed to harden, when it will hold the fibers very firmly. The natural skin may then be pulled entirely off from the hairs, leaving their ends exposed, which may then be washed by some substance to free them entirely from adherent fat, bulbs, etc., and properly poisoned. An artificiel skin is next to be affixed, by applying India rubber, gutta percha, boiled drying oils, or other water-proof substances, over the roots of the hairs, and allowed to dry, so as to form a continuous membrane; after which, all that is necessary is to again soak the skins in warm water for a time, to dissolve out all the glue, and the new fabric is produced in its completed condition. To render the rubber or gutta percha more lasting, it may be combined with sulphur, so as to vulcanize it, for which purpose a solution of chloride or hypochloride of sulphur in bisulphuret of carbon may be employed. In using bisulphuret of carbon, 40 parts of the same are to be added to one part of chloride or hypochloride of sulphur, prepared as neutral as possible, and the solution is then allowed to remain in contact with the artificial skin of rubber or gutta percha for a longer or shorter time, a minute being sufficient for a thin sheet. This operation must be completed, of course, before immersing in warm water to remove the glue which produces the adhesion of the hairs. One great advantage of this process consists in the fact that fabrics thus prepared are moth-proof, and it is suggested that for many purposes, such as the construction of rugs, mats, etc., they must be superior to the natural skin. In the case of heavy skins, the artificial preparation is much lighter, more pliable, and better in every respect. Several of these artificial skins may be combined so as to form one, or they may be modified in any manner desirable. When properly made, the preparation is entirely free from any smell, and especially the animal odor, which is so offensive in many furs.

Back Yards.

The *Rural New Yorker* has a very sensible article on the general untidiness of the rear of the average American houses: Take the prettiest and best kept village of New England, and we doubt if a tenth part of even the most pretentious mansions and the most ornate cotteges will bear examination in the rear. Instead of being nicely finished in all their petty domestic details and conveniences, and kept snug and trig, with trim grass-plots, with all the subordinate avenues and garden approaches well-graveled, clean-swept and free of refuse, and everything wholesome and orderly, there is apt to be a look of general untidiness, as if all the residual rubbish of years had been dumped therein. Not unfrequently a railroad runs its track in such a manner as to expose the rear of plenty of houses to the eye of the traveler over it—whose sense of neatness is offended by square rods of back-yard lumbered up with every conceivable variety of second-hand, damaged and invalid articles known to domestic use, from a horse-cart disabled by broken thills and wrecked wheels, to the ghost of the baby-carriage which survives two generations of children; interspersed with smashed crockery, rusty and condemned tinware, old boots, sardine boxes, disabled junk bottles, hoop skirts which would have outlived all usefulness if they had ever had any, chips, burdock, mullein, ashes, half-burned lumps of wasted coal, and all imaginable litter, trash, debris and dirt. On the other hand, nothing is prettier than a cottage which is thoroughly well-kept in the rear as well as its more public portion. It seems inevitably redolent of a purer, sweeter, happier domestic life than one with heaps of festering rubbish crowding hard upon it.

A company has been formed to work the sulphur deposits at White Island, a marine volcano 140 miles from Auckland, a description of which, communicated by M. Morhange, appeared in the Press some time since. It is estimated that 100,000 tons of sulphur in an almost pure state are lying on the island ready for shipment. The *Journal of the Society of Arts* says that chemical works are likely to be established soon, and the island leased.

Warmth of Clothing.

Dr. Von Pettenkofer, in a careful study of the subject of the warmth of clothing, recently published, has pointed out that the permeability of stuffs to air is a condition of their warmth. Of equal surfaces of the following materials, he found that they were permeated by the following relative quantities of air, the most porous, flannel, such as is used ordinarily for clothing, being taken at 100:—Flannel, 100; linen, of medium fineness, 58; silk, 40; buckskin, 58; tanned leather, 1; chamois leather, 51. Hence, if the warmth of cloth depend upon the degree in which it keeps out the air from our bodies, then glove kid must be 100 times warmer than flannel, which every one knows is not the fact. The whole question, then, is resolved into that of ventilation. If several layers of the same material be placed together, and the air be allowed to permeate through them, the ventilation through the second layer is not much less than through the first, since the meshes of the two form a system of continuous tubes of uniform diameter, and the rapidity of the movement of the air through these is effected merely by the resulting friction. Through our clothing, then, there passes a stream of air, the amount of which, as in ventilation, depends upon the size of the meshes, upon the difference of temperature beween the external and internal atmosphere, and upon the velocity of the surrounding air. Our clothing, then, is required, not to prevent the admission of the air, but to regulate the same so that our nervous system shall be sensible of no movement in the air. Further, our clothes, at the same time, regulate the temperature of the contained air, as it passes through them, so that the temperature of the air between the clothing and the surface of our body averages 84 deg. to 86 deg. Fah. The hygroscopic property of different materials used for clothing essentially modifies their functions. This property varies with the different materials; wool, for instance, takes up more water than linen, while the latter takes up and gives off its watery contents more rapidly than the former. The more the air is displaced by water from the clothes, the less will be their power of retaining the heat; in other words, they conduct the heat more readily, and hence we are quickly chilled by wet garments.

Useful Rules.—The following simple rules should be at hand with every millman, and in fact every one who has charge of machinery of any kind: To find the circumference of a circle or of a pulley—Multiply the diameter by 3.1416; or as 7 is to 22, so is the diameter to the circumference. To compute the diameter of a circle or of a pulley—Divide the circumference by 3.1416; or multiply the circumference by .3183; or as 22 is to 7 so is the circumference to the diameter. To compute the area of a circle—Multiply the circumference by one-quarter of the diameter; or multiply the square of the diameter by .7854; or multiply the square of the circumference by .07958; or multiply half the circumference by half the diameter; or multiply the square of half the diameter by 3.1416. To compute the diameter of a toothed wheel—Multiply the number of the teeth by the true pitch and the product by .2184. These results give only the diameter between the pitch line on one side and the same line on the other side, and not the entire diameter from point to point of teeth on opposite sides.

The curators of the Anatomical Museum of the *Jardin des Plantes*, in Paris, have found that spirits of turpentine is very efficacious in removing the disagreeable odour and fatty emanations of bones or ivory, while it leaves them beautifully bleached. The articles should be exposed in the fluid for three or four days in the sun, or a little longer, if in the shade. They should rest upon strips of zinc, so as to be a fraction of an inch above the bottom of the glass vessel employed. The turpentine acts as an oxidizing agent, and the product of the combination is an acid liquor which sinks to the bottom, and strongly attacks the bones, if they be allowed to touch it. The action of the turpentine is not confined to bones and ivory, but extends to wood of various varieties, especially beech, maple, elm and cork.

Spontaneous Combustion of Wool.—The Press recently contained an item clipped from an English exchange, which might be likely to mislead readers if left uncorrected. We are now informed by Mr. J. R. Woods that the ship "Red Jacket," of the Liverpool and Melbourne line, was set on fire from this cause, and that the "King of Italy," formerly the "Angusta Wattenbach," while on the voyage from Australia to England, was entirely destroyed by spontaneous combustion of wool on board. Our correspondent adds that other cases could be cited.

Testing Dampness.—The editor of the *Scientific American*, in answer to a correspondent, says: The easiest way to test for moisture in a cellar will be to provide yourself with a thermometer, a glass tumbler filled with water, and a piece of ice; then notice how low the thermometer, when placed in the tumbler, has to sink before any moisture begins to show itself on the outside of the vessel of cold water. The lower the temperature to which the thermometer has to sink before moisture is precipitated, the less there is of it in the moisture of the cellar.

Good Health.

The Increased Use of the Members.

We doubt if the human body has ever in any instance attained the acme of its possible development; and by this we mean that while certain sets of muscles or organs have, in individual cases, become subjected to the will so as to perform feats impossible save through education, we do not believe that the being ever lived who could control every member so as to cause it to operate to the extent of its capabilities. Whether in future ages such a condition will mark a higher stage in the development of the race; whether, as the human mind expands, or as the saying is, the "world grows wiser," it is reserved for physical culture to keep pace with such mental growth, is a subject for speculation, which, in view of the doctrines of evolution and the constant approach of organic species toward more perfect individualism, is by no means devoid of present interest.

We have discussed at some length the question of the use of the left hand, and we have pointed out that, by a mistaken notion, children are taught to discard the use of the member, and hence to lose half the powers which nature intended they should have when she formed the body as it is. We have also suggested that, so far from restraining the infant from using its left hand, its tendency to employ both members indiscriminately should be encouraged. Now, we propose to advance a step further, and to ask why should not a child be taught to utilize both hands at once, and at different occupations. The idea may seem somewhat chimerical at first, but it is not without the bounds of possibility. The reader has doubtless seen jugglers who, in performing their dextrous feats, become so expert that, without any apparent difficulty, they can keep half a dozen knives or balls constantly in the air or on each hand. The falling and rising of these objects are not uniform, and hence to all intents the performer accomplishes a totally different result with each member. In similar manner great pianists—Rubenstein is a very striking example in point—use either hand upon the keys with equal dexterity and both together in playing music of tremendous difficulty, which requires a power of perception and a control of the muscles of each individual finger which is simply wonderful. Again, an organist, in performing upon a grand instrument, has several things to think of at once; both hands on the keyboard, both feet on the pedals, with stops on either side, couplers and the separate devices for the *crescendo* and other accidental effects are to be looked after. Here are four members of the body acting different parts at the same time.

We could multiply instances of this kind with little trouble, all going to show that even when advanced in life it is possible to educate a certain set or even sets of muscles to perform hitherto unnatural work. Cases there are where men, on being disabled in the arms, have had recourse to their toes, and used those members for writing and even handling tools. We have visited the studio of quite a celebrated French artist whose exquisite paintings were entirely produced with brushes handled in the above manner. But while an individual member or even the body may be educated to perform feats apperently impossible, it requires a higher order of training to compel the members to perform different operations at once—a training, we think, only to be fully imparted in beginning at the earliest years, but still fully possible. With our dual brains the right lobe is now the most developed, and with it the dexter side of the body. Let means be taken to develop the left side equally, and the body is symmetrical in its powers. Each side, governed by both brains, will be capable of work for which now, when controlled by, say, three-quarters of the brain power, it is inadequate.

We need not point out the advantages to a person who can thus use both hands in connection with the brain. We have known an artist who could draw two different pictures at once; and a very eminent professor of natural history, while watching a specimen through a microscope, sketches with one hand while writing with the other. Now, if a person advanced in life can become so educated, how much easier it would be to impress the same on the plastic mind of a child! Once taught, the person could write upon two different subjects at once, could make two copies at the same time, could write up two sets of books, could make stenographic notes and write them out in long hand simultaneously, and perform in brief a variety of operations productive of lucrative results. Moreover, he could do each understandingly, and not semi-automatically with one hand. Nine-tenths of ordinary pianists who have to "learn a piece" play the treble with their brains and the bass with their muscles. The left hand learns certain fixed skips and jumps by practice, and performs them automatically at certain times, while the right hand carries the expression as well as the air of the composition, and is much more directly under the control of the performer.—*Sci. Am.*

Writers' Cramp.—This disease is more common than one would suppose. Dr. Poore mentions ten cases as having occurred in his own practice within a year, and he gives specimens of the handwriting in various stages of the disease.

Natural History.

The Laughing Plant.

The London *Garden* copies, from Palgrave's work on Central and Eastern Arabia, an account of a plant whose seeds produce effects similar to those of laughing gas. It is a native of Arabia. A dwarf variety of it is found at Kaseem, and another variety at Oman, which attains to a hight of from three to four feet, with woody stems, wide-spreading branches, and bright green foliage. Its flowers are produced in clusters, and are of a bright yellow color. The seed pods are soft and woolly in texture, and contain two or three black seeds, of the size and shape of a French bean. Their flavor is a little like that of opium, and their taste is sweet; the odor from them produces a sickening sensation and is slightly offensive. These seeds contain the essential property of this extraordinary plant, and, when pulverized and taken in small doses, operate upon a person in a most peculiar manner. He begins to laugh loudly, boisterously; then he sings, dances, and cuts all manner of fantastic capers. Such extravagence of gesture and manner was never produced by any other kind of dosing. The effect continues about an hour, and the patient is unconsciously comical. When the excitement ceases, the exhausted exhibitor falls into a deep sleep, which continues for an hour or more; and when he awakens, he is utterly unconscious that any such demonstrations have been enacted by him. We usually say that there is nothing new under the sun; but this peculiar plant, recently discovered, as it exercises the most extraordinary influence over the human brain, demands from men of science a careful investigation.

Learned Birds.

The Baltimore *American* gives the following account of a troupe of trained Java sparrows and paroquets now exhibiting in the streets of that city: "When a suitable place is found, a circular table is opened, and the birds turned loose upon it. They manifest no fear at the crowd, and do not offer to escape. The performence consists of ringing bells, trundling small wheel barrows, sleek wire walking, firing off pistols, dancing, swinging each other in small swings, an excellent imitation of a trapeze performance, and a number of other equally interesting tricks. The most wonderful part of the performance, however, is done by a paroquet. The bird walks to the center of the table, and, after bowing to the crowd, seats himself on a chair near a bell. To the clapper of the bell there is attached a small cord, and any one in the crowd is allowed to ask the bird to strike any number of times upon the bell. If asked to strike 10 times, he leaves the chair, seizes the bell-rope and pulls it 10 times, after which he bows and returns to his seat. This was repeated a great many times, and, with one exception, the bird made no mistake. The bird will strike 27 times, but after that he refuses; and his owner states that he has worked nearly a year to get this bird to strike up to thirty, but it appears that his memory gives out at that point, and it is unable to count further."

Marine Animals in Fresh Water.—Prof. Ramsey, in *Popular Science Monthly*, states some facts which certainly have a most important bearing upon the attempts of our fish culturists to habituate shad, salmon and other anadromous fish in salt water, and ought to encourage them to hope for complete success. He says: At the present day, animals commonly supposed to be essentially marine, are found inhabiting fresh water. In the inland and fresh lakes of Newfoundland, seals which never visit the sea, are common and breed freely. The same is the case in Lake Baikal, 1,280 feet above the sea level, in Central Asia; and, though these facts bear but slightly on my present subject, seals being air-breathing mammalia, yet in the broad mouth of the Amazon, far above the tidal influx of the sea water, marine mollusca and other kinds of life are found, and in some of the lakes of Sweden there are marine crustacea.

Mushroom Power.—A correspondent of the *Gardeners' Chronicle*, of London, gives an interesting account of the force exerted by the mycelium of the mushroom in making its way through apparently impenetrable materials. He says: "I observed a few days ago in our mushroom-house, with considerable interest, and I may say, with surprise, the penetrating power of mushroom spawn. One side of the bed is of brick, 4½ inches thick, firmly set in hard lime, so close in the texture that it is impossible to introduce the point of a nail without considerable force. Nevertheless, the mycelium found admission, and produced mushrooms of a considerable size on the outer side. The wall in several places contains porous bricks, and there, too, the mycelium found its way right through."

Rabies in Ants.—Corrosive sublimate, it is said, has the most remarkable effect upon ants. The powder, strewed in dry weather across their path, seems to drive every ant which touches it crazy. The insect runs wildly about and fiercely attacks its fellows. The newsoon travels to the rest, and the fighting members of the community make their appearance with a determined air, as if the obstacle would be speedily overcome by their efforts.—*Naturalist in Nicaragua.*

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San Francisco:

Saturday Morning, Oct. 3, 1874.

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THE Owyhee Water and Gravel Mining company, Mountain Island district, State of Nevada, 80 miles north of Etko. The mines are 40 miles distant from any road except such as has been made hy the company. This claim covers 160 acres hy original purchase, and also by subsequent purchase 300 acres more. They also claim the waters of three creeks; the south fork of the Bruno creek, Bruno creek and Penrod creek. The company have already expended $10,000 in prospecting; they are now building a ditch five and a quarter miles long, three feet at bottom, four feet at top, and high enough to carry 1,000 inches of water. One inch of water will give 75,000 gallons in 12 hours. This ditch is so far advanced that they expect to finish it by the 15th of October. They employ 14 white men and 60 Chinese. Work was commenced in November, 1873. On a very small piece of ground, in the month of June, in 15 days' run, with 80 inches of water, they took out $1,560 in bullion. The dust is very fine, and assays $19.60 to the ounce. The water was too low to continue working the claim to advantage, which led to the construction of the ditch, above referred to. They expect to have a run this fall, and calculate to realize from $15,000 to $20,000. The officers of the company are J. W. Pence, (banker, Mineapolis, Indiana,) President; R. Lande, Secretary; M. A. Baldwin, Superintendent; J. W. Pense, O. H. Le Grange, H. H. Pierson, B. Lande and M. A. Baldwin, Directors.

WONDERLY'S CAR COUPLING.—Mr. A. Wonderly, of Palisade, Nevada, the inventor of Wouderly's patent car coupling, has his invention in practical operation on the Eureka and Palisade Narrow Gauge Railroad, where any one who wishes can see how the coupling works. The owners of the patent are Messrs. Wonderly, Griffin & Co. The patent for this invention was obtained through the agency connected with this office, and we are glad to know that their invention gives satisfaction after being practically tested. The owners of the patent are well known as gentlemen of enterprise and business capacity and they will no doubt introduce their car coupling on other railroads.

IN Rush Valley district, Utah, they are opening up some excellent prospects.

A Hand Rock-Boring Auger.

Mr. A. J. Doolittle, of Liberty Hill, Nevada county, has shown us a peculiar hand drill or auger for rock boring, which works on the principle of the ratchet drill. This drill was invented by R. A. Thomas, of Damascus, Placer county, Cal., now of Ohio, and has been in use by the Mountain Gate Tunnel Company for some four years, during which time they have run about a mile of tunnel through slate bed-rock, and have raised therefrom five shafts averaging one hundred feet in perpendicular hight. The company certifies that this drill saves them about one-half the expense of blasting attending the use of the ordinary hand drill. It is also used by the Van Emons Bros. in the Big Gun claim, at Michigan Bluffs, and by several other companies in the same neighborhood who also certify to its superior merits. It has also been used in cutting the Doolittle & Raymond ditch from Liberty Hill to Bear river, a distance of nine miles, which has been run chiefly in slate and hornblende bed-rock. By boring long horizontal holes on the bottom of the ditch grade, beneath the vertical slate, a strong, rock-walled ditch is formed by the natural action of the explosives almost as cheaply as a flume, thereby demonstrating the increased value of such enterprises when affected by the aid of these machines.

For driving bed-rock tunnels, raising shafts, carrying out grades by bed-rock cuts, railroad and turnpike grading, quarrying, coal mining, quicksilver and quartz mining, and general adaptation for work in limited space, it is believed to be superior in point of cheapness, simplicity of construction and lightness to other hand drilling machines in use.

One of these machines for a sluice-grade tunnel eight feet square weighs about 200 pounds, is all iron and steel, and can be set up by the aid of extension screws and put to work by an experienced operator in ten minutes, and can be thrown down ready for a blast in two minutes; it is easily operated by one man or more, according to the feed screw in which the auger is set; it is guaranteed to be thoroughly reliable in the hands of working men when the bits are kept in order.

Mr. Doolittle has the right for the construction and use of these machines for the Pacific coast. Since it has been in his hands he has made several improvements which have greatly added to its value, and nearly doubling its cutting capacity, for which he has applied for letters patent through the MINING AND SCIENTIFIC PRESS Patent Agency.

Two of these rock-boring machines have been recently set to work on the tunnels now being driven through the "Mussel Rocks" on the beach four miles south of the Ocean House and seven miles from the Cliff House near this city, where it is said they are doing "first-rate" in the hands of inexperienced men. These tunnels are ten feet square, and may be seen by a very pleasant drive on the sea beach at low tide. It can bore holes very rapidly from two to three inches in diameter and six feet deep, and at any desired angle, through ordinary slate, serpentine, sandstone, limestone, etc. It bores dry and clears itself to quite a depth, and we are assured that these augers carry their edges much longer than drills made from the same quality of steel where operated in the usual way by blows received from a hammer or other similar power; probably because of the absence of the severe concussion on the high grades of steel now used for drills.

Mr. D. is prepared to furnish his improved machines from the Ætna Iron Works, of San Francisco, where he may be addressed, or Dutch Flat P. O., Cal.

WAGES IN SAN FRANCISCO.—The work on the New Palace Hotel in this city now gives employment, directly and indirectly, to over 1,200 men, and at the most liberal ratee of wages paid on the coast. The pay-roll for last week required the sum of $17,503,55, distributed as follows: Masons, $6,769.25; carpenters, $4,590.40; hodmen, $3,350.65; laborers, $2,793.25. The scale of wages paid is, for masons, $5 per day; carpenters, $4; hodmen, $3; laborers, under which head is included engineers, etc., $2 to $4. The foremen and sub-foremen are paid from $4 to $8 a day. The office of the book-keepers and cashier is located on the opposite side of New Montgomery street, at the corner of Jessie, and allowing half a minute to each man, eight hours are required in paying off the weekly wages. One-half receive their pay on Mondays and the remainder on Tuesdays.

AT the Valley quicksilver mine, Napa county, the ore worked, without assorting, yields about one-half of one per cent, or 10 pounds of quicksilver per ton of ore. The capacity of the furnace is 24 tons per day, though they average about 20 tons, which at 10 pounds of quicksilver per ton, is 200 pounds per day, or 75 flasks per month. The superintendent gives the cost of reduction as follows: To mine and deliver the ore at furnace, $2 per ton; smelting and putting the quicksilver into flasks, $1.55; total expenses, $3.50. If these figures are correct, and there is no reason to doubt them, quicksilver mining, even with low grade ore, is more profitable than quartz mining generally.

A MR. GEIST has been buying old dumps in Little Cottonwood, and by sorting and screening has sacked and shipped hundreds of tons of ore that paid well for working. That would be a good business in many other camps.

Information Wanted for the Mining Commissioners' Report.

The U.S. Mining Commissioner of Mining Statistics, R. W. Raymond, being desirous of collecting for his annual report on mining statistics for 1874, trustworthy information concerning the mining intsrests of California, has issued a circular requesting information on subjects connected with the mining industry. He is unable to examine, either personally or by agents, all the districts of the State (the Congressional appropriation being inadequate) and takes the method referred to, to obtain the necessary information. The leading districts will probably be visited, but circulars will be sent to prominent mining men all over the State, and it is to be hoped that they will respond to the call.

The commissioner desires information on all important points and we quote from the circular as follows to show the class of information desired, so that miners may be prepared to answer the circular when sent to them.

1. A brief review of mining operations in your county or district for the current year, and notices of any important works either in progress or completed, (such as mills, mining ditches, tunnels, etc.,) and, where practicable, copies of the reports of civil and mining engineers on such projects.

2. QUARTZ MINING.—The names and brief notices of the producing quartz mines in your county or district, with information relative to the average yield, method and cost of treatment. (Blank Tables will be furnished on application.)

3. HYDRAULIC MINING.—The estimated area (in acres) and average depth of hydraulic ground now being worked, and the extent of such unworked deposits in your county or district, with an estimate of the yield of ground (per cubic yard), and a statement of the quantity and price of water (miners' inches) and the average length of the mining season. (This class of information cannot be conveniently compiled in tabular form.)

4. DRIFT DIGGINGS.—In this class of mining, the average yield per car load, (16 cubic feet) with the method and cost of treatment, and where practicable descriptions of works of this class, comprising length or depth of tunnel, incline or shaft, width of channel, thickness and character of pay strata, geological formation, etc.

5. TAILINGS.—Where operations are in progress for the removal of "tailings" (the accumulated debris of hydraulic washings), the method employed, the extent and estimated yield of such tailings (per cubic yard), and any other pertinent information respecting this class of mining.

6. The names and post office addresses of owners or Superintendents of producing mines in your vicinity—quartz or placer—and the addresses of owners of quartz mills in operation. All quartz mines which have raised 100 tons or more of milling rock during the year may be considered, for the purposes of this report, as producing mines.

Superintendents and secretaries of mining companies, mining engineers, U. S. deputy mining surveyors, and all persons interested in mining, are earnestly requested to assist in the collection of this information. Blank tables, in convenient form, applicable to quartz mining, will be furnished by W. A. Skidmore, Mr Raymond's agent, whose address is box 1513, San Francisco. Parties furnishing information will receive due credit in the Mining Commissioner's Report (unless they desire such information to be considered as confidential), and will be entitled to a copy of the report, which will be forwarded as early as possible after publication. Three blanks are sent to be filled out. One for description of leading mines, another for detailed operations of leading mines, and another the statement of quartz mills. The questions asked concerning the operations of leading mines are as follows: County and district; name of mine; owners; number miners employed; miners' wages; cost of sinking and drifting per foot; cost of stoping, mining and milling; company or custom mill; number of tons extracted and worked; average yield per ton; percentage sulphurets; total bullion product reported by whom, etc.

It is to be hoped that miners receiving the circulars will take the trouble to fill out the blanks as well as they can. The questions are few and simple, but when the answers are received from all over the State it will assist the Commissioner in preparing tables and information of great interest to the community at large as well as the miners themselves. All the blanks have been prepared in such a manner as to give as little trouble as possible to those who answer the questions; and want of time is no excuse for not answering them. In previous reports, where certain districts and certain mines have been left unmentioned, considerable fault has been found, while it was totally the fault of the people of the district in question, in not answering the circulars. Our Mining Commissioner's reports, being official reports by the Government are looked upon, especially in foreign countries, as authoritative, and the information derived from them is considered more reliable than that from any other source. It therefore behooves all miners who want their mines represented in the Government report to pay some attention to the requests of the Commissioner.

Oyster Culture.

Oyster culture, like many other valuable arts, is a very ancient one. We have very full and particular records of its practice even by the early Romans, who were at least the first people of which we have any record that paid much attention to this bivalve, or prized it as an article of food. This people, with the growth of their cities, early saw the necessity of employing means for prevanting the extinction of the oyster, and for increasing the supply. The elder Pliny has left us an exceedingly interesting and instructive account of the habits and nature of the oyster, and of the manner in which it was artificially cultivated in his day.

With the decline of the Roman power this industry, with many others, seems to have become neglected and almost forgotten until the increasing population of England and France, and the returning tasts for the bivalve, once more set people to thinking and devising ways and means to aid nature in keeping up a supply commensurate with the constantly increasing demand for it. As a result we now find the self-same appliances devised by the Romans largely employed in the very localities formerly occupied by them, as well as many other places along the shores of France and England—piles driven into the ground near the sea-shore, with boughs of trees and fascines interwoven as places of lodgment for the young oyster or "spat," as it is called.

Fifteen or eighteen years ago, the rapidly advancing price of oysters in the chief cities of France and England, consequent upon the increasing scarcity, notwithstanding the rude methods of assisting nature, as above alluded to, led to the invention and adoption in this country, as well as in Europe, of still more carefully devised plans, which have been minutely described in works treating upon this subject, but to which we have no space here to more than make this mere allusion.

Our principal object, at this time, is to call attention to one of the latest American devices in this direction—a California invention, exhibited during the first few weeks of the Mechanics' Fair in this city, but afterward transferred to the State Fair at Sacramento, where, as well as here, it attracted much attention. We allude to the invention recently patented through the SCIENTIFIC PRESS Patent Agency, by Dr. B. F. Lyford, of this city. This seems to be almost the *ne plus ultra* of invention in this direction, and is especially adapted to this coast.

It is well known that a full grown oyster will produce an immense number of eggs—estimated at from one to two million; but it is well known that hundreds if not thousands are destroyed where one comes to maturity. It has been ascertained that the proportion of loss on the Pacific coast is much larger than at the East, owing, in all probability, to a larger number of devouring enemies here than elsewhere.

When a young oyster leaves the parental fold it is not larger than the point of a pin, and is provided at first with an apparatus for swimming; but it moves mostly with the drift of the tide or current for several days, at the end of which time, if not destroyed, it fixes itself to some object near the bottom—as a stone, stick or other shell. If no such object is encountered, it is destroyed or carried out into deep water and lost. The object of Dr. Lyford's invention is to provide a safe and convenient place for the lodgment of the young oyster and for its growth until out of danger from its enemies, when it may be taken up and put into a suitable locality for reaching maturity. To accomplish this purpose the doctor provides a bulkhead or dam across the mouth of an estuary or artificial enclosure, the bottom of which shall be so paved or otherwise prepared as to admit of its thorough cleansing at low tide, and in which may be arranged the sticks, stones, shells or other desired places of lodgment. When so prepared the water is admitted at flood tide through self-acting valves opening inward, which close when the ebb commences, and which are protected by fine screens, to prevent the ingress of any enemy to the young spat. During the ebb tide the water is drawn through the bulkhead by a floating scoop valve, so arranged as to take water from the surface only, while that near the bottom, and in which the spat are mostly found, remains undisturbed until agitated and changed by the next in-coming tide. By this device, to all appearances, the young oyster may be kept perfectly safe during the first stages of its growth. Indeed, actual experiments near Sancelito have fully proven the practicability of the device.

It appears to be reasonably held that by this device oysters may be even more readily raised than by any other known artificial device. The doctor exhibited his invention in the essterly gallery of the Pavilion, as already alluded to, by a working model, whereby the whole process was made perfectly intelligible, daily, to great numbers of visitors, whose curiosity led them to examine it.

MINERS at Stickeen, working for wages, get $10 per day, but it is a hard country to live in. The price of supplies has, however, been reduced one-half since the rush. Some men who came early are working ground which pays as high as $100 to the man, but the country is overrun with disappointed miners.

United Workingmen's Exhibit of Furniture.

Near the southeast corner of the gallery of the Mechanics' Pavilion was shown the elegant furniture, made by the Pacific United Workingmen of San Francisco. It consists of two chamber sets, one writer's cylinder bookcase, one book-case, one side board, one fire screen, and one patent extension table. The book-case and writing-desk combined is five feet wide and nine feet high, of walnut, beautifully carved and finished in French walnut, very conveniently arranged with drawers and pigeon holes. The book-case is a handsome piece of furniture, finished in French walnut, tastefully ornamented by carving, five feet wide and eight feet high. Both these bookcases can be taken apart to facilitate moving. The side board is a handsome piece, as fine as any in the market, richly carved, finished with round corners and raised and recessed panels. It is of French walnut, five feet long and eight feet high. The extension table is a very convenient dining table. It is the invention of one of the company, and is patented by them. Its superiority consists in greater ease of handling than is the case with other tables, and in its neat appearance. Its peculiarity is in the manner in which the leaves are put away, viz: under the table, without being the least in the way. The fire screen is a work of art, made by one of the firm. The frame consists of a wreath of grape vines with fruit and leaves. It is intended as a frame for silk chenille work and is certainly beautiful and elaborate.

The designs are all the work of different members of the firm. The display reflects the highest credit on the company and adds much to the display of furniture at the Fair. Visitors remark that this furniture is not only beautiful in design and finish, but also useful and substantial.

All this furniture was manufactured at the company's works on Brannan street, between Sixth and Seventh. A visit to the factory proved interesting, showing the rapid growth of a needful and important industry. It consists of three departments. The first floor is devoted to machinery, with brick engine room in the rear. The second floor is the manufactory proper, where the furniture is put together by the cabinet makers. On the third floor are the varnishing and finishing departments. The company is now erecting another building as large as their present one, which will double their capacity. It is intended for a wareroom, packing and carving shop, etc. They now employ about sixty hands and will add thirty more within a month. Each workman is a shareholder, and consequently interested in the success of the enterprise, thus insuring faithful and honest work. The firm is composed mostly of sturdy, industrious Germans. They make all kinds of furniture, case work as well as frame work. It is the worthy aim of this incorporation to stem, as much as possible, the tide of Eastern importations, and by making a superior article oblige people to support home industry.

SALMON.—The Government Salmon Breeding Works, on the McCloud river, are receiving large orders for supplies of salmon eggs with which to stock the streams of the country. The orders from the different States for these eggs have reached the camp from Washington, and are as follows:

Maine	100,000	Pennsylvania	400,000
Vermont	50,000	Maryland	500,000
Massachusetts	200,000	Michigan	700,000
Rhode Island	100,000	Wisconsin	100,000
Connecticut	500,000	Minnesota	250,000
New York	250,000	Iowa	250,000
New Jersey	250,000		

Besides there are the States of Virginia, Indiana and Illinois, and Utah and Colorado, which have not reported.

QUICKSILVER IN TULARE COUNTY.—If prospectors keep at work, it is likely that quicksilver will be found in every county in California before the year is over. Tulare is the latest county heard from on the quicksilver question. Mr. E. H. Kerrick, of Porterville, has shown the Visalia *Delta* the croppings of a discovery in quicksilver, taken from the hills in the vicinity of that place, which indicate a richness worthy of further investigation. The sample shown exhibited the usual spar accompaniment, and led to the discovery. The *Delta* says: The discoverer informs us that the croppings indicate large deposits of ore. We should judge from what we saw that the ore is likely to prove of unusual richness and value.

JUDD & CROSBY'S works, Colorado, have made a trial run and turned out several fine bricks, several thousand dollars, from tailings and common ore. Every portion of the works has proved a perfect success, and the run has demonstrated that there is no failure to be apprehended in any respect whatever.

PARTIES are prospecting in the hills to the westward of John Lawley's Berryessa ranch for copper, many floating specimens of ore having been picked up.

THE Virginia and Truckee railroad is in excellent order throughout its entire length, and trains are running on time to all points.

THE Baltic mill on East cañon, Utah, has started up.

Crow Blackbirds.

The crow blackbird, or "Boat-tailed Grackle," shown in the accompanying engraving, is an inhabitant of the Southern States, to the maritime portions of which it is more particularly attached. It abounds in the southeastern low grounds of Florida, and in those of Georgia and South Carolina, as well as in the Sea Islands of the Atlantic coast, as far north as the Carolinas, beyond which none are to be seen. These handsome birds are gregarious at all seasons of the year, and are often seen in very large flocks. They seek for food among the large salt marshes and their muddy shores, and in rice plantations as soon as the grain is fit to be eaten by them. In autumn they frequently resort to cornfields and ploughed lands of plantations, interspersed with ponds or marshy places, returning towards evening to the salt marshes, where they perch in immense flocks

CROW-BLACKBIRD.

amidst the tall marsh grass. Their food consists principally of small fiddler crabs, insects of various kinds, ground worms and seeds, especially grain. They frequently seize on shrimps and other aquatic animals of similar nature which have been left on the beach by the tide.

These birds begin to mate in February, at which time the plumage of the male displays its richest hues of glossy black, with reflections of steel blue, dark violet and green. Their nests are often built quite near each other, upon branches of the smilax, the nest of a previous season always being reclaimed by its former occupants, who repair it. A new one, however, is promptly constructed of the long fibred Spanish moss that dangles from every tree, dry twigs, withered grass and dead leaves. One brood is reared every season and the aquabs are excellent eating. The flight of the grackles is high and protracted in decided undulations of 40 or more yards. They move in loose flocks and are shy and wary. Probably a third of these birds, in the Carolinas and Georgia, remain during the winter, associating with the fish crow, alighting on stakes in the mudflats near the cities. They are also fond of the company of cattle, but never enter the wood. The males frequently attack birds of other species driving them from their nests and sucking their eggs. When wounded, if not disabled, they retreat with alacrity; when overtaken they defend themselves by biting and scratching, often causing the blood to flow from the hands of their captor. They are courageous and formidable, not unfrequently giving chase even to turkey-buzzards and hawks.

EMBALMING.—At the late Mechanics' Fair Dr. Lyford exhibited a very curious apparatus for embalming bodies. In the operation the body is placed in an air-tight casket, through which an attachment is made to some important artery, and the communication carried to the necessary chemical apparatus outside, which is very ingeniously combined with an air pump, so arranged as to effect the double purpose of exhausting and giving a powerful pressure for injecting chemicals through the veins and other portions of the body. The exhaustion of the air from the casket has the effect of filling out the features and figure of the subject to a most startling resemblance to life. The substance injected converts the flesh of the entire body to a kind of horn-like consistency, apparently as imperishable as marble. We have seen bodies embalmed by Dr. Lyford many months after death, which still present a most life-like appearance, giving indubitable evidence of as permanent a power to resist decay as an Egyptian mummy 3,000 years old. We doubt whether it is within the reach of science to effect a more perfect process of embalming than that invented and practiced by Dr. Lyford, to the efficiency of which thousands of people in this city can attest from knowledge derived from the examination of the great number of bodies which he has embalmed. We may add that the process is simple and not very expensive.

AUSTRALIAN MINES.—Latest advices from the Australian gold fields generally are encouraging, although during the early part of last month work was much impeded by the cold and wet weather which almost continuously prevailed. There is a still further increase of paying areas and most valuable discoveries, while the old workings still remain remunerative.

THE Washington quicksilver mining company, Napa county, reduce 100 tons of ore per month with an Almaden furnace. They get 18 pounds of quicksilver to the ton, and are now turning out 24 flasks per month.

California Coal.

We see that the *Stockton Independent* pitches into Professor Whitney and Dr. Cooper of the State Geological Survey, because Dr. Cooper is reported by the *Alta* as having said certain things about coal which he never did say. The *Alta* contained a very brief summary of Dr. Cooper's remarks on the subject before the California Academy of Sciences, and then got the thing so mixed that Dr. Cooper was entirely misrepresented. The Doctor made some very sensible remarks on California coal, stating that every day or so the papers mentioned the discovery of beds of coal, with indications of being rich. He went on to explain that in 99 cases out of 100 these discoveries were of no value, and he is probably correct. But he did not say that "no coal exists on the Pacific slope in paying quantities." He said that "geologists had long considered the coal found here as lignite, but practically it was as good as much of the older coal—at least that of Bellingham bay, Coos bay, and Mount Diablo." He spoke of the coal beds of Ione valley and Amador county, giving some details concerning the mines there and speaking of the geological formation. In speaking of the frequent discoveries, he said that the prospectors sometimes found small streaks of lignite, of little value, because there was seldom enough of it to furnish any supply. Our miners make a mistake in considering it like metallic veins, and supposing that by following it down it would surely widen out. The coal belongs to stratified formations only, and has been deposited in horizontal layers, and if not found so has been lifted up by volcanic action, so we find it always in seams or layers. If it is found of a certain thickness at the surface, it is likely to continue at that thickness.

There is very little *true* coal on the Coast. The coals from England, etc., are distinguished from those of modern formation, the latter being called lignites. He said that the best coals on this coast, first classed as lignites, are so compact and so near true coal that they are just as useful. At Coos Bay the grain of the wood that forms the coal can be seen with the naked eye. On this coast the remains of trunks of trees of the same family that exist now, are found in the coal. The coal itself does not differ in nature very much from some of the older formations. Its age is only distinguished by the fossils and remains of plants, which are very reliable. The valuable coals of the Coast belong to the top of the cretaceous formation. There is a question as to some of them, as to whether they do not belong to the Pliocene. In regard to the cretaceous beds themselves they are often of little value because there is not enough of coal. When less than two feet thick it is not much good, and ought to be of good quality, and at least four feet thick to pay to work. Some claims are now being worked or prospected that will never pay. The coal is of good quality, but there is not enough of it.

These are some of the points made by Dr. Cooper on the subject of California Coals. We gave a pretty full synopsis of his remarks in our last week's issue, and they will repay perusal. Several of our contemporaries are commenting on what he said from a false standpoint, having taken a garbled report as a basis. In our report, by the way, the types made the doctor say that "true pliocene terracea do not exist at lower levels around the bay," when he said they "do exist."

MOST of the mines on Little Cottonwood, Utah, are making preparations for winter, such as building houses and other necessary buildings, getting in supplies, etc., and it is supposed there will be nearly as much work done in the mines through the coming winter, as there is at present.

A SHAFT is to be sunk at the Imperial mine, at Virginia City, to the depth of 4,000 feet. An engine of 500-horse power will do the pumping and hoisting. When completed, it will be the deepest bore on the continent, and, with one exception, the largest in the world.

THE new air-shaft at the Belcher mine has cooled off the 1,000, 1,100 and 1,200-ft. levels to such an extent that the miners can work on either of them comfortably without taking off their shirts.

THEY are having a grand excitement about coal and coal mines down at Dayton. Claims are being located all along El Dorado cañon, wherever the tertiary sandstone appears.

OVER 5,000 Chinamen are mining in the lava-beds near Oroville. They send over $25,000 in gold dust every week to the San Francisco mint.

WHEN the Nevada and Colfax railroad is completed, a first-class stage line will be put on to run from Nevada City to Downieville, and intermediate points.

THE concentration works of the Terrible Co., Colorado, are now in successful operation in all departments, and are capable of treating 40 tons per day.

A good deal of prospecting for new lodes is being done in Clear Creek county, Col.

JOHN R. CONNORS has been chosen President of the Gold Hill Miners' Union.

Cinnabar, Lake and Calistoga Districts.

A correspondent of tha Napa *Reporter* gives tbst paper an account of a two weeks' trip in the mines embracing all tha country that lies in Cinnabar, Lske and Calistoga districts. This belt is 20 miles in langth, running northaast and sonthwest, snd tha width none can tell, ss it seems to widen out all tha time, new discoveries being msda evary dsy, and as these mines hava becoma a positive fact, tha paopla can with ssfaty call them minas. I will commence on the Hog's Bsck at tha Missouri; this was located some thrae years ago by a lot of Calistogians, and prospected sufficiantly to sstisfy tham that thay had a mine, but being unable to work it to an sdvantsge, they sold to parties in San Francisco, Wm. A. Stawart being tha principal purchaser. A bench of thraa retorts was arected last winter, and notwithstanding tha dissdvantages of a wat wintar, and no roads, over tan thonsand dollars' worth of quicksilver wss taken out in tha winter months. This spring two large retorts ware added to the others, and a larga forca of men amployed, but for soma causa tha profits ware not as larga ss formarly. Abont July 1st, a ganaral discharga took place from tha superintendent down to the Chinasa dish-washer, and tha mina was placed in charga of a naw set of man; sinca then quite a lot of quicksilvar is shipped avery waak. Tbara can ba no doubt but tha Missouri ia a big mine, bnt it is tha opinion of a great many man, who profess to ba axperts, that all tha work that has been dona was done on a alide, and tbat the main ledge is highar up tha mountain. Last week Pap Hopkins want up the hill and commencad prospacting and found good ora. It is genarally conceded thst rock will not float up hill, but often doaa tska a run down hill. You will no doubt haar of soma grand rasults from old Missouri, as thara can be no doubt but thay hava gona to work in tha right placas. Lesving hera wa pass over the Pig's Back about one-hslf mila, and arrive at tbe Oakland—formarly called the Lost Ladga. The mine was discovered by our old friend, J. L. Cook, of Yountville, wbo, with otbers, located it, and workad it until this last spring, whan ha leased it to Messrs. Roberts & Robinson, of Santa Clara.

Thase parties incorporated under the name of the Oakland Quicksilvar Mining Co., and went to work, ereoted bnildings and put up a bench of thrae small ratorts, from which they have takan an immense amonnt of qniokailvar. They have taken out as high as 24 flasks per week, and that I suppose will beat any other mine in America. Thase threa retorts do not hold over 500 pounds of rock at a tima. There are thouaands of tons of rich ore on the dumps, and more being takan out every day. Tbis company intends erecting a large furnace this fall. Stock in this mine is very high and in demand. Just balow this is the Gayser mine, owned by Edgar Mills, Mr. Friedburg, S. B. and C. A. Agers and others. Nothing bnt prospecting has been done on thia mina until racently owing to other claimants coming in and laying claim to the mine, and in fact, a snit had baen commenced, but I understand that these old claimants have been subsidized and preparations are now going toward building a furnace and working the mine on a large ecale. Next in ordar ia the Emma, owned by F. E. Johnston and Dr. Pond, of your city, and Lucky Bill Whitton. Miss Emma is proving herself second to none, and her owners feel sanguine that thay have a rich mine, and thare oan he no doubt of the matter, as tons of rich ore lie upon the dumps, and hundreds of tons more are in sight. I did not learn what the company's intentions were in regard to building furnacas or retorts, but prasume thoy will, as thare is ore enough in aight to pay them all their expenses, and a good dividend beaides. Jnst below thia ia the Webfoot, owned by Maasrs. Cyrus Hopkins, Nash and Walker; not enough work has been done here to show whether there is a mine or not, but they have good indications. Next in order is the Kantuck, ownad by the same company that owns tbe Missouri. This mine is now being worked and a larga amount of rich ore has been taken out and hauled to the Missouri for retorting. A good wagon road has baen built from this mine to the Healdsburg and Geyser Toll Road; four tunuale have been run here and good paying ore has been found in all.

Mining ann Lumber Interests in Nevana County. — We are indebted to Mr. Fenton, agent of H. G. Langlay'a Pacific Coast Diractory, for the following itama in raference to the quartz minas in tbis county. There are 60 mills for the raduction of gold-bearing quartz and cemant, located as follows: Grass Valley township 24, Nevada 14 (hesidea several that are at preaent idla), Eureka 6, Washington 4, Little York 2, Bridgeport 7, Bloomfaild 1, Rough and Ready 1, Meadow Lake 1. There ara saven metallurgical works, locatad, four in Grass Valley township, 2 in Nevada township, and one in Meadow Lake townahip. The total cost of these in round nnmbers is in the neighborhood of 1,250,000. Forty-two of these mills are run by staam and 25 by water power. There are 27 aaw milla in the county, located aa follows: Meadow Lake township 7, Navada township 6, Grass Vallay township 4, Washington towuship 1, Little York township 2, Eureka township 3, Bloomfield townahip, 4. The total cost approximates $354,000.—*Nev. Transcript*

The smallest circnlar saws in use are those employed in the manufacture of gold pens, and are only hslf an inch in diameter.

Conduction of Heat.

In a racent lectnre Dr. Gnthrie said: Heat travels from point to point in spsce threa ways: 1st, by conduction; 2d, by convection; and third by emsnation or radiation. It moves by conduction when tha body whioh raceives the heat doea not mova as a whole, but allows the heat to traval tbrough it. Heat moves by convection, when a hot body moves. It moves by radiation when a hot body gives off heat into spaca or into soma medium wbich doas not intercapt it. The gradual heating from and to end of a poker in the fira illustrates tha first of thasa metbods, tha flight of a red hot cannon ball the second, and tha roasting of meat or the solar heat tha third.

Metals, as a class, conduct heat batter thsn any other class of bodias. Hence, when both are abova blood heat, matals feel hotter than wood. When below, they feal colder. So tbat paper is scorched when heated in contsct with wood, but not so easily when in contact with copper. Hence, also, lead may be melted in paper. Amongst the metals silvar and copper ara pra-aminent. That coppar conducts heat better than iron is shown by heating rods of the two at a plana of contact, and noting tha malting of fragmanta of wax arrsngad along tha two. The great conducting power of matals is shown by tha cooling affact they hava npon tha mixad gaaes of a burning body. The metal withdraws so much heat from tha gas in its naighborhood that combustion is impossible. Tha miner's lamp is based npon thia principle.

Liquids condnct haat ss a claas worsa than solids. Tha conducting power of liquids is maasurad by haating the uppar surface of a film of liquid, and noting tha axpansion of tha air in a chambar upon whose uppar side the liquid film resta. Tbe more complex tha composition of the liquid is, tha more opposition does it present to tha passage of heat by conduction. Chlorina, iodina and bromina are espacially strong in rasisting haat condnction. Watar is by far tha bast conductor amongat non-metallic liqnids.

Gasas are far worse conductors than liqnids, and the imperfect condition of many solids is due to the gases, generally air, which they inclose in their pores or batwaen the fibers. Clothing thns protects the body from loss of haat in cold weather and from the scorohing heat of the snn in hot weather. A red bot ball may be carriad in the hand if a mass of asbestos, which incloses the air, is interposed. Hydrogen oonducts heat far bettar than other gases, and accordingly cools bodies in contact with it with great rapidity.

Bull Run Mines.—Bull Run mining distriot, says the *Silver State*, ia situatad on tbe headwaters of the Owyhee river, a tributary of Snake river (marked on old maps Lewis' Fork of the Columbia) something over ona hundred miles northeast of Winnemucca. Silver ore was firat discoverad in thia district four years ago by some packers who were running a pack train from the railroad to Silver City, Idaho. These packers discovered and located the Blue Jacket ledga, and shipped sevaral tons of the ore to Reno. Bnt, as has been the case with nearly all mining districts remote from railroad oommunication, prospecting ceased for a time in Bull Run, and work was suspended on tha Blue Jacket, one of the most promising claims in the district. This summar a reaction has set in; the Blue Jacket has become the property of an English company, and has been developed sufficiently to warrant the arection of a mill for the reduction of its ores. The machinery for the mill has baan orderad from San Francisco, and Reinhart Bros., of thia place, have been instructed by the superintendent of the Blue Jacket gold and silver mining company to forward the same with all possible dispatch to its destination. The machinary weighs sixty tons, and it will ba ahipped immediately. Besidea this 35,000 faet of lumber haa been ordered by the company, which will also be ahipped from tbie point. There is a good road from Winnamucca to Bull Run, and freight by this route is one-half cent per pound less than from any other point on the railroad, which in itself is considerable of an item.

Nickel ann Cobalt.—The Rockland Nickel Mining Company have recantly developed a new mining property in the Highland mountains on the silurian Potsdam sandstone formation, in Rockland county, New York, which promisea to be of graat importance to consnmera of nickal and cobalt, as they will soon be large producers of these matala, from tbeir extensive and wall defined vein, which is easily traced in its conrse for more than one and a half miles by its aurface outcroppings; it is 18 faet in hreadth where a shaft has been snnk, and 1,000 tons of ore have already been taken out. Tha vein contains, in a gangue of quartz, feldspar and hornblende, copper glance, millerita, linnaita and magnetic pyrites, the average depth of which ia 256 feet above watar drainage, an nnlimitad qnantity of rich yielding nickel, cobalt, and copper ore that oan be easily minad and delivarad at Grassy Point, on the Hudsou, for smelting or shipping.

Street lamps may be lit automatically by a naw patent obtained by a Mr. Wilaon, by having two burnera on the lamp, one of which is small and kapt burning constantly. Whan the gas pressure is raised, a small gas holder on the top of the column is elevated, affording a passeaga for the gas to the larger of the two tips, which is lighted by a small jet.

The Oakland Mine.

The developmants in the Oskland mina, in this county, place Cinnabar district in the first rank of the qnicksilver prodncing sections of this State. Tha recant rich "discovery" makes all connected with the mina of intarest. On tha 18th of March, tbe Lost ledga, as it was than called, was laased to its prasent superintendent, E. Robinson, for two yaars, for tha sum of $225 per month, with tbe privilega of purchasa dnring tha first yesr for $30,000, or dnring the second for $40,000. Robinson let E. W. Roberts have a half interest, snd they incorporated tha mine as the Oaklsud quicksilver mining compsny. Of the 300,000 shares 5,000 were reserved as a pnrchssing fnnd. Work was commenoed on tha 10th of April with a force of four or five men. They now work a forca of 40 man, hsva six ratorts in operation, and are producing 100 flasks of metal a month. Tha main tunnal is into the hills 113 faet, from which drifts hava been run east 36 feet. They have in operation a crnsher, run by steam-power, with a capscity for crusbing 100 tons in 24 hours. Thera ia also complata 400 feat of railway from the tnnnal to tha ratorts. Tha ora in the ledge, which is 10 feat wide, is of tbe richast charactar of cinnabar, running from 15 to 50 per cent. metal. Tha walls of tha ledga ara well defined, and the clay lining appaars batween the ledga and both tha nppar and lowar walls. In the centar of the vein tha ora is richast, running in places as high as 60 per cent. Thara ia avary indioation of an inexhanstible supply. Tha prasant davalopmant is snfficiant to placa the Oakland in tha first rank of tha quickailver minaa in this Stata. Splandid specimens from thia mine are now on axhibition at the Petaluma fair. Tha superintendant, Mr. Robinson, is one of tha most practical and anargatio man in tha district, and is withal a most agreeabla gentlemsn.—*Sonoma Democrat.*

Fair Returns.—Hirschman, Grovar & Co. about four years sinca pnrchasad tha gravel claim known as the Gentry claim. They were not very wealthy when they made the purchasa; had, in fact, we bolieve, to borrow monay for that purposa. Thay have made a run of five months this summer, employing during the time from fonr to six men. They have completed the clean-up for the saason, and find the proceada to be $26,000. Thia may be considered a very fair return for the money invested. They have paid for tbe diggings, and will have $10,000 or $12,000 hesidas. Next year tbey will without donbt be abla to take out $40,000. This is only one instance of success in mining enterprise in thia vicinity during tha last two years. Every mine that is touched seams to pan out bayond the expectation of the proprietors. And the indication now is tbat the next yaar will be the most prosparous ever known. If there is plenty of water ao that the gravel mines will be enabled to make a long run, there is no donbt of its being bettar evan than the preaent. The qnartz minea already opanad, and tbose being developed, will make the returns surpass thosa of any former year.—*Nevada Transcript.*

Paradise Mining Distriot.—This new district, which was discovered by Allen M. Sadorns, an old resident of this county, is situated about twenty-five milas from Winnemncca, in the range of mountains which separataa Paradisa from the valley of the Hnmboldt. Rich gold quartz and silver orea have baan discovered in the district, which is attracting considerable attention at prasent. James Herndon, a resident miner of the district, informs us that a great many claims have bean locatad, thraa of which are being systematically developed. Two of these, the Credit Mobilier and Rob Roy, are rich in gold, and the other, the Gov. Flanders, is rich in silver. A spacimen of gold-bearing qnartz from the Cradit Mobilier, shown us by Herndon, is about one-third gold, and, thongh small, is eatimated to contain twenty dollars in pure gold. The silvar ore is of tha Stetafaldtite variety, and a piaca from the specimen shown us assayed $450 to the ton. The veine as far as developad are from one to four feat thick, and atand naarly vertical in slate and granite formations. The Rob Roy was bonded last week by tha owner, Alex. McGregor, to G. M. Ogden, formerly interested in the Richmond mina at Eureka.—*Silver State.*

Mendocino Cure for Snake Bite.—The Ukiah *Dispatch* has the following: Charley Kall, who nsad to slaughter Ukiah's beaf and mutton, haa just returned from Humboldt county. He brings with him quite a curiosity in the shape of a hnga swollen and discolored arm. It happened thns: In getting over a brush fenca, a mila from the house he was going to, he mnst have placed his hand on or near a coiled rattlesnaka. Immadiately after it bit him he felt the poison commence to affaot his whole system; his tongue and lips grew thiok and almoat useless. On reaching the house, however, he made known his troubla. A sheep was soon killed and a hole cut in the warm oarcass, into which Charley thrust his arm. This gave considreable reliaf, and that aoma of the poison was extracted aeemed avident by tha inside of sheep soon becoming green. After this, ponltices of tobacco, onions, graase, etc., were applied. He traveled on horseback down to Ukiah, though it was not a very pleasant trip nnder the circumstances.

The Nevada City *Transcript* aays that the ahipment of gold by express from that city, last weak, was the largest for any similar length of time during the last 10 years.

Omega Mining and Water Company.

This mine is locsted at Omega, in Washington township, and is situated on Omega hill, which has been workad continuously since 1853, or 16 yesrs prior to tha prasent ownarship. R. W. Tully, of the Bsnk of Nevada connty, and others are the presant ownars. Tha Omega Mining and Water Co. have owned a portion of tha mines on the hill for five years, but recantly hava becoma owners of all tha mining ground thera. During tha ownership of fiva yesrs, they hava taken out gold dust to tha amount of $389,941.50, and by other parties dnring the same time, $164,000, making a total in fiva years of $553,941.50. For tha 16 yaars of working prior to the preaent ownership, it is impossibla to tell tha exsct amount of gold extracted, but from tbe extant of ground washed away, it mnst approximata nasr a million of dollars. There yat ramaina some 20 yaars' supply of gravel to be washed away—evan with the prasant superior appliances for mining. This ground is equally as good, if not batter than any yat worked, and is much mora easily and cheaply moved. The presant season was a vary short ona, owing to the excessively cold wintar. Thay commancad piping tha 1st of April, which gava barely six months, sgainst eight months as an ordinary season; yet the gross yiald is about $95,000 for this aaaaon. Tha mina ia now just in good working condition. Anothar saason a much bettar run can ba mada, aven during the sama length of time. The figuras abova given prova tha valua of tha mina. This mina, lika many others in the county, is not for sale, becsusa it pays better to work it.—*Nevada Transcript.*

Express Ranch Mines.—Tha *Idaho Statesman* says: Mr. C. W. Dukaa is from Expraas rsnch, Oregon, and says that buainasa ia looking up considarably in that vicinity. Captain Myric and Milton White are moving their 10-atamp quartz mill from Gam city, Eagla Creek district, to Conner Creak district, 16 miles northeast of the Express ranch, and ara putting it on the Eddleman mine. On another portion of this mine are two 5-stamp mills; one has run 18 months and the other just atarted. This mine is five feat wide and pays well. On Granite mountain, commonly known as Rye Valley diatrict, 12 miles southwest of tbe Express rancb, is a 5-stamp mill on the Madison ledga, which has been rnnning thrae months with good results, belonging to Gilohrist & Davidson. Cbarles Grean located two ledges in this district five years ago, the Green discovery, and Monumental, and has recently negotiated with Pierson & McDonald, of San Francisco, for a 20-stamp steam mill, whereby they all become equal partners in the mill and ledga. Tha mill was purchased in San Francisco and is now on tha way. The lumbar is on tbe gronnd and 20 men are at work putting np the mill. Mr. Grean has shipped sevaral tons of this ora to Swanaea, through an English company, and after paying all expensas it nettad him $190 to the ton. These are silver ledgas, and the 20-stamp mill will have all tha appliances for reducing silver. Mr. Durkee saya tbare are 600 men in Amelia city, Mormon basin and Rye valley, all at work.

Benicia Tanneries.—The old Benicia tannery, owned by Masars. Brown & McKay, is running on full time, turning out 700 sidea of leather par week, with a lahor force of twenty-five men; 100 aides of this leather are used evary waek hy the Vallejo boot and shoe factory. The last steamer for the Oriant took 35,000 pounds of leather for Japan. This Benicia tannery has furnished ona-fourth of the above amount, and has a standing order of 15,000 pounds per month for the same market. This tannary waa started eight yaars ago by Messrs. Brown & McKay, on a cash capital of only $700, and today their working capital exceeda $50,000. The new tannery of Messrs. Moore & Cummings is in snccessful operation, working soma twenty-five men, and is capable of turning out 400 aidea per waek. It ia one of the most completa tanneriea in the State. Its capacity is to ba increasad to forty men and 800 sides of leather per week. Massrs. Brown & McKay will next naxt spring double the present capacity of their tannery by adding a new two-story bnilding, 60x100 feet, with new enginea and mschinery. —*Vallejo Independent.*

The Patterson mine at Tuttletown, says the Tuolumne *Independent*, will soon receive increasad facilitias for working. At the Sonora fonndry is a naw six-inch shaft, 8 ft. 4 in. in lengtb, with flanges, for the new 35-ft. water wheel. They ara also just finishing up two friction wheels, weighing 1,500 pounds, for the hoisting works, together with the boxes, cape and sliding boxes. There are already thrae watar wheels in oparation—one at the mill and two hurdy-gnrdys—nsing tha same stream of water, which runa from ona to the other; a large one for the hoisting works will make the fourth, which will soon be in operation.

Miner's Candlesticks.—Gillig, Mott & Co., of Sacramento, exhibit at the State Fair a aafaty mining candlestick, known aa Stevanson's patent. It is provided with a self-acting apring, so that whan the candle bnrns down in the socket, instaad of dropping through on to the gronnd, and thus run tha riak of satting fire to the timbers, thia spring ents off the wick and extinguishes the light. The patent is the rasnlt of inveatigation to prevent snoh calamities as not long aince occurred in the mines at Gold Hill, and tha exhibitors atate that it is coming into general nse in all the mining districts of the Pacific coast.

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4v27tf G. MAHE, Director.

TO MILLMEN AND MINERS.

ASSIGNEES' SALE IN BANKRUPTCY.

NOTICE IS HEREBY GIVEN THAT THE UNDERsigned, under and by virtue of the power and authority vested in them, and by virtue of an order of the District Court of the United States for the District of California, made and entered on the 16th day of September, A. D. 1874, in the matter of the MENDHA SILVER MINING COMPANY, Bankrupt, will sell at public auction, in the city and county of San Francisco, at the auction saleroom of John Middleton & Son, No. 310 Montgomery street, on

Friday, the 23d day of October, A. D. 1874

At 12 o'clock, M.,

All that certain mining and mill property and premises situate in Highland Mining District, near Ploche, State of Nevada, described as follows, to-wit:

One twenty-stamp mill and machinery, together with the appurtenances belonging to the same and necessary for the proper working thereof;

Also, the mill site and the spring known as Mendha Spring, and the tract of land surrounding the same to the extent of twenty (20) acres;

Also, all the water-pipe connecting the springs with said mill;

Also, the buildings, office, stable, hoarding-house, etc., upon said land and adjacent to said mill;

Also, the "Stetefeldt" furnace in said mill;

Also, the following named mines, to-wit:

Mendha Mine;
Mendha West Extension Mine;
Regent Mine;
Arizona No. 2 Mine;
Chief Mine;
Crown Prince Mine;
Sadowa Mine;
Alaska Mine, and
Mendha East Extension Mine;

Also, the hoisting works, machinery and all other appurtenances connected with said mines, mill and premises.

Said property is known as the Mendha Mill and Mines.

Terms of Sale—Cash in U. S. gold coin: ten per cent. on fall of hammer, balance on confirmation by U. S. District Court.

For particulars respecting this property apply to the undersigned, at their respective places of business, and to J. M. SEIBERT, Agent of Wells, Fargo & Co., at Ploche, Nevada

Dated San Francisco, September 17, 1874.

WILLIAM A. SCOTT, JR.,
At Wells, Fargo & Co.'s, San Francisco.
And HENRY O. HYDE,
Room 21, No. 411½ California street, San Francisco.
Assignees of Mendha Silver Mining Company, Bankrupt.
John Middleton & Son, Auctioneers. sep26-4t

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Dress Circle and Orchestra	$1 00
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MINERS write for your paper.

THE NEW WINCHESTER REPEATING RIFLE,

(Model of 1873.)

San Francisco Agency.

The Winchester Repeating Arms Company, of New Haven, Conn., have recently made still further valuable improvements on the celebrated Henry Rifle, which now make it, beyond doubt, the most magnificent weapon in the world. They have just introduced this beautiful arm upon the market, and their San Francisco Agency is fully supplied with all the various styles, together with cartridges for the same.

In the manufacture of the new gun, iron mountings (blued or case-hardened) have been substituted for gun metal or brass, thus increasing the strength of the arm and decreasing its weight. It is also now so constructed as to carry a Central Fire Cartridge holding one-third more powder than used in the cartridge of the model of 1866, thereby greatly augmenting the power and accuracy of the weapon.

THE SPORTING RIFLE

Has a Set or Hair Trigger which can be used at will—set or not set, as preferred. All the arms have a sliding lid which covers the opening in which the Carrier Block moves up and down. This lid, by the action of the Carrier Lever, is always open when the gun is fired, and closed by hand when the firing ceases, thus protecting the lock and inner works of the gun from dust and rain.

Various other improvements, which it is not necessary to mention in detail, by which the strength of the several parts is increased and the general appearance of the gun improved, have also been made.

There is now a greater variety of the Sporting Rifle than heretofore. They can be had with a length of barrel (round or octagonal) ranging from 24 to 30 inches, fitted with Globe and Peep Sights, or any other kind in use.

The Carbine is now made with all the improvements above referred to, except the set trigger.

The Sporting Rifle and Carbine will also be made as Extra Arms, Gold, Silver or Nickel Plated, plain or beautifully engraved.

MILITARY ARMS.

Still further improvements have been accomplished which overcome all objections heretofore raised against the Repeating Rifle as an army gun. It is safe, certain and effective in fire, whether used with deliberation or during excitement in action, and no more motions are required than in operating the old model gun.

More extended and minute particulars concerning the new gun can be had by writing or applying to the San Francisco Agency for circular.

CARTRIDGES.

The trade is notified that the Shells of the Central Fira Cartridge for the new gun can be reloaded, and that the Winchester Repeating Arms Company are manufacturers of every description of Cartridge used for Carbine, Rifle and Pistol of any make, and that the Company have a full stock constantly on hand at their San Francisco Agency

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Showing tha location of some 400 mines and tunnel sites, together with the mines surveyed for U. S. Patent. Price $3. For sale and mailed to any part of the globe, on receipt of price, by A. L. BANCROFT & CO., A. ROMAN & CO., and LECOUNT BROS. & MANSUR, San Francisco. 10v25-tf

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California Assay Office—J. A. Mars & Wm. Irelan, Jr., Chemists and Assayers, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

[Continued from Page 213.]

HALE & NORCROSS.—The cross-cuts to the north and south on the 2,000-ft. level are being steadily advanced. The main incline is sinking rather slower than heretofore.

CHOLLAR-POTOSI.—The daily yield is 100 tons of ore of the average assay value of $30 per ton. The two cross-cuts in the Belvidere section are looking more enconraging than heretofore.

FAIRMOUNT.—Work has been resnmed on this mine—adjoinging the Baltimore on the north—and they have arranged with the Baltimore Consolidated company to commence a drift at the 750-ft. level to run through and prospect the Fairmount.

IMPERIAL-EMPIRE.—The main south drift on the 1,850-ft. level is being pushed rapidly ahead with six-hour watches.

SUTRO.—The usual good progress is being made in the tunnel. The rock continnes soft, and there is a considerable flow of water from the face of the tunnel.

BALT. CONS.—They are now engaged in putting in the bob for a plunger pump at the 900-ft. station.

EUREKA DISTRICT.

BULLION SHIPMENTS.—*Sentinel*, Sept. 24: The Ruby Consolidated company yesterday shipped 61,100 lbs. of bullion to Palissde by Pritchard'e teams. Same paper of 25th says: The Hoosac company yesterday shipped 20,078, and the Ruby Consolidated company 20,295 lbs. of bullion, by Pritchard's teams to Palisade. The latter company also shipped 11,900 lbs. by way of Elko.

FIRE. — The woodwork of the Richmond fume srrester was again on fire yesterday. It will be in running order in a day or two.

BEING BUILT.—The iron stack of the Eureka Consolidated fnme srrester is being built, and will be completed in a few days.

TYBO BULLION.—Fourteen thousand pouuds of bnllion, from the 2 G mine of Tybo passed throngh town yesterday for Palisade. 60 tons of bullion have been shipped from Tybo to Palisade. It will pass through town to-morrow to its destination.

RE-STARTED.—The furnace at Tybo, shut dowu for a few days past for wsnt of coal, has been re-started. Enough coal-burners have been obtained to furnish the requisite amount of coal.

ELY DISTRICT.

STILL MORE.—Pioche *Record*, Sept. 22: The Washington & Creole is still producing pay ore in considerable large quantities. Last week we reported a large shipment of bullion. Yesterday we saw three large bers of bullion, amounting in value to $3,600, which form a very good commencement for the week.

WHITE PINE.

STRIKE IN THE MAMMOTH.—*White Pine News*, Sept. 26: From superintendent Sam. Paul, we learn the gratifying intelligence that an important development has been made in the Mammoth company's mine on Treasure hill. At a distance of 560 ft. from the face of the tunnel, at a depth of 200 ft. from the surface, a face of mineral was encountered, which further development has shown to be from 8 to 10 ft. in width, and assayiug all the way from $500 to $1,000 per ton.

Arizona.

MINING NEWS.—*Miner*, Sept. 18: The miniug news from every sectiou of the Territory is as favorable as the best friends of Arizona care to heve it. Within the last week, over $4,000 in gold has been brought to Prescott, by miners who have recently cleaned up their srrastras. Noyes' 10-stamp quartz mill will be ready for work inside of uext 10 days. Bill Smith's 10-stamp mill near Wickenburgh, is running night and day. At leest $3,000 in gold found its way to Wickenbnrg, last week. We are in hopes of seeing three more quartz mills runuing in this county ineide of three monthe. In Mohave county, Col. David Buell, the Keystone and other companies are rushing matters.

Colorado.

ITEMS.—*Prospector*, Sept. 19: Messrs. McCleary & Co. have diecovered a new gold region on the head waters of the San Juan river, 12 miles eoutheast of the Summit.

A CORRESPONNENT from the Summit saye that many of the prospectors have completed their 10-ft. shaft, and have gone out nntil the next season.

BULLION.—*Register*, Sept, 23: The bulliou ehipmente throngh the banks this month to date, foot up $87,000 in gold, and $11,000 in silver, or a total of $98,000 for three weeke, or nearly $33,000 a week or $5,500 per day. Thie does not include any of Hill's shipmente, which are very large, but have been sent down to the fair at Denver for exhibitiou. They amonnt to $65,000.

Montana.

BANNOCK.—*Independent*, Sept. 14: Scarcity of water hae caused a suspension of work in Greeter & Co,'s bar diggings, and not more than eight or ten companiee are at work on the bar diggings.

YAM HILL.—A gentlemen who came over from Yam Hill a day or two since, informs us that there are but a few companiee now workiug their mines at that place in cooneequence of the short supply of water. In the early spring it was thought there wonld be an abundance all the season, but the rain melted the snow and it dieappeared in a few days. Theee minee have paid well all the season and promise to do so for years.

Utah.

DRY CANON ORE. — *Tribune*. Sept. 23: We have been shown by Mr. M. D. Lsmb, of Dry Cañon, who arrived in this city yesterdey, some concentrated ore from the concentrating works owned by himself and Dr. Coleman. The ore has been run down to $921 silver, $152 gold to the ton, and 47 per cent. lead.

EMMA.—Cor. *Tribune*, Sept. 22: Lsst Wednesday, T. W. Parks, attached the Emma for about $100,000, which caused considerable excitement. The works have been all closed and keepers appointed. The men have received their checks, and many of them have left camp in search of their fortnne elsewhere. It is uncertain when the Emma will again start up, bnt it is generally supposed it will remain closed till text spring. The closing of this mine will have a slightly depressing effect on business in Alta, but it will not be as perceptible as some may suppose, for the men employed at that mine were but a small portion of those at work in the camp, and as long ae we have such mines as the Ohio, Fnller, Vallejo, Prince of Wales, Flsgstaff, Victoria, Imperial, City of Rocks, McKey and many others of less note, and they continue to pan out as they now do, we will live and flourish.

Prepayment of Newspaper Postage by Publishers.

During the last days of the last session of Congress was passed a law authorizing the prepayment of postage on newspapers and other publications, particularly periodicals, upon some simple system to be devised by the Post-office Department. In order to expedite matters, the Postmaster-General was specially directed to prepare some plan. The work was placed in the hands of Third Assisant Postmaster-General Barhour, with full authority, subject only to the revision of the Postmaster-General. General Barhour at once set to work, and puzzled himself for some time before he devised a plan, which he has now partially arranged. He arrived in this city three days ago with A. D. Hagen, chief of the stamp division in his bureau, for the express purpose of obtaining the views of Postmaster James and others on the practicability of the system he has arranged. While the system is completed, all the details are not yet fiuished. New stsmps have yet to be devised, and General Barbour will consider them before returning to Washington and obtain estimates for having them printed. The system he has devised is simple. It provides for the preparatiou of receipt-hooks by the Department for esch publisher of a newspaper or periodical. The form of receipt at the New York Post ffice will be somewhat as follows:

(Name of newspaper.)
Date.
No.—.
Amount —.
.....
Stamps.
.....

No. — NEW YORK, —.
Received ——dollars and ——cents postage on —lbs newspaper publications at two cents per lb.
——, Postmaster.

The receipt book will be retained at the Postoffice, where the newspapers will be weighed. The stubs of the receipt book will serve as memoranda to the Postoffice of sums paid, from which returns to the General Department are made. The stamping of papers in bulk will not require more than four stamps of different denomiuations to make up the amount of postage paid by the publishers on any package, whatever that amount may be. Even on a ton of newspaper matter, on which the postage will be forty dollars, only the four stamps will he required to make up the amount of postage paid. This stamp system has been devised, as the Act of Congress requires the use of adhesive stamps. The stamps will be affixed to the stub of the receipts, by the Post-office clerk, and then cancelled.

Thus the publisher will be saved the trouble of bnying and affixing stamps. After the law goee iuto effect, he will take his receipts and hold them as evidence that the postege was paid. General Barbour expects to save by this system of paymeut thousande of dollars to the Treesnry Department every year, besides saving to the department and publishere much labor. He has exhibited the plan to Postmaster-General Jewell, who approves it in every respect. When the details are completed, a circnlar will be issued by the Department explaining the system, copies of which will be forwarded to the newspaper and publishing honses, and to the four thousand postmasters throughout the Statee, and on the let of Jannary next the change will be made.—*N. Y. World.*

GOLN RUN.—Holt's mill, in Gold Run district, ie rnnning steadily on ore from Picard'e mine, near Greggsville. The ore is chloridized by roasting in a reverberatory furnace at the mill, previous to amalgamation. Two or three miniug companiee are working vigorously on their mines in thie district.—*Silver State.*

TO BE DISMANTLED.—The Gold Hill *News* saye that a number of workmen are engaged at preeent in taking out the machinery of the Imperial mill, situated a short dietance below the Gold Hill foundry. Thie mill, it will be remembered, ie one of the oldest in the State of Nevada.

PANAMINT.—Eucouraging reports are coming in from the Panamint minee. The camp now numbere over 500 inhabitants, and the promise of big things crop ont largely—if we are to helieve one-half of the things that appear in the sonthern papers.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Waahington, D. C., Sept. 29th, 1874.

FOR WEEK ENDING SEPT. 15TH, 1874.*

PENOIL SHARPENER.—John S. Hall, S. F., Cal.

HORSE HAY-FORK.—Edmnnd Harrison, Hollister, Cal.

CORRLESTONE PAVEMENT.—Philip Zadig, S. F., Cal.

TRACK CLEANER.—Thos. C. Chnrchman, Sacramento, Cal.

MACHINE FOR PUNCHING SHEETS OF METAL.—Thos. H. Drury, Wheatland, Oregon.

TRADEMARK.

FOR CATARRH REMEDY.—Norman S. Coon, S. F., Cal.

*Tha patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

THE Phœnix Quicksilver mine employs 60 men. They reduce 18 tons of one per cent. ore a day in a Knox & Osborne furnace, and the total cost of working, mining, etc., is six dollers per ton of ore. The mines are yielding about 80 flasks of quicksilver per month.

A NUMBER of Chinamen *en route* to Panamint, Inyo county, under a contract with Stewart, Jones & Co., ran away on reaching Los Angeles. They probably got wind of the threats to prevent them from working in the mines at that place.

THE coinage at the San Francisco Mint for Septemher was as follows: Double eagles, $2,260,000; trade dollars, $271,000; half dollars, $39,000. Total, $2,570,000.

A NUMBER of miners intend to start in, the coming winter, to wash the gravel bed near Allen's ranch, Tuolumne county. They will use the hydraulic and sluice.

THE *Bedrock Democrat*, of Baker City, Oregon, says that a quartz mill is being put up on Counor's creek. This makes the third mill at that place, and the sixth in the oouuty.

THE smelter of the Germania Co., Tontee, Utah, smelts from 30 to 40 tous of ore per day. Copper ores are in demand.

THE telegraph informs us that General Leggett, Commissioner of Patents, will shortly tender his resignation, to engage in other business.

THE Virginia snd Gold Hill Water Co. have completed their new reservoir on the Divide. Its capacity will be about 4,000,000 gallons.

THE American mine, Sunshine district, Col., recenlly sold for $17,000, to a gentleman from New Hampshire.

THE Almaden mines of Spain are now only producing from 3,500 to 4,000 flasks per annum.

J. P. Van Ness has discovered a vein of coal three miles from Pacheco.

A TWENTY-stamp mill is being erected at the Taylor mine, Georgetown.

THERE ie an intense excitement in Lake county over the diecovery of new mines.

ONE thousand flasks of quicksilver have been shipped from Calistoga eince Jauuary 1st.

THE Ætua Quicksilver mine is expected thie year to yield 900 flaske of quicksilver.

EUREKA, Nevada, is 6,462 feet above tide water.

MOKELUMNE HILL ie being rapidly rebuilt.

LEATHER.

WEDNESDAY M., Sept. 30, 1874.

Leather is now held qnite firmly. The fall trade is fully as fair ae was anticipated.

City Tanned Leather, ℔ lb	25@32
Santa Cruz Leather, ℔ lb	25@32
Country Leather, ℔ lb	24@28
Stockton Leather, ℔ lb	25@29
Jodot, 8 Kil., per doz	$50 00@ 54 00
Jodot, 11 to 13 Kil., per doz	66 00@ 90 00
Jodot, second choice, 11 to 16 Kil. ℔ doz	55 00@ 72 00
Cornellian, 12 to 16 Ko	57 00@ 67 00
Cornellian Females, 12 to 13	60 00@ 64 00
Cornellian Females, 14 to 16 Kil	66 00@ 74 00
Beaumorville, 15 Kil	60 00@ —
Simon, 18 Kil., ℔ doz	61 00@ 63 00
Simon, 20 Kil. ℔ doz	65 00@ 67 00
Simon, 24 Kil. ℔ doz	72 00@ 74 00
Robert Calf, 7 and 9 Kil	35 00@ 40 00
French Kipe, ℔ lb	1 00@ 1 15
California Kip, ℔ doz	40 00@@ 50
French Sheep, all colors, ℔ doz	8 00@ 15 00
Eastern Calf for Backs, ℔ lb	1 00@ 1 25
Sheep Roans for Topping, all colors, ℔ doz	9 00@ 13 00
Sheep Roans for Linings, ℔ doz	5 50@ 10 50
California Rnssett Sheep Linings	1 75@ 4 50
Best Jodot Calf Boot Legs, ℔ pair	5 00@ 5 25
Good French Calf Boot Legs, ℔ pair	4 00@ 4 75
French Calf Boot Legs, ℔ pair	4 00@ —
Harness Leather, ℔ lb	30@ 37½
Fair Bridle Leather, ℔ doz	48 00@ 72 00
Skirting Leather, ℔ lb	34@ 37½
Welt Leather, ℔ doz	30 00@ 50 00
Buff Leather, ℔ foot	18@ 29
Wax Side Leather, ℔ foot	17@ 1
Eastern Wax Leather	—@— —

METALS.

WEDNESDAY M., Sept. 30, 1874.

The price of Quicksilver has not advanced, notwithstanding the change in the N. Y. market. Iron and Steel are firm.

American Pig Iron, ℔ ton	— — @ 42 00
Scotch Pig Iron, ℔ ton	45 00 @ 47 50
White Pig, ℔ ton	— — @ 42 00
Oregon Pig, ℔ ton	— — @ 45 00
Refined Bar, bad assortment, ℔ lb	— — @ — 3½
Refined Bar, good assortment, ℔ lb	— — @ — 4
Boiler, No. 1 to 4	— — @ — 5½
Plate, No. 5 to 9	— — @ — 5½
Sheet, No. 10 to 13	— — @ — 5½
Sheet, No. 14 to 20	— — @ — 5½
Sheet, No. 24 to 27	— 08 @ — 09
Horse Shoes, per keg	7 50 @ 8 00
Nail Rod	— 9½ @ — —
Norway Iron	— 8 @ — —
Rolled Iron	— 6 @ — —
Other Irons for Blacksmiths, Miners, etc.	— — @ — 4½
COPPER.—	
Braziers'	— 31 @ — 32
Copper Tin'd	— 45 @ — —
O.Nail's Pat	— 50 @ — —
Sheathing, ℔ lb	— — @ — 24
Sheathing, Yellow	— — @ — 25
Sheathing, Old Yellow	— — @ — 12½
Composition Nails	— 24 @ — —
Composition Bolts	— 24 @ — —
TIN PLATES.—	
Plates, Charcoal, IX ℔ box	13 00 @ 14 50
Plates, I C Charcoal	12 75 @ 14 50
Roofing Plates	11 50 @ 14 00
Banca Tin, Slabs, ℔ lb	31 @ — 33
STEEL.—English Cast, ℔ lb	— 20 @ — 25
Anderson & Woods' American Cast	— 10 @ — 17
Drill	— 18 @ — 22
Flat Bar	— 18 @ — 22
Plough Points	— 16 @ — 17
ZINC	— — @ — 11
Zino, Sheet	— — @ — 11½
NAILS—Assorted sizes	— 5¾ @ — 8
QUICKSILVER, per lb	— — @ 1.45

GENERAL MERCHANDISE.

WEDNESDAY M., Sept. 30, 1874.

Bage and Bagging are held rather more firmly, although quotations are still at hed-rock. Coffees are weaker. Ditto Rice. Sugare are firm, while Syrups are weaker. Tobacco is very strong in the market. an advance in Twist is reported.

BAGS.	
Eng. Stand Wht.—12½@13	
Detrick's Machine Sewed, 22x36 E — —@13	
do 22x36, do E W — —@13½	
do 20x40, do A — —@14½	
Flour Sacke ½s.. 9½—@11½	
" ¼s. 6 —@ 7	
Stand. Gunnies..	
double seam.... 15 @—	
single seam.... 13¾ @14	
" Wool Sacks. 65 @—	
Barley Bags 24x38 — @14	
do 23x40 — @14½	
do 24x40 — @15	
do 23x36 — @16	
Cot Bags, 24x40.... 16 @16½	
do 28x38.... 20 @17	
Hessian 40-in-gde 9½ @10	
do 45 10½ @11	
do 60 — @15	
CANNED GOODS.	
Asst'd Pie Fruits in 2½ ℔ cans 2 75 @ 3 00	
do Table do... — @ 2 75	
Jams & Jellies 3 75 @ 4 25	
Pickles ½ gl... — @ 2 50	
Sardines, qr boxl 80 @— —	
do hf boxes 3 20 @— —	
COAL—Jobbing.	
Australian, ℔ ton 10 00 @— —	
Coos Bay..... — — @10 00	
Bellingham Bay.— — @ 8 50	
Seattle..... — — @11—	
Cumberl'd, cks..22 00 @23 00	
do bulk...18 00 @20 00	
Mt. Diablo..... 6 25 @8 50	
Lehigh..... — — @19 00	
Liverpool..... 11 00 @12—	
West Hartley.....12 50@—	
Scotch..... 9 50 @10 00	
Scranton..... 15 00 @17 50	
Vancouver'e Isl..11 00 @11 50	
Charcoal, ℔ sk... 75 @ —	
Coke, ℔ bbl..... — @ 60	
COFFEE.	
Sandwich Island — @ 22	
Central Americ'n 19 @— 20	
Costa Rica per lb 20 @ 21½	
Guatemala..... 19 @ 20½	
Java..... — @ 28	
Manilla..... 20 @ 21½	
Ground in cs.... — @ 30	
Chicory..... 9 @ 10	
FISH.	
Pac. Dry Cod, new 5 @ 6	
cases..... 6 @ —	
do boneless.... 11 @ 12	
Eastern Cod..... 7 @ 8	
Salmon in bbls..8 00 @9 25	
do ½ bbls 4 50 @4 75	
do 2½ lb cans — @3 00	
do 2 lb cans..2 65 @2 75	
do 1 lb cans..1 75 @— —	
Do Col. R. ½s... — @ —	
Pick. Cod, bbls..22 00 @— —	
do ½ bblsl 00 @— —	
Bos. Sm'k'd Her'g 40 @ 50	
Mack'l, Nos. 1, ½ bbls 00 @ 50	
" Extra.... — @9 00	
" in kits....2 00 @2 50	
" Ex mess..3 00 @3 50	
" Ex mess. ½ hs—@12 00	
Sm'k Herr'g, hf. bx. 50 @ 60	
NAILS.	
Assorted size. ℔ 5 00 @7 25	
OILS.	
Pacific Olive Co.	
Neat F't No. 1. — @1 00	
Pure..... 1 25 @— —	
Castor Oil, No. 1.. — @1 75	
do do No. 2.. — @1 60	
Cocoanut..... 45 @ 50	
Olive Plagniol..5 00 @— —	
do Posel....4 75 @— —	
Palm..... 9 @— —	
do Bagicalupi.. — @— —	
Linseed, raw.... — @1 05	
do boiled..... — @1 10	
China nut in oe.. 82½@ 90	
do bulk..... 75 @ 80	
Sperm, crude.... — @1 40	
do bleached.... — @2 20	
Coast Whales... 35 @ 40	
Polar, refined.... 50 @ 65	
Sperm..... 1 40 @1 50	
Lard..... 1 00 @1 10	
Coal, refined Pet 37½@ 40	
Oleophine..... — @ 34	
Devoe's Bril't.... 25 @ 28	
Long Island.... — @ 34	
Eureka..... 37½@ 40	
Devoe's Petro'm 25 @ 28	
Barrel kerosene 20 @ 25	
Olivo..... 4 00 @9 50	
Downer Kerose'e — @ 40	
Gas Light Oil... — @ 34	
PAINTS.	
Atlan. W. Lead. 7½ @ 12½	
Whiting..... — @ 2	
Putty..... 4 @ 4½	
Chalk..... — @ 2½	
Paris White..... 2¾@— —	
Ochre..... 4 @ 5	
Venetian Red... 3½@ 5	
Red Lead..... 7 @ 11	
Litbarge..... 10 @ 11	
Eng. Vermilion 2 00@2 10	
RICE.	
Chins No. 1, ℔ lb 6¾@ 6¾	
do 2, do. 5½@ 5¾	
Japan..... — @6½	
Siam Cleaned.... 7 @— —	
Patna..... 5¾@ 5¾	
Hawaiian,... ... 7¼@ 8	
Carolina..... 10 @ 10½	
SALT.	
Cal. Bay, per ton 10 00@14 00	
do Common.. 5 00@ 7 00	
Carmen Island...11 00@13 00	
Liverpool fine...20 00@23 00	
do coarse 15 00@20 00	
SOAP.	
Castile ℔ lb.... 10 @ 11	
Local brands.... 5 @ 8	
SPICES.	
Allspice, per lb.. 15 @ 16	
Cloves..... 55 @ 60	
Cassia..... 32½@ 35	
Citron..... 30 @ 30	
Nutmegs..... 1 20 @1 25	
Whole Pepper.... 20 @ 22	
Pimento..... — @ 15½	
Gr'nd Allsp pr dz — @1 12½	
do Cassie do.. — @1 50	
do Cloves do.. — @1 50	
do Mustard do — @1 25	
do Ginger do.. — @1 00	
do Pepper do.. — @1 00	
do Mace do.. — @2 00	
SUGAR, ETC.	
Cal. Cube per lb. 11½@ —	
Partz' Pro. Cube hhl or 100 lb bxs — @ 11¾	
do in 50 lb bxs.. — @ 12	
do in 25 lb bxs.. — @ 12¼	
Circle A crushed — @ 11½	
Powdered..... — @ 11¾	
Granulated..... — @ 11	
Dry granulated.. — @ 11½	
Hawaiian..... 8 @ 10½	
California Beet. — @ 11½	
Golden C ..... — @ 10½	
Island Kegs, grade — @ 9	
Cal. Syrup in bls. — @ 60	
do in ½ bls. — @ 65	
do in kegs.. — @ 67½	
Hawaiian Molasses..... 25 @ 27½	
TEA.	
Oolong, Canton, lb 19 @ 25	
do Amoy.... 28 @ 50	
do Formosa 40 @ 80	
Imperial, Canton 25 @ 40	
do Pingeuey 45 @ 80	
do Moynne.. 60 @1 00	
Gunpo'der, Cant. 30 @ 42½	
do Pingsuey 50 @ 90	
do Moyune. 55 @1 25	
Y'ng Hy., Canton 28 @ 40	
do Pingsuey 40 @ 70	
do Moyune.. 65 @ 85	
Japan, ½ chests, bulk..... 30 @ 75	
Japan, lacquered bxs, 1½ and 5 lbs 45 @ 67	
Japan, fine bxs, 1½ lbs 55 @ 90	
do pl'n bx, 1½ lb 35 @ 65	
do ½ & 1 ℔ paper 30 @ 55	
TOBACCO—Jobbing.	
Bright Navye.... 50 @ 60	
Dark do .... 45 @ 55	
Dwarf Twist.... 60 @ 65	
12 inch do .... 60 @ 65	
Light Pressed... 65 @ 75	
Hard do .... 60 @ 70	
Conn. Wrap'r.... 40 @ 50	
Penn. Wrapper.. 20 @ 30	
Ohio do .... 7 @ 15	
Virg'a Smok'g.. 8 @ 95	
Fine ot chew'g.. 8 50 @9 25	
Fine ont chewing, bno'ts. ℔ lb..75 @ 90	
Banner fine cnt.. @90 00	
Eureka Cnts.... 8 75 @9 00	
TURPENTINE.	
Eastern..... 60 @ 65	

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OUR FRIENDS can do much in aid of our paper and the canse of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none bnt worthy men.

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The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines and Agricultural Lands in Mining Districts of the U. S., printed in circular sheet, for sale at this office. Sample copies, 25 cts

Thursday Noon our last forms go to press. Communications should be received a week in advance and advertisements as early in the week as possible.

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Black Mountain Coal Mining Company.

Principal place of business, City and County of San Francisco, Cal. Location of works, Santa Cruz County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 28th day of August, 1874, an assessment of 5 cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 402 Montgomery street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 2d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

F. H. WELLS, Secretary.

Office—No. 402 Montgomery street, room No. 23, San Francisco, Cal. sep5

Confidence Mining Company---Location of

Principal place of business, San Francisco, Cal. Location of works, Taolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the nineteenth (19th) day of September, 1874, an assessment of thirty (30) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 217 Sansome street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the twenty-sixth (26th) day of October, A. D. 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the sixteenth (16th) day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. S. ANDERSON, Secretary.

Office—No. 217 Sansome street, San Francisco, Cal. sep26-4t

El Dorado North Mining Company—Location of

principal place of business, San Francisco, California. Location of works, Philadelphia Mining District, Belmont, Nye County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the fourth day of August, 1874, the several amounts set opposite the names of the respective shareholders as follows:

OLD STOCK.

Names.	No. Certificate.	No. Shares.	Amount.
E McFaddin, Trustee	15	100	$100 00
M J McDonald, Trustee	45	5000	5000 00
M J McDonald, Trustee	49	500	500 00
M J McDonald, Trustee	50	500	500 00

NEW STOCK.

E A Richardson, Trustee	5	100	50 00
J B Warren, Trustee	11	50	25 00
J B Warren, Trustee	12	50	25 00
J B Warren, Trustee	20	50	25 00
E A Richardson, Trustee	26	100	50 00
E A Richardson, Trustee	32	100	50 00
E A Richardson, Trustee	41	100	50 00
E G DeCrane, Trustee	46	50	25 00
E G DeCrane, Trustee	52	100	50 00
J B Warren, Trustee	59	20	10 00
D Driscoll & Co, Trustees	85	10	5 00
Schmiedell, Hochstadter & Co, Trustees	89	20	10 00

And in accordance with law, and an order of the Board of Directors, made on the fourth day of August, 1874, so many sheres of each parcel of such stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 325 Pine street, San Francisco, California, on Tuesday, the sixth day of October, 1874, at the hour of 12 o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of the sale.

FRANK SWIFT, Secretary.

Office—Room No. 4, Hayward's Building, No. 419 California street, San Francisco, California. sep19

Electric Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, State of California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 3d day of September, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company in San Francisco.

Any stock upon which this assessment shall remain unpaid on the 5th day of October, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Wednesday, the 4th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—No. 318 California street, San Francisco, Cal. Room No. 13. sep5

Kincaid Flat Mining Company---Location

of principal place of business, San Francisco, Cal. Location of Works, Sonora, Tuolumne County, Cal.

NOTICE—There are delinquent upon the following described stock, on account of assessment levied on the eighteenth day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L Thompson	17	10	$20 00
L Thompson	18	10	20 00
L Thompson	53	20	40 00
L Thompson	54	20	40 00
L Thompson	126	5	10 00
L Thompson	127	5	10 00
A Ludlum	19	10	20 00
A Ludlum	20	10	20 00
A Ludlum	21	10	20 00
A Ludlum	22	10	20 00
A Ludlum	40	5	10 00
R H Cornell	132	10	20 00
T D Melville	136	20	40 00
T D Melville	137	12	24 00
T D Melville	138	10	20 00
I D G Isham	140	50	100 00

And in accordance with law, and an order of the Board of Directors, made on the 18th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the auction house of R. D. W. Davis, 217 Sansome street, San Francisco, on the twelfth day of October, 1874, at the hour of one o'clock, P. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office—217 Sansome street, (up stairs,) San Francisco, California. sep26

Manhattan Marble Company of California.

Principal place of business, San Francisco, California. Location of works, Oakland, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of August, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A P Brayton	22	60	$120 00
A P Brayton	23	59	118 00
E P Flint	24	60	120 00
E P Flint	25	59	118 00
E P Flint	267	57	114 00
E Tripp	266	40	80 00
E Tripp	294	15	30 00
Geo S Ladd	83	50	100 00
Geo S Ladd	84	50	100 00
Geo S Ladd	85	19	38 00
J P Dyer	47	60	120 00
John Curry	49	20	40 00
John Curry	50	20	40 00
John Curry	51	20	40 00
John Curry	52	10	20 00
John Curry	53	10	20 00
John Curry	54	10	20 00
John Curry	55	10	20 00
John Curry	56	10	20 00
John Curry	57	9	18 00
B & J S Doe	58	50	100 00
B & J S Dos	59	50	100 00
B & J S Dos	80	19	38 00
Josiah Belden	61	119	238 00
Warren Dutton	127	30	60 00
Warren Dutton	205	50	100 00
Warren Dutton	206	50	100 00
Warren Dutton	207	18	36 00
Charles Barlow	94	60	120 00
Charles Barlow	95	59	118 00
A L Warner	95	20	40 00
A L Warner	98	20	40 00
A L Warner	100	20	40 00
A L Warner	101	19	38 00
A L Warner	282	10	20 00
A J Moulder	285	3	6 00
W H Raymond	105	100	200 00
W H Raymond	108	19	38 00
L G Sylvester	107	59	118 00
C C Warner	116	20	40 00
C C Warner	117	20	40 00
C C Warner	118	20	40 00
C C Warner	119	20	40 00
C C Warner	120	20	40 00
C C Warner	121	19	38 00
Charles Webb Howard	128	119	238 00
James L Barker	129	119	238 00
E H Dyer	130	59	118 00
D M Bokee, Trustee	193	100	200 00
D M Bokee, Trustee	281	5	10 00
C C Tripp, Trustee	148½	5	10 00
C C Tripp, Trustee	149½	5	10 00
C C Tripp, Trustee	150	10	20 00
C C Tripp, Trustee	291	108	215 00
C C Tripp, Trustee	147	5	10 00
T M Antisell	159	50	100 00
Charles Griffith	183	119	238 00
R Wagner, Trustee	164	50	100 00
R Wagner, Trustee	155	50	100 00
R Wagner, Trustee	156	19	38 00
Wm. Holden, Trustee	158	119	238 00
G W Blake	159	7	14 00
L E Dam	186	10	20 00
L E Dam	188	10	20 00
L E Dam	189	10	20 00
L E Dam	190	10	20 00
L E Dam	197	10	20 00
L E Dam	199	10	20 00
Louisa R White	191	50	100 00
Louisa R White	192	50	100 00
Mrs Matilda Dam	211	20	40 00
Marshall Curtis	214	10	20 00
Marshall Curtis	215	10	20 00
Marshall Curtis	216	10	20 00
Marshall Curtis	218	10	20 00
Marshall Curtis	219	10	20 00
Lawrence Lane	225	10	20 00
Lawrence Lane	229	2	4 00
Murray Curtis	230	10	20 00
Lewis Starkweather	231	30	60 00
Geo D Gregory	232	30	60 00
Mrs A E Edwards	233	10	20 00
Mrs A E Edwards	234	9	18 00
Elihu Avery	242	1	2 00
Elihu Avery	243	10	20 00
Elihu Avery	244	10	20 00
Elihu Avery	245	10	20 00
Elihu Avery	246	10	20 00
Elihu Avery	247	10	20 00
Elihu Avery	248	10	20 00
Elihu Avery	249	10	20 00
Elihu Avery	250	10	20 00
Elihu Avery	251	10	20 00
Elihu Avery	252	10	20 00
Elihu Avery	253	5	10 00
Elihu Avery	254	5	10 00
N P Cole, Trustee	255	119	238 00
A J Morrell	255	22	44 00
A J Morrell	259	50	100 00
A J Morrell	271	30	80 00
Theron R Hopkins	272	119	238 00
J D Fry	275	19	38 00
James Swan, Trustee	277	119	238 00
E A Richardson, Trustee	283	100	200 00
E A Richardson, Trustee	284	100	200 00
E A Richerdson, Trustee	286	35	70 00
James A Johnson	287	19	38 00
James A Johnson	288	20	40 00
James A Johnson	289	100	200 00
James A Johnson	290	100	200 00
W H Phelps	292	112	224 80
W H Phelps	293	30	60 00
C H Leavitt	295	35	70 00
Irad Cochran	125	119	238 00
Wm Holden	280	5	10 00

And in accordance with law, and an order of the Board of Directors, made on the 24th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at No. 212 Sansome street, San Francisco, on Tuesday, the 20th day of October, 1874, at 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. CLASON, Secretary.

Office, 212 Sansome street, San Francisco, Cal.

Oceanic Quicksilver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, San Simeon Mining District, San Luis Obispo County, California.

Notice is hereby given, that at a meeting of the Directors, held on the 12th day of September, 1874, an assessment (No. 1) of forty cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company, 438 California street, up stairs, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 19th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 10th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. F. CRONISE, Secretary.

Office—No. 438 California street, San Francisco, Cal.

Saw Pit Flat Gravel Mining Company

Consolidated—Location of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Plumas County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 17th day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Allen, D H	48	25	$125 00
Clark, J W, Trustee	22	66	330 00
Clark, J W, Trustee	23	10	50 00
Clark, J W, Trustee	24	10	50 00
Clark, J W, Trustee	25	10	50 00
Clark, J W, Trustee	26	10	50 00
Clark, J W, Trustee	27	3	15 00
Clark, J W, Trustee	28	3	15 00
Clark, J W, Trustee	29	3	15 00
Clark, J W, Trustee	30	3	15 00
Clark, J W, Trustee	31	3	15 00
Clark, J W, Trustee	46	6	30 00
Dexter & Co	47	25	125 00
Dond, E S, Trustee	63	20	100 00
Doud, E S, Trustee	64	20	100 00
Doud, E S, Trustee	65	5	25 00
Doud, E S, Trustee	66	5	25 00
Engelbrecht, H	51	5	25 00
Engelbrecht, H	52	5	25 00
Engelbrecht, H	53	5	25 00
Engelbrecht, H	54	5	25 00
Engelbrecht, H	55	5	25 00
Engelbrecht, H	55	6	30 00
Garness, J R	58	25	125 00
Garness, J R	89	25	125 00
Garness, J R, Trustee	70	12	60 00
Hinckley, Geo E, Trustee	71	10	50 00
Hinckley, Geo E, Trustee	72	10	50 00
Hinckley, Geo E, Trustee	73	10	50 00
Hinckley, Geo E, Trustee	74	10	50 00
Hinckley, Geo E, Trustee	75	5	25 00
Hinckley, Geo E, Trustee	76	5	25 00
Hinckley, Geo E, Trustee	77	5	25 00
Hinckley, Geo E, Trustee	78	5	25 00
Hinckley, Geo E, Trustee	79	3	15 00
Lewis, S & Co	2	3	15 00
Levy, H	57	5	25 00
Levy, H	58	5	25 00
Levy, H	59	5	25 00
Levy, H	60	5	25 00
Levy, H	61	5	25 00
Levy, H	82	6	30 00
Phillips, D L	44	62	310 00
Phillips, D L	57	1	5 00
Slawson, J S	32	11	55 00
Sharp, Wm H	82	125	625 00
Small, A E H Mrs	80	20	100 00
Thomas, J H	3	10	50 00
Thomas, J H	4	10	50 00
Thomas, J H	5	10	50 00
Thomas, J H	8	10	50 00
Thomas, J H	7	10	50 00
Thomas, J H	8	10	50 00
Thomas, J H	9	10	50 00
Thomas, J H	10	6	30 00
Thomas, J H	13	6	30 00
Thomas, J H	14	5	25 00
Thomes, J H	15	5	25 00
Thomas, J H	15	5	25 00
Thomas, J H	17	5	25 00
Thomas, J H	18	5	25 00
Thomas, J H	19	5	25 00
Thomas, J H	20	5	25 00
Thomas, J H	21	5	25 00

And in accordance with law, and an order of the Board of Directors, made on the seventeenth (17th) day of August, A. D., 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction at the office of said company, on Thursday, the fifteenth (15) day of October, 1874, at the hour of two (2) o'clock P. M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of the sale.

J. W. CLARK, Secretary.

Office—No. 418 California street, room No. 2, San Francisco, Cal.

Stanislaus River Mining Company—

Location of principal place of business, San Francisco, California. Location of property and works, Stanislaus River, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees held on the 23d day of September, 1874, an assessment (No. 4) of twenty cents per shers, was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 113 Leidesdorff street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Tuesday, the 27th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 13th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

WILLIAM STUART, Secretary.

Office, 113 Leidesdorff street, San Francisco, California. sep26

Taylor Mill and Mining Company--Location

of principal place of business, City and County of San Francisco. Location of works, Gardner Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 21st day of September, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 607 Montgomery street, in the City and County of San Francisco.

Any stock upon which this assessment shall remain unpaid on the 28th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 23d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

SAMUEL S. MURPHY, Secretary.

Office, No. 607 Montgomery street, City and County of San Francisco, California. sep26

Tuolumne Hydraulic Mining Company.

Location of principal place of business, City and County of San Francisco, State of California. Location of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment No. 3, levied on the nineteenth day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J M Briceland	49	500	$52 50
J M Briceland	50	500	52 50
J M Briceland	51	500	52 50
E Van Santen, Trustee	14	100	12 50
E Van Santen, Trustee	15	100	12 50
E Van Santen, Trustee	16	100	12 50
E Van Santen, Trustee	17	100	12 50
E Van Santen, Trustee	18	100	12 50
E Van Santen, Trustee	19	100	12 50
E Van Santen, Trustee	20	100	12 50
E Van Santen, Trustee	21	100	12 50
E Van Santen, Trustee	22	100	12 50
E Van Santen, Trustee	23	100	12 50

And in accordance with law, and an order of the Board of Directors, made on the 19th day of August, 1874, so many shares of each parcel of such stock as may be necessary, will be sold at public auction, at the office of the Secretary, Room 14, 302 Montgomery street, San Francisco, on Monday, the twelfth (12) day of October, 1874, at the hour of 12 o'clock M., of such day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

I. T. MILLIKEN, Secretary,

Office—Room 14, (up stairs,) 302 Montgomery street, San Francisco, Cal.

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Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch
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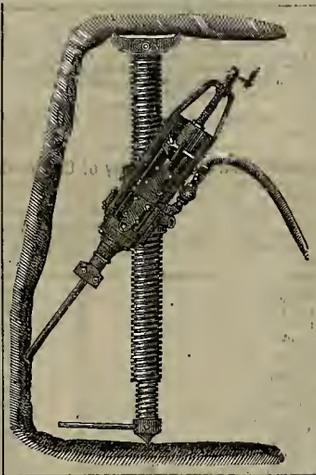

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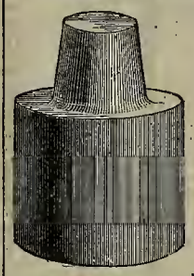

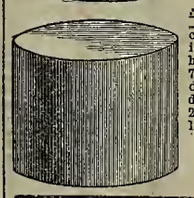

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To Superintendents of Quartz Mills and Mining Men Generally.

We guarantee these SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper. They are gradually coming into use in all of the principal mills on this coast.

Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.
Address all orders, with dimensions, to
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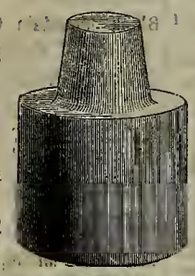

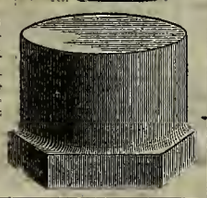

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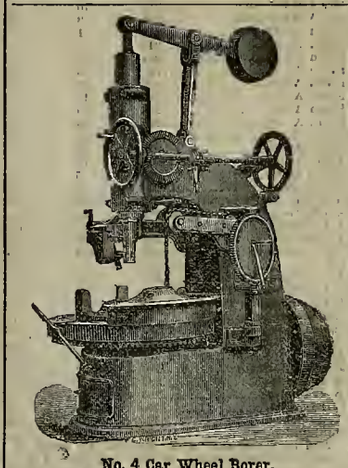

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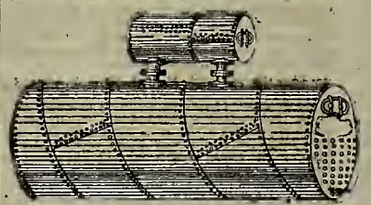

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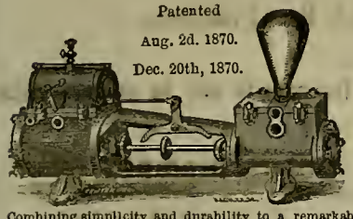

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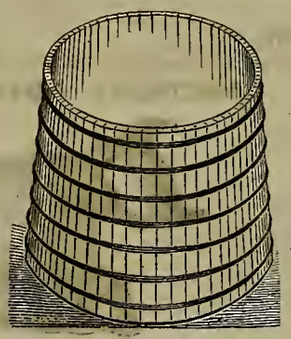

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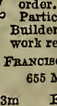

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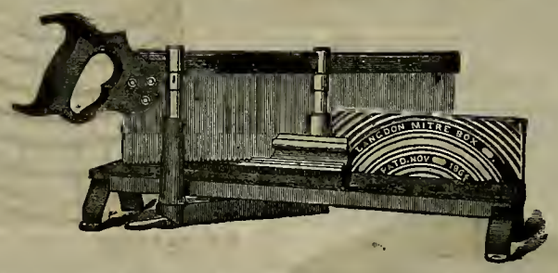

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For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.
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FOR STATE OF NEVADA.—We have appointed Mr. F. B. Alderson our special agent and correspondent for the State of Nevada. He will visit our friends and patrons there soon.

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Particular attention paid to construction of
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Cazin's Combination Ore-Sizer and Concentrator—One Plunger System.

[Covered by Letters Patent of July 2d, 1872, and recent applications.]

Containing a sizing apparatus, (revolving screen) delivering two or four sizes of ore to two or four rows of sieves, each row independent of the other, and each having 5 sieves, each row concentrating according to specific gravity the special size automatically fed unto it, resulting in the simultaneous continual delivery of separated materials, working 2d and 3d-class ores into 1st-class ores of perfect cleanness. It thoroughly separates native gold or copper from quartz or any other lode matter;—galena and silver sulphurets from pyrites, baryta and quartz; and pyrites from quartz.

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SAN FRANCISCO, SATURDAY, OCTOBER 10, 1874.

VOLUME XXIX Number 15.

A Curious Experiment.

An old Trick Again Coming into Vogue.

Every now and then an old wonder, which has been sleeping in the unused corners of a few memories for years, is revived and excites a momentary surprise, makes a new draft upon our credulity, and again subsides. It appears to have no connection with the acts of "epiritualists," although such people and the practitioners of natural magic have a general monopoly of latter-day miracles. This ancient wonder—sometimes called "body lifting," sometimes "buzzing up," it is said is just now being revived again in East Norwich, Long Island, where it is making quite a sensation, and is said to be regarded as an innocent amusement quite apart from the so-called spiritual demonstrations of the present day and times

In order that the description which follows may be more readily understood, we have introduced the following illustration which appeared for a similar purpose, several years ago in an eastern publication. This is what a newspaper correspondent says about it as now practiced on Long Island :—

"The young people collect together in company and lift each other by the tip ends of the index fingers. The subject to be lifted lies down upon the carpet, face upward. He is instructed to assume a stiff or rigid state, approaching the condition of a stick of wood as much as possible.

"The lifters, six in number, stand three on each side. Then at a signal, the snapping of a finger by the leader, the lifters and subject inhale the atmosphere, filling their lungs to their utmost capacity. When this is done the lifters stoop and try to lift the subject. If they fail they again assume an erect attitude, and again inhale; then try again, and thus repeat the operation till at last, generally the second, third or fourth trial, up goes the subject like a feather, being frequently borne to the ceiling on the tip ends of the fingers of the lifters. They claim that the heaviest person lifts as easily as the lightest. Subjects weighing two hundred pounds have been thus lifted by four persons. Some declare that the operation produces an exhilerating sensation; others that it causes depression.

"The writer of this article was thus lifted, and experienced no unusual sensation more than he went up without any apparent physical effort on the part of those who lifted him. It is said that if one of the actors laughs or does anything to cause him or others to exhale while the subject is going up, the latter will immediately come down unless he is caught by main strength. The cause of all this the operators claim to know nothing about."

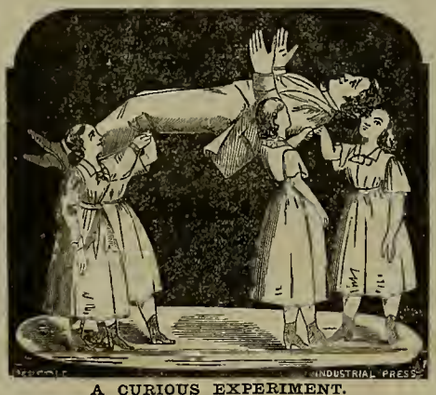
This writer thus speaks of his own experience with apparent candor. It is true he does not give his name, but he doubtless had his own good reason for remaining concealed—probably for fear of ridicule. It is a very simple experiment to try.

The only materials required are about five able-bodied men, immeasurable faith, and a securely locked and shuttered room for a laboratory, with a long tallow dip for witness. The operators ought to be sworn to keep each other's secret, and in case they fail, of course they will say nothing about it. If they succeed, the bond of secrecy to be annulled by success.

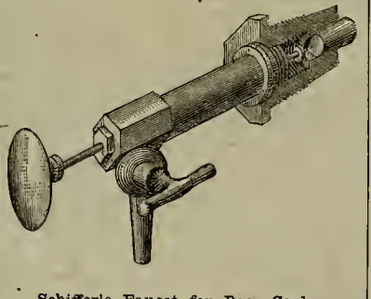
It is possible that this story may be of a piece with such as are often honestly told by school boys who have done some wonders, or think they have, and they recollect hearing that their fathers did the same things when they were boys; and thus the traditions descend through the generations, and now and then the newspapers record them in more durable shape. Still, after all, it may not be "a school-boy's tale—the wonder of an hour;" and if it be indeed true, it doubtless has a philosophy which may be penetrated. Who knows—this toy of time, this youth's plaything, which age dimly remembers yet feels obliged to laugh at, may evolve a true principle of natural law, which it is said to suspend or set at defiance? There have been many childish blunders upon truths, and this may be one of them, continually thrusting itself upon the attention of mankind for recognition.

Sir David Brewster in his "letters on Natural Magic," speaks apparently somewhat seriously of the matter as follows :—

One of the most remarkable and inexplicable experiments relative to the strength of the human frame, which you have yourself seen and admired, is that in which a heavy man is raised with the greatest facility, when he is lifted up at the instant that his own lungs and those of the persons who raise him are inflated with air. This experiment was, I believe, first shown in England a few years ago by Major H., who saw it performed in a large party in Venice under the direction of an officer of the American navy. As Major H. performed it more than once in my presence, I shall describe, as nearly as possible, the method which he prescribed. The heaviest person in the party lies down on two chairs, his legs being supported by the one and his back by the other. Four persons, one at each leg and one at each shoulder, then try to raise him, and they find his dead weight very great, from the difficulty they experience in supporting him. When he is replaced in the chair, each of the four persons takes hold of the body as before, and the person to be lifted gives two signals by clapping his hands. At the first signal he himself and the four lifters begin to draw a long and full breath, and when the inhalation is completed, or the lungs filled, the second signal is given for raising the person from the chair. To his own surprise and that of his bearers, he rises with the greatest facility as if he were no heavier than a feather. On several occasions I have observed that when one of the bearers performs his part



A CURIOUS EXPERIMENT.



Schiffer's Faucet for Beer Casks.

ill by making the inhalation out of time, the part of the body which he tries to raise is left, as it were, behind. As you have repeatedly seen this experiment, and have performed the part of both load and bearer, you can testify how remarkable the effects appear to all parties, and how complete is the conviction either that the load has been lightened or the bearer strengthened by the prescribed process.

At Venice the experiment was performed in a much more imposing manner. The heaviest man in the party was raised and sustained upon the points of the forefingers of six persons. Major H. declared that the experiment would not succeed if the person lifted were placed on a board, and the strength of the individuals applied to the board. He conceived it necessary that the bearers should communicate directly with the body to be raised. I have not had an opportunity of making any experiments relative to these curious facts; but whether the general effect is an illusion or the result of known or of new principles, the subject merits a careful investigation.

A TEN-STAMP mill will be put up to crush ore from the Leopard mine, in the Cornucopia district.

Academy of Sciences.

The regular semi-monthly meeting of the California Academy of Sciences was held on Monday evening last.

William J. Fisher presented a collection of Japanese specimens, including two pair of shoes and a hat; a sample-book containing several hundred specimens of fabrics, a water-proof coat, manufactured of paper, sponges, etc. W. G. Harford presented 13 species of crustaceans from the island of Santa Rosa. W. J. Fisher presented 23 species of crustaceans from the Sandwich Islands and Japan. J. L. Bray presented several specimens of iron ore from the northern part of Coos county, Oregon; two bottles of gold-bearing sand, from the ocean beach of same county, and a bottle of platinum, found in black sand on the same beach. Dr. Kellogg presented a very extensive collection of plants. Mr. Hoffman presented the map of California, issued by the State Geological Survey.

Dr. Cooper made some interesting remarks on California in the pliocene epoch, referred to more at length in another column of this issue.

A paper by Stephen Powers, "The Aborigines of California," was read by the Corresponding Sec'y.

Professor Hilgard, who is now delivering a course of lectures on agricultural subjects at the University of California, was introduced. After congratulating the members on the flourishing condition of their organization, the number present, greatly surpassing the ordinary meetings of scientific bodies of the East, the gentleman delivered an interesting discourse on the geology of the country north of the Gulf of Mexico, which had engaged his constant study for the past 18 years.

Henry Edwards presented the report of a special committee appointed to inventory the library and herbarium of the late H. G. Bloomer, Curator of the museum, with the view of purchase by the Academy. The committee reported 119 volumes in the library, many of which were valuable works not frequently met with, and there were 66 packages of plants, embracing rare species. The fair value of all was estimated at $700. The committee, however, considered the great services the deceased had rendered the Academy, during a membership of 20 years, and his death was an irreparable loss, and therefore recommended that $1,000 be paid for the books and herbarium in quarterly installments of $250 each. The report was unanimously adopted.

Dr. Cooper presented a specimen of a fungoid growth with the following remarks. A fire passing through a grove of willows scorched many without killing them. On the bark of these the sap afterwards exuded of a deep red color and dried where exposed to the sun in transparent drops, resembling cherry gum, but not gummy, bitter like salicine, and of a beautiful blood-red color. Where kept moist by the dews and fogs, this sap-like exudation soon began to vegetate into an orange-red fungus, which grew about two or three inches long, covering the bark which had become dead with a mossy growth. Though it would be supposed according to scientific belief, that the spores of this lichen or fungus merely found a suitable place to grow in the scorched sap, it looked very much like a case of "spontaneous generation" of fungus from the sap itself.

JOHN M. ECKFELDT, melter and refiner in the Mint, in this city, committed suicide on Thursday last. He was also superintendent of machinery in the new Mint building. It is thought that he took his life in a fit of temporary insanity, induced by overwork.

Tap and Faucet for Beer Casks.

John G. Schiffer, of this city, has recently patented through the SCIENTIFIC PRESS Patent Agency, an improved tap and faucet for beer casks, an illustration of which is shown on this page. The invention is a device for making the connection between the interior of the beer cask and the faucet, and consists in the use of a plunger or rod, which passes through the faucet, being packed so as not to leak. The socket into which the faucet screws is screwed tightly into the barrel, and its central opening is stopped by a plug. After the faucet is screwed down to its seat, a blow upon the sliding rod or plunger forces it against the plug, thus driving it into the barrel, and leaving the connection open to the faucet. The construction of the faucet is easily seen by means of the engraving.

When it is to be used the faucet is screwed into its place, and the head of the rod is struck so as to force its inner end against the plug, and thus drive it into the cask. This allows the liquid in the cask to fill the faucet, in readiness to be drawn by turning the cock, and there will be no waste by making the connection with the faucet, as the whole is made tight before the plug is driven out.

PATENT SUIT.—Some time since the Giant Powder Co. commenced a suit in the United Circuit Court, in this city, against the Hercules Powder Co. for allogod infringements of the Giant Powder Co.'s (Nobel's) patents. The particular patents upon which this suit was based were the original patents of Nobel, in which he claimed an explosive compound, composed of nitro-glycerine as the explosive agent. The defendants (the California Powder Co.) entered a demurrer to the complaint, which demurrer was sustained by the court and confessed by the plaintiff, and leave was granted to the defendants to amend their complaint within thirty days. A new complaint will be prepared and filed.

BOOT HEELS.—If we were to examine the heels of a hundred persons, chosen indiscriminately, we would find out of that number at least 90 pairs of boot heels that are worn off on one side, or "run down," as it is called. This running down of the heel is attributed to various causes, such as: imperfection in the structure of the heel, crooked walking, bow legs, etc.; but the usual and almost universal cause is a weakness of the ankle-joint, which tends to give the heel a grinding action upon one side as the person walks. Strengthen the ankle and you cure the boot heel.

THE Cloverdale Quicksilver Mining Company, whose claim is located at the junction of Squaw and Sulphur creeks, Sonoma county, is taking out remarkably rich ore. It has twenty men employed, who have already taken out 250 tons of ore, which will be ready for the furnace to be completed in about four weeks.

NOXES 10-stamp mill, Yavapai county, Arizona is now ready to reduce ore. A new 10-stamp mill is to be put up on Kirkland creek to crush from the Vesuvius mine, same county. Still another 10-stamp mill is to be erected by Sexton & Co. in Weaver district, same county.

BULLION shipments from Belmont for September, were $11,970; from Austin, in the same month, $113,000; from the Twin River (formerly the Murphy), in Ophir Cañon, $10,000.

THE Prussian Silver Mining Company, at Jefferson, have completed their new mill, and the stamps will drop in a few days. The hoisting works over the Prussian south shaft started on Tuesday.

FUEL.—Large quantities of wood are being brought up from the Carson river by rail and teams for consumption in Virginia and Gold Hill. All of the companies are laying in large supplies of fuel for winter.

THE Yellow Jacket Mining Co. are building a new ore house.

Professor Carr and the University.

Professor Carr has published in the *Chronicle* a full and elaborate statemsnt of ths matters at issus between himself snd the Regents of the State University, giving at ths sams time a succinct history of tbe action of the Board in relation to the Agricaltural and Mechanical Art Colleges, from the date of the organization of the University. Ths statement and history is too lengthy to admit of its publication entirs, in the PRESS, as it would occupy about five of our pages. Hencs we can give only a brief digest of the dscumsnt. Those who do not es the *Chronicle* may be pleased to learn that it is soon to be printed in pamphlet form for general circulation.

The Professor starts out with a history of ths Congressional action which led to the national endowmsnt of Agricultural colleges in the sevsrsl States. Ths shars of California in this national gift was 150,000 acres of land, which, by act of Legislature was appropriated to the founding of a University, in which, to meet the requirements of the Congressional act, a Collsgs of Agriculture was first to be established, to bs followed in the order as named by a College of Minss, a College of Civil Engineering, and a College of Letters—the latter to bs coexistent with the College of Arts.

Grave Defects.

Ths Professor thinks that the injustice complained of in rsgard to the Collegs of Agriculture has been brought ahout, not so mnch by a dsfectivs plan of organization so far as its educational features are concerned, as by the extraordinary powers conferred upon the Governor snd Board of Regsnts. By virtne of these powers, he says, ws havs the auomoly of an institution created by a public fund, supported by public taxation, which is to all intents and purposes a private institution, beyond the reach of penalties of the press or of public censure for malfeasance in office.

The Regents hold tbat ths grant of Congress to "provids colleges for ths benefit of agriculturs and the mechanic arts," was "really granted for ths encouragement of all branches of modern scientific instruction, and was so construed in the application of it to ths Univsrsity of California." The history of ths Credit Mobilier and every great fraud committed upon ths pnblic under the sanction of law, says ths Profsssor, shows that ths first steps of the fraud havs heen to obtain tbs necsssary legislation. In all tbe shitting scenery of the play ths conspicuous figures remain ths same. They also at first construed ths provisions of the organic act with regard to a Secretary to be impracticable.

Ths professor next proceeds to review ths act of transfersnco of ths College of California to the State University; criticises the manner in which the first Board of Regents of the Univsrsity was mads up, and their early acts in selling off a large portion of tbe University grounds.

Ths organization and opening of the Univsrsity, in which Prof. John Ls Conte largely assisted as acting Prosident, is favorably alluded to.

The Agricultural College.

Prof. Carr having beeu called upon to take charge of the professorships of Agriculture, Agricultural Chemistry, and Horticnlture, entered upou active duties at the opening of the University September, 1869, and occupied his first year with two lectures a week to the advanced class; a course of twelve lectures to the Normal School, and in lecturing to agricutturists and school teaching, at there various gatherings. In addiion to which he devoted considerable tims to a thorough and systematic study of tho agricultural capacities of the Univsrsity grounds at Berkeley.

The Professor was informed January 5th, 1870, by a nots from Secretary Moulder, that Dr. Merritt had heen authorized to expend $1,500 in "ornamenting tbe grounds" at Bsrksley; and the suggsstiou was made that he should confer witb the Dr. about "the introduction of new and valuable plants." The Professor promptly expressed his willingness and desire to aid in any work in that direction. and proffsred some additional suggsstions. The result was the setting out of a few acacias, blue gums, etc.; but nothing being dons or proposed by the Regents of any practical valus.

Early in May the professor addressed a letter to the Regents making such practical suggestions as his experience and observations at similar institutions suggested, to which communication no answer was ever returned; but some two months afterwards the Board of Regents passed some resolutions directing him to deliver ons or mors lectures at importsnt localities, in all portions of the State, on snch subjects connected with agricultnre as were likely to bs of tbe most value and interest to ths various localities. These rssolutions became famous by rsason of the remarkable declaration of which they containsd, that the Regents proposed by this act "to transfer ths Agricultural Collegs of the University from ths closst to the fisld," a declaration absurd in its nsturs, and which became a standing jest among the teachers throughout ths Stats.

The Profsssor did his bsst to carry the spirit of the resolutions out, as thousands of persons in all parts of tho State can testify. During the first year of this work he traveled about 2,000 miles, and over 3,000 milss during ths second year. The only changs ever mads in this programme was a notice from the Regents, "to incur no additional expenss for traveling while delivsring lectures until further notice."

Considerable spacs is devoted to ths Professor's correspondence with the Regents in rslation to laying out the University grounds, and ntilizing them for agricultural instrnction. Hs dsvoted mnch tims to this matter, brought to it much valuabls experiencs and observation of his own, consulted with some of the ablest and best experienced individuals and teachers from the East, who chsnced from time to time to bs in California, and his plans were fully sndorsed by Prof. Bolander. Yet hut littls or no attention was paid to his communications, or at least not till after his expulsion was resolved upon. To the average mind, outside of the Board of Regents, it would seem that ths Agricultural Professor of ths University should hs fully consulted in such matters; but sach does not appsar to havs hecn ths cass—and while only $400 was expended under his direction, over $20,000 was expended undsr ths direction of Dr. Merritt.

In July, 1872, Mr. Boiander, in ths form of a resolution, urged npon the Regents the immediats location of grounds to be devoted to agriculture and horticulture, presenting his suggestions under ton distinct heads. These rssolutions were for tbe time laid on the table; but in September following, Professor Csrr again urged the importance of ths subject on the sttention of the Regents, when ths constrnction of a greenhouss and the employment of a gardensr was finally ordered. But as no location was mads for improvements, notwithstanding frequent appeals for the same, supplemented by letters and advice to that effect from Dr. Grey, who was tben perfecting a similar work for Harvard University, nothing was done. The inference drawn, is tbat Professor Carr's plans for utilizing the grounds for purposes of instruction, would interfers with the plsns of ornamentation proposed by Fred. Low Olmstead, which requires an expenditure of from forty to eighty thousand dollars.

President Gilman.

Under this bead the Professor writes: "Soon after tbe inauguration of President Gilman it became evident that he had not only no sympathy with ths Agricultural College, but that he would use all his influence to divert its means into other channels. Hs pronounced tho organization so carefully studied by acting President Le Conte, as "extremely faulty and defective," and in the register, soon after publsbed, wiped out the College of Agriculture, as sucb, making an agricultural "course of study" one of soveral not essential to any degree confsrred by the University.' So marked was this changs that when the head of ths Department at Washington wrots to ms for ths statement of ths condition and progress of our Agricultural Collegs, to include in his report to Congress for 1872, and I replied by sending the register (not feeling authorized to speak for ths President or Regents), hs immediately replied: 'Wbat I want is a register or catalogus or other document concerning your Agricultural Collego. Pleass fill the inclosed blanks, answsrs to specific questions which will give the desired information.' I gsve the letter and blanks to President Gilman, with a copy of ths previous report made under President Durant.

When the congressional report was distributed, the information concerning our Industrial College of Agriculture and the Mechanic Arts was confined to two brief paragraphs, as follows: "Tbe most important change made in this college during the present year is the election of Daniel C. Gilman, President of the University." President Gilman is a graduate of Yale College, and was for several years Professor in the scientific school of that college. He has spent some time in Germany in the study of science in Berlin. His inaugural address was delivered at Oakland, Novembsr 7th, 1872, and is replete with practical obsservations on the principles and charactsr of the education which our public demands." "The farm has not been improved, etc." "Students are not instructed iu agriculture outsids of the school room."

The Professor complains that aftsr suitable rooms in the new Agricultural College buildings had been assigned to the use of the various Professors, hy mutual arrangement between the Faculty and Building Committee, and the furnishing either completed or in progress, Pres. Gilman informed him that the rooms designed for him were wanted for other purposes. By this act all his plans for exhibiting rars and valuabls plants and conducting sxperiments towhich light and heat were essential, were thus snmmarily overthrown by relegating the accommodations into the north end of ths basement. He says: "I remonstrated strongly" and said "I should be asbamed to take the farmers of the State through ths buildings and exhibit such accommodations for the Agricnltural College."

The paragraph on page 69, of ths Regsnts statemsnt to the Joint Committee of ths Legislature, is untrue. My remonstrances were made to ths Prosident, as my communications usually wsre after his appointmeut. If the Board never received "any expression of my wisbss," it was not my fanlt.

The Regents say, (also on page 68 of their statement,) that "ou ths rsmoval to Berkeley, ths sum of $500 was placed at my disposal to secnre the aid of competent lectnrers during the ysar in matters of practicsl agriculturs." This is not true. I nevsr heard of this except in the pagos refsrred to, and never knowingly had a csnt at my disposal for thess purposes. (See following letter to Regents, April 6, 1874.) I did what I could to maks the bassment rooms assigned to my use presentable before the visit of the Legislative Committees, occupying the holidays in furnishing them with my own library and collections. Ths lecture-room, without fire, was sxceedingly cold and damp dnring the rainy ssason."

Professor Carr and the Legislative Committee.

Ths Professor, in referring to the matter of invsstigations of ths 1sst Legislature, says: "Learning that I was accused of having furnished thess Committses with information, and as ths mattsr of University rsform was getting mixed up with ths Merritt investigation, I mads an explanation to the Advisory Committes of ths Rsgsnts, no testimony from me having bsen called for by any Committee of ths Legislature np to that tims. I showed them that I had no connection whatever with the Legislative proceedings in ths matter, sxcept such as havs necessarily resulted from the kind of service in whicb I have been employed; that while I had endeavored to carry out the intsnsions of the Board, ss first explainsd to me by Regents Tompkins and Fitzgerald, and sfterward hy formal resolutions and instructions, I had as faitbfully rspresented ths sentiments of the peopls to thsm, and had rspeatedly placed before them in writing ths measures which had bean urged upon ms as important to securs a cordial fseling toward the University and its work; that I had svery resson to believs that the manner in which I had represented the aims and objects of the Univsrsity were approved by ths Regsnts and by the public; aud that I had been placed without intention on the part of ths Regents in the difficult positiou of reconciling ths various published announcements of the Regents with ths dormant condition of ths Agricultural Collegs, and thst I had been placed before ths pnblic in ths position of apparent responsibility without the power to meet it. Of tbis, a resolution authorizing me to appoint a gardener, without providing materisl for the prosecntion of his work, or locating grounds for his operations, was an illnstration. In conclusion I said: "In the peculiar relation which ths transference of ths Agricultural Collegs 'from ths closet to ths field' has placed me toward the peopls of this State, I have neither been disloyal to their interests nor to yours, but havs always acted on ths belief that these were identical. If loyalty to the interests of industrial education, to which I havs given ths bsst years of my life, and mean to give what remains of it, is treason to the University, or if it is so construed by your honorable body, I must plead guilty to the charge."

* * * At this juncture ths Professor of Agriculture was informed that ths Regents contemplated his snmmary removal on the ground of disloyalty to his smploysrs. The charge of incompetsncy was not made. Ths Secretsry addressed to me a letter of inquiry as to whst, in my opinion, "was feasibls for the improvemsnt of instructions in agricultare and horticulture," as if no suggestions on that subject hsd sver been presented to tbsm. I replied by referring them to former communications, with some new suggestions.

The House Committee on Education had reported favorably to a changs in ths management of ths University, on ths gronnd thst ths various callings, interests and sections of ths State were not represented in the Bosrd; 18 of its 22 members being lawyers and business men, having their offices in San Francisco. The Committee said, "All admit that the Professor of Agriculture is not only a scientist, but a thoroughly practical instructor. He should live on the ground, and students shonld be allowed to labor, thereby applymg science under the direction of their instructors."

Incompetency.

On April 7th, the Board, through Mr. Stearns, their Secretary, addressed an application to me for information and printed docnments on the subject of agricnltural education. This, to an incompetsnt party, by those who know so wsll what agricultural ednoation is at home and abroad, was answsred two days later with full details on every point.

We may here introduce, as a somewhat extraordinary matter nnder the circumstances, the statement of Professor Carr, that not one of the Regsnts—not evsn Prssident Gilman, himsslf—has ever besn prssent at one of the Professor's lectures to tbe agricnltural class. Perhaps, nnder thsse circumstancss, the Regents are competent judges of incompetency and unfituess; but the public would like to know *how*.

Bnt we have neither time nor spacs to follow the subject further. Thoss of our readers who would liks to know more of the matter will no doubt taks ths trouble to secure a full copy of the Profsssor's statement, which will eoon be placed within ths ready reach of all who may desire its full perusal.

IRON WORKS IN THE UNITED STATES.—The Americau Iron and Stesl Association have issued a pamphlet giving a list of the iron works in the Unitsd States, including furnaces, rolling mills, steel works, forges and bloomariss. The totals are 681 complsted blast furnaces, 343 rolling mills, 51 stsel works, 37 forges and 47 bloomaries. Blast furnacss recently abandoned are recorded; also furnaces in course of erection or projected.

UTILIZING GRAPE-STONES.—It is nsual to throw away graps-stones as a waste product, but it appears they can be turned to good account. When roasted and gronnd they possss an aroma very much like that of East India coffee, and the bevsrage obtained therefrom is about the same as coffee in tasts, though infsrior in quality. Au acre of vinsyard ordinarily yields 30 to 40 pounds of this seed.

The Ramsdell Mill.

Whils on a trip down Gold cañon yesterday, we mads a short halt at the Ramsdell mill, sitnated in ths cañon a littls distancs abovs ths Silvsr Hill mins. The owner of ths mill, Mr. Joseph B. Ramedell, kindly took us in chargs and showed ns through ths works. Mr. Ramsdsll is one of the old pionesrs of Nsvada, having come here in esrly days, and though possessed of bnt limited mesns, mansged to erect a small prospecting mill, gradually enlarging it as times would permit. This hs continued to rnn for several years—in fsct until it wss literally worn out—whsn, yielding to the necessitiss of the occasion, hs formed a littls ring of his own and resolved to supply its place with the pressnt enlarged strncture. The hstteries are three in number, and, contrary to the usual custom, contain only two stamps, the stamps weighing 700 ponnds each, by which arrangement it is claimed a grsatsr nnmber of tons of ors can hs reduced in a given length of tims. Ths mill is so constrncted that the pulp flows dirsctly from the batteries into largs settling tanks, on ths lower side of which ars arranged six large Hepbnrn amalgamating pans for grinding the pulp; and thsn again on the lower side of thess amalgamating pans are rangsd the settlers, so that from the tims the ors is shoveled into ths self-feeders at the battsries, there is no mors labor until the pans ars ready to bs cleaned up. Ths steam power by which ths machinery is run is ampls for the addition of mors stamps and amalgamating pans, whenever it is desirable to erect thsm. The new building is well put up and evsrything arranged in and ahout the mill, with a view to ths closets economy and convenience. The mill will commencs crushing ors from ths Lso mins tomorrow. Mr. Ramsdell, with his long experisnce in the business, heing snabled to work the gold ores along Gold cañon up to within a very small percsntags of their assay valuss. If we had more men of ths go-ahsad Ramsdell stamp our community would bs gnons the loser.—*G. H. News.*

HARDWOOD LUMBER.—The largs and prospering business of ths firm of Whits Bros. is conducted at 108 and 110 Market street and 5 and 7 Cslifornia street, in a part of ths city of San Francisco which, within ths recollection of ths "oldest inhabitant" was at ons time covered by ths waters of ths bay. Beneath ths buildings which they occupy ars the remains of one of the old-tims crafts. Their edifice is 150 feet long by 55 feet wide and two storiss high. It is much mors spacions and convenient than elegant, but is well located for their business. Here ths stranger and ths curionsi hsvs an opportunity of seeing and sxamining in "the rough" ths style, quality and variety of soms of ths woods in ordinary use in this city. California furnishss the laurel, ash and maple; Oregon, from her abundance, can spare a part of her ash, maple, pine and alder. These woods and ths California laurel are susceptible of a very fine finish, and equal in appearancs the fine Eastsrn woods. Indiana sends walnut and poplar. New Jerssy, Ohio and Psnnsylvania contribute the sturdy oak, ash, hickory, cherry and maple. Other Statss contribnte their quota. From Mexico is imported Spanish cedar and mahogany. This being all seasoned lnmber, is a dry subject to write about. The amonnt of bnsiness done annually by this firm is about $120,000. Their freight bills by rail, sailing vessels and steamers this year will be $40,000. TOMHAGAN.

A BIG LATHE.—The big lathe which has been for some time in process of construction at the Union foundry on the Divide, has been so far completed that it has been set up temporarily and is now in use. It is for tnrning off large iron wheels and pullsys. They have turned in it some pnllsys for ths Justice mining company which are seven feet in diameter. As the laths now stands they are able to turn a whsel ten feet in diameter. Next spring it will bs set up in a building that will be erected pnrposely for its reception, whsn it will be so placed that a wheel twenty feet in diamster may be turned on it. It now stands upon a fonndation constructed of timbers, bnt it will then be placed upon a foundation laid as deep in the ground and as firmly tisd and bolted with rods of iron as would be the case were it intended to support the most powerful hoisting or pumping engine. Although the laths is so far completsd that it is in use, yet to maks it psrfect in every part not less than fifteen tons of castings will be required. The lathe is being built under the supsrvision of Charles Cummings, one of the propristors of the fonndry, and when finished will he one of the largest and most complets machinss of the kind on the Pacifio Coast. It takes a shaving an inch in width off an iron wheel about as easily as though it were merely the softest wood. A grsat pressure of work caussd the proprietors to sst the machine np temporarily—it was a thing so much nssded that thsy were obliged to begin nsing it as soon as it could be made to work at all.—*Virginia Enterprise.*

IMPERMEABLE PAPER.—By plunging a sheet of papsr into an ammoniacal solntion of copper for an instant, then passing it betwean the cylinders and drying it, it is rsndersd entirsly impermeable to water, and may even be boilsd in water without disintegrating. Two, thres, or any number of sheets thns rolled togsther bscome permansntly adherent, and form a material having the strength of wood. By the intsrposition of cloth or of any kind of fiber betwesn the layers the strsngth is vastly increased.

MECHANICAL PROGRESS.

A New Kind of Glass—"Bone Glass."

A new and most interesting kind of colored glass has lately come into use, which is known as "bone glass," of which very little has as yet been said in glass literature. It is a white opaque glass, and its name hints at its composition and nothing more, especially since cryolite has come to be used in the manufacture of glass. This kind of glass is used for lamp shades and globes to protect the most important organ of the human body, the eye; and formerly it was both rare and expensive. Cryolite, however, has effected as great a revolution in the manufacture of white glass as petroleum has in the means of illumination. What part the chief constituent of the bone, the phosphate of lime, played in the manufacture of the bone glass was not exactly understood, and a still thicker veil is drawn over the action of the fluoride of lime, soda and alumina, known as cryolite. It is to offer some explanation of this action that Fischer takes up this interesting branch of the glass industry. Phosphoric acid is, at a high temperature, a very powerful acid—so much so that no other acid is able to displace it. Hence we may reasonably suppose that the phosphate of lime remains suspended, as such, in the molten mass of glass. This, too, is indicated by the fact that when an excess of bone dust is added to the glass, or on suddenly cooling it, it is rough on the surface; but if the glass has the proper constitution, it remains perfectly smooth. How may the action of cryolite be explained? The power of hydrofluoric acid to etch glass and render it matt is well known, and depends on the decomposition of the silicates, taking from them a part of the silica, and the soda or potash, so as to form a compound known as fluosilcate of soda or potash, and then flying off in form of a vapor. We all know that this takes place, to a greater or less extent, in every cold, completely formed glass; how much easier and better would this process take place under the ægis of heat?—*Scientific American.*

A NEW TIDE WHEEL.—Mr. Andrew Folsom of Warren, R. I., has recently devised and constructed a tide mill in that town, which is described as follows: The wheel is upright, and in hight or depth 7 ft., and 7 ft. across. The wings or arms are 28 in. in width, 62 in. in hight, and 39 in. in length, so that the flood tide, when the wings are open a depth of 7 ft. and a width of 39 in. is secured for the force of the tide to act upon for the purpose of power to move the wheel and load that may be attached thereto. On the flood tide the arms open on the west or left side, and on the ebb on the easternmost or right side of the wheel as it now stands. After passing certain points the arms close and the resistance is only the thickness of the three-eighths of an inch iron. The wings are three tiers deep, and so arranged that a number of them are opened at a time, and add to the power and force of the wheel the full depth of the water. These wings are secured to the shaft by hinges that work very smoothly. A cast-iron circular plate seven feet across is at the bottom of the shaft or wheel, one at the top of the first tier or wings, one at the top of the second tier, and one at the third tier, with sufficient space between so that the wings play entirely free. The wheel is not as yet loaded, but it moves very true and without noise or jar.

A NEW LOCOMOTIVE ENGINE.—A very singular locomotive engine, for working under ground, as in collieries, has been patented by Messrs. Hurd & Simpson, of Wakefield, Eng. The invention consists in an improved steam and power generator, in which the products of combustion from the fire receptacle are returned to the same by means of an injector actuated by compressed air or other equivalent agent for drawing off the products of combustion, and forcing them again into the fire receptacle with or without an admixture of compressed air or other inflammable fluid or liquid; also in devaporizing escape or exhaust steam, and the machinery or apparatus for effecting the objects above referred to.

A CURIOUS BRONZE is produced in Japan, which, when made in thin plates, resemble slate, and is covered with designs in silver. M. Morin has lately analyzed and examined the properties of the alloy, and finds that it contains, in addition to copper, from four to five per cent. of tin, and on an average ten per cent. of lead. The combination is easily moulded into thin plates. These are varnished, and through the covering the designs are scratched with a graver. The plate is then plunged in a silver bath, when the silver is deposited on the unprotected portions. Lastly, it is placed in a muffled furnace, when the copper blackens and the silver remains bright.

SCHOOL OF MILLWRIGHTS.—Professor Isham Walker, of Lexington, Tenn., suggests that various State organizations of millers and the National Association unite and subscribe funds for the building (at Chicago, Ill.) of a model school flouring mill, at a cost of $150,000. He shows that such an institution, supplied with the best examples of modern machinery, and exhibiting the latest improvements and examples of practical science in milling, would be of immense instructive advantage to millwrights throughout the country, while the stockholders he thinks, would realize handsome dividends every year.

Compressed Air Machinery.

A paper on compressed air machinery, recently read by Mr. William Daniel, before the British Institution of Mechanical Engineers, is a valuable contribution to our knowelge of a class of mechanism, regarding which much interest is now being manifested, while trustworthy information is not abundant. The former portion of this statement is fully verified in this community by the combined interest which has been manifested at the pavilion in this city in regard to the Burleigh drill, and its air compressing machinery.

A very complete series of experiments was conducted by the aid of an air compresser having two steam cyliaders, each 16x30 inches, working compressing cylinders of like dimensions, and the whole mounted on a receiver 24 feet long by five feet in diameter, which formed the bed plate. After the compressed air was led to a portable engine and there cooled, it was admitted to two cylinders, 10 by 12 inches, which drove an engine working a frictious brake. By means of indicator diagrams, taken from this last mentioned engine, as well as from both the steam and air cylinders of the compresser, a record was obtained of the losses of power which took place at various stages. From the data a table was completed, the results of which show that, when working with air at 40 pounds pressure, the usual effect obtained on the brake was only 25¼ per cent. of the power indicated on the steam cylinders of the air compresser, while with 34 pounds pressure the efficiency reached 27 per cent.; with 28 pounds, 28 per cent, was gained; with 24 pounds, 35 per cent. and with 19 pounds, 45¼ per cent. The loss of efficiency due to increased pressures may be ascribed to the conditions of the experiment and the increased loss of heat from the air, attendant upon the higher degrees of compression.

Mr. Daniel advocates the use of compressed air machinery for mines, and points out the economy which must result from the fact that, when the motor is idle, there is no loss except the interest of money expended on the machinery, which is much less than that incurred where animal power is employed. He also suggests that the ventilation of the mines would be improved by the discharge from the engines, while the air, being always available in the pipes, could be used to dilute an outflow of gas.

The discussion of Mr. Daniel's paper elicited a number of practical suggestions. Mr. C. W. Siemens pointed out that the development of heat during the compression of air might be avoided by the injection of water into the air-compressing cylinder, this water taking up the heat as fast as it appeared; while the formation of ice in the engine cylinders might be prevented by similar means, the water in this case giving up heat to the air during the expansion of the latter. Mr. Firth stated that he had got rid of any difficulty with ice by enlarging the exhaust openings. Mr. Brotherhood described his three cylinder engine, as used for working the Whitehead fish torpedo. This had three cylinders, each 1⅜ inches by 1¾ inches stroke, driven by a pressure of 450 pounds per square inch, admitted through a reducing valve from a reservoir of air, stored at 900 pounds per square inch. This engine had run at 2,225 revolutions per minute, developing 2¼ horse power, or 0.28 horse power for each penad of its weight. Mr. Cowper suggested that radiating ribs, cast on the cylinders of air compressers or of engines using compressed air, might serve the purpose of facilitating the omission or absorption of heat.

A NEW MECHANICAL SEPARATOR.—A new form of mechanical separator for the removal of fine particles of iron that become mixed with turnings and fillings of copper and brass from workshops, has recently been devised by M. Varin, of Paris. Two superposed hollow cylinders turn in the same direction, and upon them the material to be separated is scattered through a hopper. The surface of the cylinders consists in bands of soft iron which are kept in a magnetic state. The particles of iron are attracted to these cylinders, and at a certain period of revolution are brushed therefrom into a receptacle, while the scraps or other metal fall to the bottom of the apparatus. The machine is said to be capable of separating 1,100 pounds of material per hour. It has also recently been employed by M. Mangou, for detecting titanic iron in arable earth, with remarkable precision, the iron, in such small quantities as 15 or even 7 grains in 22 pounds of earth, having been readily separated.

CAST NICKEL PLATES.—For some years back much attention has been drawn to the galvanized plating of metals, especially iron, with nickel, and larger plates of metallic nickel have been much wanted for the anodes of the galvaniziug nickel salt baths. The extraordinary refractory nature of pure metallic nickel has been, till lately, a great hindrance to the casting of large plates. Borchert, however, has lately succeeded in casting nickel plates 18 inches long, 14 inches broad, and one-sixth thick. The nickel hitherto used, Saxon Wurfelnickel of 98 to 99 per cent. strength, is fused in crucibles in a simple brazier's furnace, by a coke fire. The fusion requires continual and laborious attention, the metal not becoming fluid till after at least six hours' firing. As soon as it becomes fluid, it must be cast without delay into the sand molds, for as soon as the fire drops a little, the nickel is liable to solidify again into a solid mass, in which case a renewed fusion in the same furnace is impossible.—*C. A. Borchert.*

SCIENTIFIC PROGRESS.

Singular Facts in Regard to Electricity.

The London *Philosophical Magazine* for July contains a synopsis of a recent communication made to the Royal Society by George Gore, Esq., on a new and remarkable phenomenon in the action of electricity upon iron, which consists in the very perceptible twisting of a bar of this metal by the joint effect of currents passing through it longitudinally, and passing round it in the insulated wire of an enveloping helix. The twist may be made so great as to exceed even a quarter of a revolution, and its amount is rendered very conspicuous by means of an index twenty inches long, suitably attached to the end of the bar. The combined influence of both currents is necessary to produce the torsion. Either current singly produces only the ordinary effect of magnetizing the bar, either transversely or longitudinally, without altering its figure. The direction of torsion is definitely related to the directions of the currents producing it. Calling the twist of an ordinary screw a right-handed torsion, the following law may be stated: When the axial current flows from a south pole toward a north pole, the torsion is right-handed; when from a north pole toward a south pole, the torsion is left-handed. If both the currents be reversed, therefore, the torsion remains unaltered; but if either be reversed separately the direction of the torsions is reversed likewise.

When the currents are not simultaneous but successive, torsion is produced, but in a lesser degree. This appears to be owing to the fact that the first current leaves a residuary magnetism in the bar, which conspires with that produced by the succeeding current; the effect being similar to that which would be due to a very much feebler simultaneous current. The torsion produced by a coil current may thus be used as a test of the residuary effect of an axial current, and that produced by an axial current may similarly serve to detect, and perhaps to measure, ordinary magnetism in a bar. The torsional influence is uniformly distributed throughout the length of the bar subjected to experiment.

No torsional effects were observed with rods of platinum, silver, copper, tin, lead, or, in general, any metal or other substances not magnetizable; but nickel rods appeared to be susceptible to the influence, though by no means to the same degree as rods of iron.

Another singular fact has been noticed in relation to the behavior of the steam engine employed to drive one of Mr. Wild's electro-magnetic engines. It appears that whenever pieces of iron rods or wires are placed in the circuit to be heated, the engine slackens speed when the metal begins to redden, the resistance to the action of the engine perceptibly increases in proportion as the heat of the metal increases, and it is only by constant care of the engineer that a uniform rate of motion can be secured.

THE LIGHT OF COGGIA'S COMET POLARIZED.—Prof. Wright, of Yale College, publishes in the *American Journal of Science* the results of his observations with the polariscope upon the light of Coggia's comet. During the greater portion of the time when the comet was favorably situated for observation, it was unfortunately hidden by clouds or extinguished by thick haze. On one or two occasions, however, he was able to obtain evidence that its light was polarized. The polariscope showed the bands, both bright and dark, quite definitely, and they were seen with comparative ease. Observations repeated a number of times agreed in showing that the light was polarized in a plane passing through the axis of the tail; that is, as nearly as could be estimated, in a plane passing through it and the sun. Other observations at a later date gave the same result, though less satisfactorily, as the twilight had begun to interfere with the observations. After waiting until this had disappeared, it was possible to see the bands, though with some difficulty, and the degree of the polarization appeared to be decidedly less than on the previous occasion. The percentage of light thus polarized could not be accurately fixed, but it was not large. The conclusion is therefore that a considerable portion of the light of the coma is derived from the sun by reflection.

LARGE MAGNITUDES DIFFICULT OF COMPREHENSION.—The difficulty of properly comprehending large magnitudes is readily admitted by every one. Who, for instance, can properly comprehend the vastness of the world on which we live? And if we cannot "realize" a diameter of 8,000 miles, how can we adequately comprehend one more than one hundred times that diameter—as the sun for instance? Perhaps it will help us to the conception of such an enormous mass, to recollect that the moon, which seems so far from us, and apparently a near neighbor to the stars, is only 240,000 miles distant, while the sun is 860,000 miles in diameter. If then the sun were a hollow sphere, the earth might be placed in its center, with the moon still revolving in her proper sphere, with a margin of over 180,000 miles, in every direction before we reached the sun's outer circumference. Such is the almost incomprehensible magnitude of the sun, and yet recent observations have very conclusively shown that some of the fixed stars are many times larger than our sun—in fact that the sun is really to other sun's but one of the smallest of stars!

On the High Temperatures Actually Possible.

Several memoirs upon the highest temperatures actually and theoretically attainable have lately been presented to the French Academy. M. Cailletet has been studying the influence of pressure on combustion. He finds, by means of an ingenious apparatus, in which he has been able to burn not only a candle, but also a wick fed with alcohol, in highly condensed air, that the light gradually increases with the compression, finally becoming dazzling and so brilliant as to rival that of phosphorus in oxygen.

But then, however, if the pressure be increased, the brilliance of the light diminishes, the flame become smoky and flakes of lamp-black are deposited. From this it is clear that the temperature of the combustion increases with the pressure up to the point of dissociation of the hydrocarbon gases of the candle. The same fact was shown by the spectrum; the spectrum increased with the temperature up to a certain limit, which could not readily be passed. From these facts Deville draws the conclusion that it is very decidedly an error to estimate the sun's temperature at several millions of degrees. These experiments, as well as those of Berthelot and his own, go to show that there is a limit to possible temperatures, and that a burning body cannot produce heat of an indefinite intensity. "Perhaps," he says, "the temperature of 2000°C. is the highest temperature which can exist in the universe." M. Violle concludes from some experiments which he has made, that there cannot be a temperature higher than 1400°C. anywhere.

THE ACTION OF TIDES ON THE SEA-BOTTOM. Mr. Reade communicates to the Geological Society of Liverpool the result of a series of novel investigations on the action of tides on the sea bottom. He shows that at various points in the St. George and English channels and in the Irish sea, tidal currents were capable of destructive erosive action on the sea-bottom, and that the materials of the Irish sea-bottom are principally composed of rearranged glacial drift, either eroded off the bottom or off the coast by the sea itself, or poured into it by the many rivers. These materials, notwithstanding the oscillatory character of the tidal streams, have in the main a slow, progressive motion down the channel and far out into the Atlantic. It was shown that there are pits or gullies excavated in the bottom in both the English and Irish channels, and that these depressions generally have their major axis conformable in direction with the set of the stream tide. In conclusion, Mr. Reade expresses his conviction that the diurnal and semi-diurnal motion of the tides acting down to the profoundest depths of the ocean, accounts for the preponderance of life in it over that exhibited by the fauna of the Mediterranean.

MICROSCOPIC EXAMINATIONS OF THE AIR.—Mr. Cunningham of Calcutta has published a work of great importance, detailing the results of laborious experiments made by himself, regarding the dust contained in the atmosphere in the vicinity of that city. Among other things, he states that distinct infusorial animalcules, their germs or ova, are almost entirely absent from atmospheric dust. Distinct bacteria can hardly ever be detected, but fine molecules of uncertain nature are almost always present. Bacteria are frequently to be found in the air derived from sewers. Spores and other vegetable cells are constantly present in atmospheric dust. The majority of them are living and capable of growth. No connection can be traced between the numbers of bacteria, spores, etc., and the occurrence of diarrhea, dysentery, cholera, ague, or dengue. The amount of inorganic and amorphous particles and other debris directly depend upon moisture and wind velocity. The amount of spores and vegetable cells appear to be independent of wind and moisture. The dust examined by Cunningham was collected by a special aereoscope and was not scraped from horizontal quiescent surfaces as by Ehrenberg's method.

THE *American Manufacturer* has the following: Great Britain has now 36,000,000 spindles in her mills, with nearly 400,000 looms and 650,000 workmen. Next comes the United States, with 8,000,000 spindles; France, 5,700,000; the German Zollverein, 4,300,000, of which Alsace possesses 1,700,000; Russia, 2,000,600; Switzerland, 1,800,000; Austria, 1,400,000; Spain, 1,400,000; Belgium, 600,000; Italy, 500,000, and over 2,000,000 for other countries.

THE CORRELATION OF FORCES.—Of the various forms of energy existing in nature, any one may be transformed into any other, the one form appearing as the other disappears. This is what is meant by "the correlation of forces." Thus the rotary power of a wheel, if applied to turn a magnet, is converted into electricity; and this electricity, if employed to drive a wheel, is changed back into rotary power.

NEW FULMINATE.—M. Prat says: Picrate of lead has the property of detonating when struck, and may serve as a substitute for fulminate of mercury in percussion caps. He also gives an account of an explosion which occurred in his laboratory on triturating together chlorate of potash, picrate of lead and amorphous phosphorus.

PLATES of polished steel may be used as a substitute for boxwood for engraving, and is said to be better as it does not warp, and is not at all affected by oil or water.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Oct. 7, 1874.

NAME OF COMPANY.	IN MINE. FEET.	IN MINE. SHARES	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo	300	6000	24TH 15½W			
Alta	3600		3s 1F			3½
American Flat		30000	13¼TH1F			3½
Bacon M. & M	65	24000	7⅝S 5T			⅛
Baltimore Con		54000	14¾TH 9⅜F			1⅝
Belcher	1040	104000	79⅝S 65½T			8½
Best & Belcher	221	22400	46⅝S 29⅜S			8½
Bowers	20	5000				
Buckeye		16000	3¾TH 3⅛S			⅛
Bullion	2500	25000	21F 17T			3
Caledonia	5000	20000	34½TH36½T			
California			39TH 55F			4
Chollas-Potosi	2800	26000	9S 6ST		21	
Confidence	130	24000	29S 21T		1	
Con. Gold Hill Quartz	34½	20000	6¾TH 5F			
Con. Virginia	1160	108000	91F 91½T			
Cook & Peyser	1600	24000				
Crown Point	600	100000	70TH 6⅞W		5	
Daney	2000	24000	4⅝TH 3T			¼
Dardanelles	1200	24000	15⅝M 15S			⅛
Dayton			7¾TH 6⅝			¼
Eclipse	70	25000	10TH 8S			⅛
Empire M. & M	75	50000	11TH 9¼T		¼	
Exchequer	400	8000	220F 200TH			
Fairmount						
Flowery	3000	12000				
Franklin			3TH 2⅛S			¼
Globe		20000	3¼TH 1⅞M		1	
Gould & Curry	1200	48000	3⅝S 2T		6½	
Hale & Norcross	400	16000	6TH 5ST		5	
Imperial	184	100000	11¾TH 9⅜T		⅜	
Indus			172M 87½S			
Insurance	2000	30000				
Jacob Little						
Julia	2000	30000	9TH 5⅝W		1½	
Justice	3000	21000	60W 30S		20	
Kentuck	95	30000	28TH 19⅜T		2	
Knickerbocker	1200	24000	9TH 5T			⅛
Kossuth			1¼F 1⅛F			2
Lady Washington			1¼F 87½M			
McMeans	3600	36000				
Mint	1600	50000	45M 30TH			
Nevada	3000	40000	2¾TH 1½T			¼
New York Con	3000	30000	65⅝TH 45W		1½	
Occidental	800	10000	4T 3T			⅛
Ophir	1400	16800	47⅛F 43T			4½
Overman	1200	37400	109TH 65T		24	
Phil. Sheridan	1200	24000				
Pictured Rock	2000	30000	70TH 50M			15
Rock Island		24000	7T 5S			
Savage	800	16000	14⅜F 8¼TH		22	
Seg. Belcher	160	6400	255M 150T		50	
Seg. Caledonia		10000				
Seg. Rock Island			1¾M 1⅜W			⅛
Senator		24000	1¾TH 1s			
Sierra Nevada		100000	9⅜TH 7⅛W			1
Silver Hill		54000	13¼TH 9T			1¼
South Comstock		24000				
South Overman		24000	1s 1M			
Succor M. & M	2600	22800	4¾TH 3T			⅛
Sutro		24000				
Trench	20	50 0	6¾T 5s			2⅝
Tyler	2200	33000	1¼TH 62½T			
Union Con	800	20000	22TH 18½M			5½
Utah		20000	5TH 3⅝F			1
Woodville	1400	28000	10TH 5⅞W			2½
Yellow Jacket	1200	24000	130TH 109T		5	
NEVADA.						
Adams Hill						
Alps	800	50000				
Amador Tunnel		30000	59W 40W			
American Flag M. & M						
Arkansas	300	30000	4TH 3TH			¼
Belmont		30000	8¼M 7½TH			¼
Bowery		30000				
Chapman M. & M		30000				
Charter Oak	1000	30000				
Chief of the Hill		30000	50S 40TH			
Chief East Extension		36000				
Columbus M. & M	10000	50000				
Condor		25000				
El Dorado South			2½TH 2⅝M			⅜
Eureka Con		50000	12⅝S 12TH			⅛
Excelsior		12000				
Harper		30000				
Hayes						
Hermes	1000	30000	4TH 3TH			¼
Home Ticket						
Huhn & Hunt	3600	30000				
Ingomar	1000	40000				
Ivanhoe		30000				
Jackson		50000	25T 25T			
Josephine						
Juniata Con	5000	50000				
K. K. Con			3½TH 3T			⅛
Kentucky	1600	30000				
Kinstou	1000	30000				
Lehigh	1000	30000				
Lillian Hall	1000	15000				
Louise	2400	30000				
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24023	60000	10½TH 6⅞W			
Mocking-Bird	1200	30000				
Monitor-Belmont			2M 1⅝W			¼
Murphy	2000	60000				
Newark	800	32000	2TH 1⅛W			⅛
Pacific Tunnel						
Page & Panaca	2400	40000	1⅛S 75T			
Pearmine	7000	30000				
Phœnix		30000				
Pioche	1000	20000	4½M 9TH			⅛
Pioche West Ex		35000				
Pioche-Phœnix		40000				
Portland						
Raymond & Ely	6000	30000	20TH 15TH			3
Rye Patch			2TH 1¾M			
Silver Peak		30000			¼	
Silver West Con						
Standard M. & M						
Star Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mount		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole	200	30000	2⅛S 1⅞F		⅛	
Watson						
Yellowstone						
CALIFORNIA.						
Alpine	1200	12000				
Bellevue	8000	20000				
Calaveras	3200	20000				
Cedarberg		24000	16T 14M			
Chariot Mill						
Con. Amador			62½T 62½T			
Cottonwood Creek		20000				
Dunderberg M. & M						
El Dorado						
Eureka	1650	20000				
Gillie		24000	50TH 50TH			
Independent	1800	25000				
Keystone		10000				
Mt. Jefferson	1500	25000				
Oakville						
St. Lawrence M. & M						
St. Patrick	1300	20000				
Tecumseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000				
Golden Chariot	750	30000	8⅝M 5TH		5¼	
Ida Elmore	1300	10000	1⅝M 1¼TH		⅜	
Manogany	720	10000	42TH 34T			⅛
Red Jacket						
South Chariot	650	20000				
War Eagle	1000	10000	2TH 2TH			
WHITE PINE.						
General Lee	1000	20000				
Mammoth	1800	36000				
Noonday	1000	20000				
Orig. Hidden Treas	800	21333				
Silver Wave						
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtue		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
American Flag M & M Co	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney	320 California st
Arizona & Utah M Co	Washoe	10	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Bellevue M Co	Placer Co Cal		50	Aug 18	Sept 21	Oct 15	D F Vordenal	409 California st
Empire M Co	Idaho	7		Aug 26	Sept 30	Oct 24	Wm Willis	419 California st
Globe M Co	Washoe	8	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Globe Con & M Co	Washoe	3	50	Sept 12	Oct 18	Nov 4	J Maguire	419 California st
Gould & Curry S M Co	Washoe	23	2 00	Sept 1	Oct 6	Oct 27	A K Durbrow	438 California st
Hale & Norcross G & S M Co	Washoe	44	5 00	Sept 8	Oct 13	Nov 3	J F Lightner	438 California st
Huhn & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball	409 California st
Ida Ellmore M Co	Idaho	14	1 00	Sept 21	Oct 27	Nov 14	W Willie	419 California st
Independent G M Co	Butte Co Cal	7	50	Oct 5	Nov 5	Nov 26	G T Grimes	210 Montgomery st
Justice M Co	Washoe	11	2 50	Sept 4	Oct 7	Oct 28	F Swift	419 California st
Lady Bryan M Co	Washoe	3	50	Sept 18	Oct 20	Nov 9	F Swift	419 California st
Mint G & S M Co	Washoe		10	Aug 23	Oct 2	Oct 28	D A Jenninge	401 California st
Newark S M Co	Ely District	8	1 00	Aug 18	Sept 23	Oct 15	J W Clark	418 California st
New York Cons M Co	Washoe	10	50	Aug 26	Oct 1	Oct 19	H C Kibbe	419 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 28	Thomas Derby	320 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	J H Gazer	507 Montgomery st
Page & Panaca S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	H P Bush	Merchants' Ex
Portland S M Co	Ely District	5	25	Aug 21	Sept 28	Oct 22	B J Grav	433 California st
Raymond & Ely M Co	Ely District	1	3 00	Aug 17	Sept 23	Oct 16	T W Colburn	413 California st
Savage M Co	Washoe	15	10 00	Sept 1	Oct 5	Oct 23	E B Holmes	419 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	Oct 11	Nov 2	A G Ryce	308 California st
Silver Peak M Co	Ely District	5	50	Sept 3	Oct 10	Nov 2	G T Grimes	240 Montgomery st
South Chariot M Co	Idaho	10	1 00	Sept 2	Oct 3	Oct 26	Frank Swift	419 California st
South Comstock M Co	Washoe	1	50	Aug 18	Sept 22	Oct 12	J M Buffington	Merchants' Ex
Succor M & M Co	Washoe	9	1 00	Aug 18	Sept 22	Oct 14	W H Watson	302 Montgomery st
Sutro M Co	Washoe		50	Aug 14	Sept 18	Oct 12	G W R King	434 California st
Utah S M Co	Washoe	6	1 00	Sept 21	Oct 26	Nov 16	W E Dean	419 California st
War Eagle M Co	Idaho	7	1 00	Aug 21	Sept 26	Oct 17	L Kaplan	Merchants' Ex
Yellow Jacket S M Co	Washoe	18	5 00	Aug 11	Sept 15	Oct 16	G W Hopkins	Gold Hill Nav

DTHER COMPANIES—NDT ON THE LISTS OF THE BOARDS.

California Cons M Co	Cal	1		Aug 26	Sept 29	Oct 19	B J Grav	438 California st
Cederberg G M Co 1st South Ex	Cal	7	4	Aug 27	Oct 1	Oct 20	J N Webster	420 Montgomery st
Cons Channel M Co	Nevada Co Cal		20 00	Sept 7	Oct 12	Nov 6	H Cordes	44 Stewart st
Consolidated Reforma	Lower Cal	1	50	Sept 1	Oct 5	Oct 23	A D Carpenter	605 Clay st
Edith Quicksilver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart	113 Liedesdorff st
El Dorado W & D G Co	Cal		10 00	Sept 15	Oct 15	Oct 31	H Elias	416 Montgomery st
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 27	Chas S Healy	Merchants' Ex
Gold Mountain G M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Cavallier	513 California st
Great Blue Gravel Range Co	Cal	6	10	Sept 24	Oct 28	Nov 20	W H Watson	302 Montgomery st
Guasti M Co	Sonoma Co Cal		5	Sept 29	Nov 5	Nov 25	James R Martin	Laura's Wharf
Haves G & S M Co	Nevada	5	20	Sept 4	Oct 6	Nov 3	G R Spinney	320 California st
Independence Cons M Co	Cal		15	Sept 4	Oct 10	Oct 29	F J Hermann	418 Kearny st
Kossuth M Co	Washoe	2	25	Aug 25	Sept 25	Oct 14	E F Stone	419 California st
Los Prietos M Co	Santa Barbara Co	2	25	Sept 29	Nov 2	Nov 20	S H Smith	6 Montgomery Av
New York M Co	Washoe	1	50	Aug 28	Oct 1	Oct 19	H C Kibbe	419 California st
North Belmont M Co	Nevada	2	10	Sept 30	Nov 2	Nov 18	D L Thomas	419 California st
Phœnix Tunnel & M Co	Utah	6	25	Sept 6	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Prussian G & S M Co	Nevada	2	50	Sept 1	Oct 5	Oct 26	R H Brown	402 Montgomery st
Quintno M Co	Nye Co Nev	3	10	Sept 30	Nov 2	Nov 13	H C Kibbe	419 California st
Red Jacket M Co	Idaho	4	1 00	Sept 2	Oct 9	Oct 31	W Willis	419 California st
Silver Cord M Co	Idaho	5	1 00	Sept 11	Oct 12	Nov 2	Frank Swift	419 California st
Silver West Cons M Co	Eureka Nev	2	10	Aug 19	Oct 6	Oct 31	F R Bunker	606 Montgomery st
"Sixty-three" G & S M Co	Cal		25	Sept 2	Oct 5	Nov 2	J R Helm	411½ California st
Starr King S M Co	Nevada	8	25	Oct 3	Nov 6	Nov 25	L Kaplan	Merchants' Ex
State of Maine M & M Co	Cal	7	5	Sept 17	Oct 24	Nov 10	J M Buffington	Merchants' Ex
St John G M Co	Kern Co Cal	2	5 00	Oct 2	Nov 5	Nov 24	W R Townsend	330 Pine st
Table Mt Alpha M Co	Cal	5	25	Aug 29	Sept 29	Oct 20	T F Cronise	438 California st
Tecumseh G & C Co			25	Aug 1	Sept 30	Oct 20	J W Clark	418 California st
Victoria & Imperial T & M Co	Utah	3	10	Oct 7	Nov 11	Dec 5	W H Watson	302 Montgomery st
Ward Ellis S M Co	Robinson District	2	10	Aug 21	Sept 28	Oct 19	J M Buffington	Merchants' Ex
Wm Shakspeare G M Co	Butte Co Cal	1	10	Sept 23	Oct 26	Nov 12	W R Townsend	330 Pine st
Wyomieg G M Co	Nevada Co Cal	4	40	Sept 30	Nov 2	Nov 23	W J Gunn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Eureka Cons M Co	Nevada	W W Traylor	403 California st	Anoual	Oct 12
Eureka G M Co	Grass Valley Cal	R Wegener	414 California st	Annual	Oct 15
Exchequer M Co	Nevada	J S Kennedy	Merchants' Ex	Annual	Oct 19
Glasgow G M Co		D L Thomas	419 California st	Annual	Oct 13
Julia G & S M Co	Washoe	A Noel	419 California st	Annual	Oct 12
Lady Washington M Co		Called by Trustees	419 California st	Special	Oct 17
Plymouth Rock M Co	Utah	Edward Chattin	442 California st	Annual	Oct 14
San Marcial S M Co	Mexico	Called by Trustees	426 Montgomery st	Special	Oct 21
Silver West Cons M Co	Washoe	F R Bunker	606 Montgomery st	Annual	Oct 20
South Overman Cons M Co	Nevada	David Wilder	Merchants' Ex	Annual	Oct 12

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Oct 1
Chariot M & M Co	Cal	Frank Swift	419 California st	50	Oct 15
Consolidated Virginia M Co	Washoe	D T Bacley	401 California st	3 10	Oct 12
Crown Point M Co	Washoe	O E Elliott	414 California st	3 00	Oct 12
Diana M. Co.		N. G. Fassett.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 15
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

During the latter part of this week mining stocks were duller and prices lower than during the first part. A sort of reaction set in, though with probably no more special cause than there was for the rise. The *Enterprise* says that the Comstock, taking it throughout its whole length, is looking better to-day than ever before since its discovery and the opening of mines upon it. Next week the Empire will be added to the list of mines that are shipping and milling ore, and it will not be long before several other mines, great and small, will follow. On the 5th inst. the Nevada will be started up on ore from the Ophir, when that company will regularly extract 100 tons of first-class ore per day. The ore body on the 1,465-foot level is not only exceedingly rich, but is also proving very extensive. A drift has been pushed into it a distance of 29 feet, and is still being advanced in first-class ore. The 1,700-foot level is as yet almost untouched, and when cross-cutting shall be commenced thereon we may look for big developments. In the California they will soon begin cross-cutting, and here we may be sure that rich and extensive bodies of ore will be found, as the ground of the company lies wedged in between the large ore deposits of the Consolidated Virginia on the south and the Ophir on the north. The work of cross-cutting will soon be commenced in the Exchequer ground from the Bullion drifts; while in the Overman, if we are to believe the floating rumors, they are on the point of making valuable developments. Indeed, we are likely soon to see very lively times in all of our leading mines.

The Eberhardt & Aurora mill is still at work crushing the high grade rock extracted from the mines of the company, and from present appearances, will not shut down for months to come.

The peaks of the Sierras were covered with snow on Thursday, for the first time this season.

Mine Swindler's Confession.—One C. A. Robeson has, during the past ten years, at different points, raised companies to go and work rich quartz leads which he pretended to have discovered. He would extract from each of his deluded companions a hundred dollars or so, and, after leading them on a wild-goose chase, would evade them, carrying off his ill-gotten gains, amounting in each case to thousands of dollars. He has played this game successfully half-a-dozen times. This year he has organized a party in Mansfield, Ohio, and took them to Shoshone county, Idaho. He appears to have been unable to escape from them, and writes a confession dated, "In camp on Robeson's Ledge, Shoshone City, Idaho, September 2d, 1874," in which he confesses his misdeeds under oath, and in the presence of witnesses. It is published in full in the *Lewiston Northerner*, and is a curious document. He says that all the maps and written directions given to find the ledges to different parties differ from each other, and were incorrect. He admits this purposely, and admits that all the statements in regard to the ledges have been in each and every instance a swindle. The confession reads as if it were written under fears that he would have been lynched, as he would have been in some parts of the country.

Cherry Creek.—The White Pine *News* is informed that matters at Cherry Creek are looking exceedingly well, and that everybody exhibits the utmost confidence in the future of the camp. The various mining companies are working along steadily with every prospect of a prosperous future; and they certainly have a cheering present.

The furnace being erected by the Newark Silver Mining Co. at this point is rapidly approaching completion, and will soon be ready to run. Ore is being delivered daily.

The Manhattan mine, shipped 15 flasks of quicksilver last week to Virginia, Nev.

The Gwin mine, Calaveras county, is now producing about $6,000 per month.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

Cornell Watch Co.—Oct. 5. Object: To manufacture, buy, sell, import and export watches, watch cases, watch chains, jewelry of all kinds and rubber goods. Directors: Paul Cornell, John Parrott, Wm. Norris, Peter Donahue and Oliver Eldridge. Capital stock, $300,000, in 3,000 shares.

Pacheco Coal Mining Co.—Oct. 7. Location: Contra Costa county. Trustees: David Meeker, Joseph W. Atwell, J. P. Van Nass, Charles J. Collins and Orlando Beaman. Capital stock, $1,800,000.

The following named company filed certificates of incorporation with the Secretary of State, Sacramento:

South Woodville S. M. Co.—Location: Gold Hill mining district, Storey county, Nev. Directors: Robert Sherwood, J. D. Fry, Wm. Sherman, Jesse S. Wall and J. R. Lee. The principal place of business will be in San Francisco. Capital stock, $6,000,000, in shares of $100 each.

Increase of Capital Stock, Etc.

A certificate of the increase of the capital stock of the Pocahontas Gold Mining company, from $1,200,000, to $3,000,000, was filed in the County Clerk's office, on the 6th inst.

A certificate of the removal of the office of the Owens Gold and Silver Mining company, from San Diego to San Francisco, was filed in the County Clerk's office, on the 7th inst.

Washington Mine.—We received this week a piece of ore from the Washington Mine, which is about 2¼ miles from Hornitos, Mariposa County. The ore abounds in sulphurets; it assays $100 per ton. The ore is worked in a mill and the sulphurets saved and worked separately. A year ago this mine did not pay, and work on it was stopped. It has been started up again, however, and Mr. Webber, the Superintendant, thinks there is ore enough in sight to last two years. They have a 20-stamp mill and will add 20 stamps more this fall. The mine now has very good prospects.

Golden Gate Mine.—Two miles from Sonora, Tuolumne County, which did not pay formerly is now turning out very well. The ore is very nice in sulphurets, and almost five tons of these sulphurets are sent to this city per month. These sulphurets pay about $1,200 per ton, and as the ore itself pays expenses, the money derived from this source is clear profit. Mr. Rider's shaking tables for separating sulphurets in use at this mine, are a perfect success.

Sewer Mining.—We mentioned last week the fact that parties in Austin, Nev., were hunting the sewers for quicksilver and amalgam. We see by the *Reveille* that they continue to meet with good success, obtaining a daily average of between seven and eight pounds of amalgam. The sewer is not over two feet in hight, but the men engaged in the work manage to crawl into it for a long distance. Rough old "mining," that!

Ore Shipment.—During the month of September 20,250 tons of ore were shipped by rail from mines on the Comstock. In addition to this large amount a great deal of ore is hauled to mills in quartz wagons.

A new coal vein is reported on Puyallup river, W. T., from which was taken a specimen that was used in welding steel, and a report of its assay gives about 30 per cent. of carbon, and nearly equal to Cumberland.

The Crown Point, Imperial and Yellow Jacket mining companies disbursed among their employes, on the 3d instant, $76,000, $17,000 and $13,999 respectively.

The Buel furnace, Cerbat, Arizona, from which so much is expected, started up on the 22nd ult. The Buel mill will be running shortly.

A large vein of magnetic iron ore has been discovered on the line of the Seattle and Walla Walla, W. T. R.R., near the summit of the Cascade Range.

Comstock Bullion.—The bullion shipped from Virginia City through the office of Wells, Fargo & Co., during the month of September, amounted to the sum of $1,615,732.27.

The ore shipped over the Virginia & Truckee railroad to the various mills in the vicinity, amounts at present to about 70 car loads per day.

The Eberhardt & Aurora Co., at White Pine, is erecting a large building over the central shaft for hoisting works.

The California mine, Napa County, on Thursday shipped twenty-two flasks of quicksilver to Sacramento.

In Robinson district the new smelting furnace has been running for fifty days, and is still doing well.

Mining in the vicinity of Mokelumne Hill has been temporarily suspended on account of the lack of water.

New Diggings have been struck on Snake Creek, about thirty miles north of Pierce City, W. T.

Nugget.—Schwartz and Wagner found a 15-ounce nugget at Columbia, Tuolumne Co., on the 2d inst.

During the month of September 40,500,000 pounds of ore were shipped by rail from the Comstock mines.

MINING SUMMARY.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

Attracting Attention.—*Chronicle*, Sept. 25: This week parties have been looking at several mining claims near Silver mountain for Nevada and San Francisco capitalists. The success of the McGlow process for working our ores is having the effect of attracting the attention of capitalists to the mineral wealth of Alpine, destined to be a successful rival of the great Comstock.

Exchequer.—The new machinery will be ready for service early next week, when we presume the shaft will be sent down to the 200-ft. level. In the meantime the north drift is being run from the 100-ft. level to connect with the old winze. This connection will give fine ventilation to the entire mine, and enable the miners to go to work in the winter without exposure to the elements.

COLUSA COUNTY.

Quicksilver.—Colusa *Sun*, Oct. 2: All our quicksilver mines are prospecting well. The owners of the Wild Goose have determined to put up a furnace; the Beckeye furnace is progressing very well and will be in full operation before the end of this month; the Abbott commenced to put ore in the furnace Thursday, and in ten days will be taking out a great deal of quicksilver. The retorts on the Elgin and Buckeye are kept busy on first grade ore. By the first of January our mines will be turning out at least one thousand pounds of quicksilver daily.

EL DORADO COUNTY.

Crushing.—Placerville *Republican*, Oct. 1: Gross has commenced packing out rock for another crushing. He intends to run enough this time to yield $2,500, and then to commence the erection of a 5-stamp mill. We are told that the 10-stamp mill recently put up on the Young Harmon is working splendidly, and that all appearances indicate that Capt. Woodworth has made a 10-strike this time.

INYO COUNTY.

Men Wanted.—We are authorized to state that as many men as choose to take their blankets and apply to John Shepherd, out on the road in course of construction to Panamint, can have immediate employment at good wages.

Panamint.—Cor. Inyo *Independent:* Our camp is growing at a rapid rate, receiving material accessions to its population daily. Work on the Jacob's mill has been considerably retarded by lack of lumber. The company's mine is developing to the satisfaction of all. The Jones Co. are now on their way from San Francisco, and will start up work immediately on their arrival. This company will employ between 200 and 300 men. The machinery for their 20-stamp mill has been ordered, and the contract let for building it.

KERN COUNTY.

Item.—Kern county *Courier*. The Summer mine and mill driving away; mill running at full capacity. The new hoisting works arriving rapidly and preparations made for putting in position the boilers—the largest in southern California being 16 feet long, five feet in diameter and 21 in number, with numerous copper tubes running full length, and made after the latest and most approved style.

Wood is being brought on the ground ready for a start as soon as everything is in position.

The new mill is going up very rapidly and will be, when, finished one of the most substantial as well as the largest gold quartz mills now in California or Nevada, in fact we might say in America. It will be run by water-power; double turbine wheel, 168 horse-power, fully sufficient to drive 80 stamps, concentrators, pans and settlers, rock breakers and self feeders. This collossal structure sets on a rock foundation, blasted and graded from a natural rock formation, and will be capable of working from 120 to 130 tons per day. Weight of stamps, 750 pounds each.

LAKE COUNTY.

Quicksilver.—Lake county *Bee*, Oct. 1: The mercury continues to rise in the scale and the quicksilver excitement in Sonoma and Lake has by no means subsided. The Cloverdale Quicksilver mining company, whose claim is located at the junction of Squaw and Sulphur creeks, is taking out remarkably rich ore. They have twenty men employed, who have already taken out two hundred an fifty tons of ore, which will be ready for the furnace to be completed in about four weeks.

MARIPOSA COUNTY.

Sherlock's Creek.—Mariposa *Gazette*, Oct. 3: Upper Sherlock's, which at one time—and that not very many years since was famous for big strikes—appears to be coming to the front again. Jake Teats, an old time miner, who has been staying with the half abandoned camp about a quarter of a century, is reported to have struck a very fair prospect on Mullins gulch, in the old hill formerly known as Mugginsville.

Washington Mining Co.—The latest accounts from the Washington mine are up to Saturday last, when they cleaned up after a ten days' run with two batteries. The result was the nice little amount of $7,000. They have a vein of about 10 feet thickness of ore, which is estimated to yield at the rate of $26 per ton.

Rich Sulphurets.—Fourteen tons of sulphurets at the Washington mine, concentrated by the Schofield machine, and worked by the chlorination process, last week, yielded $1,500 in gold.

Hasloe Mine.—A gentleman who was on the north side of the Merced last week, brings the gratifying news that a new pay chute has been developed in the Hasloe mine, yielding $300 a ton.

NAPA COUNTY.

Quicksilver Mine.—Napa *Reporter*, Oct. 3: R. C. Simmons has lately discovered some very rich indications of cinnabar in the mountains back of Yountville. He says the ore is equal to any yet found in this county, if not superior. Mr. Simmons has also located a silver mine, under the name of the "Central," on St. Helena mountain, the rock of which assays higher than that of the Calistoga silver mine.

Quicksilver near Napa.—Wall Kennedy and G. W. Boggs report the discovery of a rich cinnaber within three and a half miles of this city. From the appearance of the rock indications are very good for the development of a rich mine. The discovers are very reticent as to the locality where the specimen was obtained.

NEVADA COUNTY.

Mining Situation.—Grass Valley *Union*, Oct. 2: The mining situation of Grass Valley district is not as encouraging as it should be, but a marked improvement has been made within the last month. However, when the railroad is once begun, everybody here will doubtless lend a helping hand to prospecting, and many of our now idle mines will again be started to work.

New York Hill.—Work on the New York mine is steadily continued. The tunnel is now in 560 feet from the mouth. The present tunnel runs in rich pay rock for a distance of over 200 feet, with a rich ledge still in the heading. There have been several crushings of rock taken from the tunnel, the last one being 57 loads, which returned $58.25 per load, not counting the sulphurets saved. These sulphurets are now being worked, and when the gold from them is extracted they will make the crushing come up to at least $60 per load. This is about an average of all the crushings yet taken out of the mine. The Larimer mill is now at work on New York Hill rock, and a crushing of 50 loads is being put through, which will certainly come up to the average in yield.

Pittsburg.—This is a new mine, to which we have made occasional reference. Prospecting was commenced upon it more than a year ago, but no systematic work was done until the present season. Crushings of rock, amounting to 40 loads, were taken out above the water line some time ago which yielded about $2,500. Since that time a horse whim has been erected, a pump put in, and the work of sinking the shaft continued.

North Star.—We regret to say that work in the North Star has been entirely suspended, and the pumps have been taken out of the mine.

State Ledge.—This mine (Perrin's) is looking very well at the present time. It is estimated that rock from the middle ledge will pay $18 to the ton and the upper ledge is still better. Crushing is done by water power.

Eureka.—The total depth of the main shaft is 1,260 feet on the incline, and from that depth a cross cut is now being run to strike the ledge.

Prospect Company will commence work again in a few days. This company consists of miners and merchants of Grass Valley. There should be four or five such companies here, since there are many ledges in the district that pay if proper work is done upon them.

Empire looks well underground, and has yielded well during the month. Something like $10 worth of gold exclusive of sulphurets, has been taken out during the last 24 days.

Coe is prepared any day to commence the operation of taking out quartz, though at present pumping and keeping the mine in order is all the actual work being done.

Omaha.—The shaft is now down 160 ft., and the ledge all through that depth shows well in free gold and heavy sulpherets.

Idaho continues in its regular way, having varied nothing for the last two months. Work in putting in the new pumps is going ahead, and in a few weeks the mine will be ready for all underground water contengincies.

PLACER COUNTY.

Iowa Hill.—Cor. Placer *Argus:* The old Clark claim has been bought by Messrs. Bolwell, Fuller & Prichard, of Omega, Nevada county, and is being fitted up in readiness to commence washing as soon as the rainy season sets in. It no doubt will prove to be one of our richest claims. It it is located near Independence Hill, and empties into the North Fork of the American river. The Occidental has been recently purchased by S. R. Kidder, of Dutch Flat; he is at present engaged in running a sluice tunnel 250 ft. in length, 7½ ft. high, and 6 ft. in width, with a grade of 8½ in. every 12 ft.; at present he has 150 ft. completed, and expects to finish the balance before winter; he proposes to use pipe 15 in. in diameter, with a pressure of 300 ft.; the width of his sluices will be 4 ft. The Anglo-American, located on the banks of Indian cañon, adjoining the Enterprise Co., and owned by Entwistle, Worsely & Watts, is also being put in readiness for operations as soon as water arrives. They will use 4-ft. boxes, with a grade of 12 in. to the box; their pipes will be 11 in. in diameter, 1,500 ft. in length from the telegraph to the bank, with a pressure of 300 ft. The Morning Star Co., which heretofore has been used for drifting purposes, is being extensively fitted up for hydraulicing this winter. They propose to use boxes 5 ft. in width and from 1,000 to 1,500 in. of water; dimensions of pipes I have not ascertained, but they will undoubtedly be large.

SIERRA COUNTY.

Oak Ranch.—Mountain *Messenger*, Oct. 3: The Oak Ranch tunnel is now in about 900 ft., and the company expect to strike gravel in a few weeks.

Monitor.—A freight team recently brought up from Marysville a new hydraulic monitor for Thomas Beard, of Eureka. It is one of the large kind.

Not Sold.—We understand that the report that Col. Baker had sold his diggings at Gardner's Point was untrue.

Burleigh Drill.—Wm. Hanly, of Alleghany, has put a Burleigh drill in operation in his tunnel, below that place.

SONOMA COUNTY.

Mining Items.—Russian River *Flag*, Oct. 1: The Blue Jacket mine has a 100 foot tunnel now, and another higher up the hill has been run in 30 feet.

The Flagstaff is in trouble. The time of the bondholders was up last week, or the week before, and Gen. La Grange came from below, prepared to take the mine from Messrs. Bell & Co. Just as the matter was drawing to a close, Mr. Parks, of Santa Rosa, appeared on the scene as a claimant to the Flagstaff. This stopped the trade, and matters are now in an awkward fix. Bell & Co. call on La Grange & Co. to pay a forfeit; La Grange wants the mine, but not a lawsuit, and Parks disturbs the peace and calls aloud for justice.

The Missouri mine employs 16 men. The Kentuck is keeping five men at work in the tunnels. Ore is being hauled from this mine over to the Missouri, where it is roasted in the retorts. The yield from the bench—only two retorts are running now—is 23 flasks a month. The running expenses are only half the income.

The Rattlesnake furnace (Lockhardt) was completed September 26th, and fired up the same day. Enough adobes have been made to run the furnace all winter. One hundred and twenty men are employed.

The Sonoma is still running low grade adobes, and is now hardly making expenses. But good cinnabar has been struck in the lower tunnel. Gen. Dodge, of San Francisco, owns a controlling interest in the Sonoma, and holds the stock at $5 a share.

The furnace that reduces ore for the Ida Clayton and the Yellow Jacket had its first clean up last Friday. The latter mine has a 90-foot shaft, one tunnel 110 feet long and another 40 feet long. One was reached at 100 feet from the surface. The former is eleven or twelve miles (air line) from Healdsburg and within three miles of St. Helena mountain. Work progresses in the three-face cuts and the shaft. The ore is low grade, but will pay. A hundred tons of adobes have been made and about 500 tons pay rock piled up. The ore and adobes are being hauled from these mines, five teams being steady at work. The ore house (80x60) is intended to hold the entire winter supply. Nearly enough ore and adobes have already been obtained to keep the furnace running till spring. Twenty-six white men and twenty-four Chinamen are working in the two mines.

The Mt. Jackson Mines.—The ledge has been struck on the Mt. Jackson mine at a distance of 210 ft. from the mouth of the tunnel. The ledge is clearly defined, but its width is not yet determined, although the tunnel has entered it 11 ft. The rock is said to carry good pay ore. The furnace will be completed this week and reduction will immediately begin. The company have four houses and an office built and are making preparations to continue work through the winter without interruption.

TUOLUMNE COUNTY.

Patterson Mine.—Tuolumne *Independent*, Oct. 3: This mine will be in full operation again in about a week. The new hoisting works are being put up, which made it necessary to stop the mill. This new machinery will also be used to run the pumps, the water coming almost too free to hail, as heretofore. Orders have been given to sink the main shaft 400 ft. deeper, to still further develop the mine.

Golden Sulphuret Mining.—The shaft being sunk on the northern boundary of the Golden Gate, and adjoining the Golden Sulphuret Mine, shows excellent sulphurets and free gold. It is the opinion of leading quartz men in the county that a revolution in this kind of mining is about to take place—the rich sulphurets of the former mine selling in the city for $1,650 per ton, which were heretofore run off as worthless, have entirely opened the eyes of mill men of the county. Now that we know the value of this material and the secret of saving it, a large increase in the revenue of quartz mining will soon show itself, as there are a great many mines in the county of this character worked and unworked. In fact they will prove the lasting and most valuable ones of any. Concentrators and shaking-tables are becoming quite fashionable, and will pay handsomely for the outlay invested in them. What the county most needs now is custom works for manipulating sulphurets after they have been saved, instead of shipping them below to the great loss of the owners.

Nevada.

WASHOE DISTRICT.

Ophir.—Gold Hill *News*, Oct. 3: The ore breasts on the 1,300-ft. level, both north and south, are looking splendidly and yielding rich ores. The bottom of the north winze, No. 1, is still in good ore. The south winze, No. 2, is also in rich ore; in fact the entire level is showing better every day. The ore breasts on the 1,465-ft. level continues to improve both in the quantity and quality of the ore extracted. The ore in the east cross-cut from the south drift on the 1,465-ft. level not only continues to hold out, but is giving better promise than ever of a large and permanent body of ore and the development of a paying mine. Daily yield 60 tons of ore, keeping the Empire State mill steadily running and accumulating a surplus in the dumps. The Nevada mill will commence crushing ore from the mine to-morrow.

Sierra Nevada.—Sinking the new shaft is making splendid progress, it having passed through the soft clay body, recently encountered, into soft rock that blocks out finely. Daily yield 65 tons of ore. This ore is taken from the old upper workings, which promise a fine yield for many months. The mill is kept steadily running crushing ore from the mine.

Woonville.—Sinking the north winze from the 300 to the 400-ft. levels is making rapid progress, following the foot-wall of the ledge, the ore still holding out strong and of fine quality. The mill is kept running on ore from the mine, and will clean up so as to determine the result of the crushing about the 3d inst.

Dayton.—The ore breasts between the first and second station levels are looking finely. The second station level is yielding the usual amount of good ore, while the ore stopes on the third station level have greatly improved both in looks and yield during the week.

Globe Consolidated.—The ore struck last week in the face of the main west drift on the 400-ft. is showing a decided improvement in both looks and quality. Almost the entire face of the drift is now in ore of a good quality, with a strong flow of water that considerably retards the development coming from the breast. This is an important discovery, as it lies to the westward of any of the ore developments heretofore made in this mine, and is in an entirely new and unprospected portion of the mine.

Lee.—The ore in the face of the northwest drift is about 3 ft. in width and of a fine quality. The upraise, No. 1, from this drift is up 28 ft., following the foot wall of the ledge. The ore in the face of this raise is five ft. thick, and is all being saved for milling. The southeast drift, on the cross-vein, is in 34 ft., the quartz-streak having widened to about three ft. of good milling ore. The Ramsdell mill commences crushing ore from the mine to-day.

Sutro Tunnel.—To-day the main tunnel, from the mouth of the face of the header, is completed to the distance of 7,000 ft., which, added to the 409 ft. which was drifted from the bottom of shaft No. 2 before it filled with water and was abandoned, gives a total length of 7,408 ft. The shafts along the line of the tunnel are all abandoned; they are to be sunk no deeper, and the machinery employed will be sold. The entire sources of the company will hereafter be concentrated upon driving the tunnel at the main header. A contract is about being let for 1,800 ft., which will carry it to within 300 ft. of shaft No. 2.

Julia.—The hoisting engine was started up during the fore part of the week, everything working with perfection. Draining the shaft was commenced at once, and this morning the water is reduced to within two ft. of the 1,000-ft. station.

Chollar Potosi.—Three cross-cuts are being run at different points from the main south drift on the fifth station level, for the purpose of prospecting the ledge and determining its value. Daily yield of ore from the old upper workings, 100 tons, the assay value of which is $29 per ton.

Bullion.—The main north drift on the 1,700-ft. level from the Imperial shaft is still driven vigorously ahead, following the west clay wall of the ledge, which is smooth, well-defined and promises a strong concentration of the ore vein on that level.

Overman.—A very promising ore development was made day before yesterday in the north drift on the 1,200-ft. level.

Knickerbocker.—Sinking the shaft is making good progress, the bottom in soft working ground. It is now down 724 feet.

Crown Point.—The ore breasts and stopes throughout the entire mine are looking finely and yielding the usual amount of ore. The face of the east cross-cut on the 1,500-ft. level is still in fine ore. The bottom of the east development winze is also showing fine ore. Sinking the main incline is making good progress.

Daney.—The quartz and ore in the face of the main west drift on the 400-ft. level is growing strong and of a more promising character every day, and it is confidently expected that the main ledge will be reached during the next four days. The flow of water from the face is quite strong.

California.—The north drift, on the 1400-ft. level from the Consolidated Virginia shaft, will connect with the south drift from the Ophir, on the same level, in about a week's time, thoroughly ventilating the mine to that depth, and placing everything in full readiness for cross-cutting and opening both the 1300 and 1400-ft. levels.

Hale & Norcross.—Blasting out for the 2,100-ft. station in the main incline is making steady progress. Daily yield, 40 tons of ore from the old upper levels.

Savage.—Cross-cutting on the 2,000-ft. level is still vigorously prosecuted, with some very favorable prospects.

Awards of Premiums at the State Fair.

We give below a list of the premiums awarded at the Fair of the State Agricultural Society, omitting those given to stock exhibits:

FIRST DEPARTMENT—CLASS I—AYRSHIRES.

Best cow 4 yrs old and over, Robert Beck; Kitty Clyde, $40.

Second best cow 4 yrs old and over, L. A. Upson; Flora McIver, $20.

Best cow 1 yr old, L. A. Upson; Bonnie Jesn, $15.

CLASS I—POULTRY.

Bassett & Miller, Sacramento; best lot of light Brahmas, $5.

F. S. George, Sacramento; best lot black Spanish, $5.

Peter Burns, Sacramento; best lot black Polands, $5.

Bassett & Miller, Sacramento; best lot black-red games, $5; best lot Brahmas, special premium recommended.

John Herring, Sacramento; best lot dark Brahmas, $5.

W. J. Prather, Woodland; best lot Bronzed turkeys, $5.

J. C Mills, Centerville; best lot Narraganscett turkeys, $5.

W. J. Prather, Woodland; best lot Rouen ducks, $5.

E. B. Gilbert, Sacramento; best lot gray ducks, $5.

Bassett & Miller, Sacramento; best lot Brahma chicks, $5; best lot duck winged game Bantams, $5.

John F. Friggins, Woodland; best lot Houdans, $5.

W. J. Prather, Woodland; best buff Cochins, $5; white Cochins, $5; black Cochins, $5; partridge Cochins, $5; white Polands, $5; hearded golden Polands, $5; golden Sehright bantams, $5.

C. H. Theis, Sacramento; best lot black Javas, $5.

J. B. White, Sacramento; best lot golden spangled Hamburgs, $5.

Jerome Davis, Sacramento; best lot silver spangled Hamburgs, $5.

A. Greer, Sacramento; best lot frizzled fowls, $5.

R. Cowne, Sacramento; best lot Dominique fowles, $5.

Bassett & Miller, Sacramento; best lot light Brahma chicks, $5.

Bassett & Miller, Sacramento; silver duck-winged game bantams, $5.

SECOND DEPARTMENT—CLASS I.

J. M. Keeler & Co., San Francisco; one Kripp engine, honorable mention and dip.

Huntington, Hopkins & Co., Sacramento; one saw gummer, $2.

George H. Grant, Sacramento; best fire extinguisher, dip.

Treadwell & Co., San Francisco; portable steam engine, dip.; best imported engine, dip.

Baker & Hamilton, Sacramento; best display general machinery, gold medal recommended.

CLASS II.

Laufkotter Bros., Sacramento; sweep horse-power, $10.

Baker & Hamilton, Sacramento; St. Louis corn sheller, dip.; lawn mower, dip.

Byron Jackson, Sacramento; self-feeder and elevator, $50 recommended.

M. C. Hawley & Co., Sacramento; threshing machine, dip.

Huntington, Hopkins & Co., Sacramento; one lawn mower, dip.; gopher trap, $5; post hole augur, dip.; vegetable cutter, dip.; lawn sprinkler, $5.

Baker & Hamilton, Sacramento; Pitt's Buffalo threshing machine, cider mills and press, lock lever hay and grain rake, four hay and straw cutters, two corn shellers, two lawn mowers, one lawn sprinkler, one champion post hole augur; first premium awarded by the committee.

Baker & Hamilton, Sacramento; one header—California manufacture—Gem broadcast seed sower, sweepstakes harrow, Grange cultivator, wrought iron cultivator, sweepstakes road scraper, Eureka sweepstaks gang plow, spring market and road wagon; first premium awarded by the committee.

Baker & Hamilton, Sacramento; Buckeye cider mill and press, dip.

M. C. Hawley & Co., Sacramento; Buckeye cider mill and press, dip.

Baker & Hamilton, Sacramento; horse rake, dip.

Keller & Co., Sacramento; Continental straw cutter, dip.; Eagle hay press, $40; circular saw mill, dip.

CLASS III.

Baker & Hamilton, Sacramento; Sweepstake Plow Co.'s headers, $50.

W. Guttenherger, Sacramento; field roller and crusher, $10.

Baker & Hamilton, Sacramento; Sweepstaks Plow Co.'s harrows, $50.

M. C. Hawley & Co., Sacramento; two-horse broadcast sowing machine, dip.

Keller & Co., Sacramento; broadcast seed sower and cultivator, dip.

Baker & Hamilton, Sacramento; self-raking and reaping machine, dip.; Sweepstakes Plow Co.'s Gem broadcast sowing machine, $10; Buckeye reaping and sowing machine, dip.; one-horse cultivator, dip.

Mattison & Williamson; cultivator, California manufacture, $10.

Keller & Co., Sacramento; double shovel plow, dip.

Treadwell & Co., San Francisco; headers of Eastern manufacture, dip.

CLASS IV.

Baker & Hamilton, Sacramento; French burr stone farm feedmill, dip.

Nash, Miller & Co., Sacramento; grain separator and fanning mill, dip. and $5.

W. C. Nelson; windmill $25.

A. Hart & Co.; farm gate, $15.

V. S. W. Parkhurst, San Francisco; best platform and counter scales, dip.

John Wilkie, Sutter county; machine for applying bluestone to seed grain, dip.

H. M. Cameron, Chicago; champion beehive and combined feeder and ventilator, dip.

Huntington, Hopkins & Co., Sacramento; platform scales, honorable mention.

CLASS V.

J. M. Keller & Co., San Francisco; Sluthour pump, $20.

Laufkotter Bros., Sacramento; double acting deep force pump, $20.

Huntington, Hopkins & Co., Sacramento; farm road scraper, $5; cabbage cutter, $2.

F. J. Whipple, Placer county; rectangular churn, dip. and especial mention.

A. Parker, Hicksville; Crane's washing machine, $5.

A. Callahan, San Francisco; complete washing machine, honorable mention.

M. K. Barrow, San Francisco; double acting washing machine, dip.

Baker & Hamilton, Sacramento; Sweepstakes Plow Co.'s farm road scraper, $5.

Keller & Co., Sacramento; best hay seeder, $50, recommended.

Hawley & Co., Sacramento; churns, diploma.

Laufkotter Bros., Sacramento; apparatus for raising water for irrigating purposes, $20.

A. P. Smith, Sacramento; step-ladder for picking fruit, special premium recommended.

J. M. Keller & Co., San Francisco, Ryder's American fruit-dryer, special premium recommended.

CLASS VI.

Baker & Hamilton, Sacramento; Sweepstakes Plow Co.'s gang plow, best on exhibition, $100.

C. Myers, Marysville; sub-soil plow, $20.

Wm. B. Reedy, Sacramento; stubble plow, $10; gang plow, dip.

M. C. Hawley & Co., Sacramento; one John Deer's gang-plough, dip. and special premium recommended.

Treadwell & Co., Sacramento; sod plow, $10.

M. C. Hawley & Co., Sacramento; side-hill Plow, dip.; one-horse plow, dip.

Baker & Hamilton, Sacramento; Scotch clipper steel plow, dip.; Monitor cast-iron plow, dip.

CLASS VII.

Daniel Mason, Sacramento; trotting wagon, $15 and diploma.

Doland & Co., Sacramento; one top buggy, one phæton, one sulky; special premium recommended for each.

Huntington, Hopkins & Co., Sacramento; assortment of carriage material and trimmings, dip.; carriage springs, $10.

Carville Manufacturing Co., San Francisco; one two-horse family carriage, $30; one one-horse family carriage, $25; top buggy, $20, and dip. to each.

M. Kesler, Sacramento; farm wagon for general purposes, California manufacture, $15.

J. F. Hill, Sacramento; thoroughbraca market wagon, California manufacture, $15.

Baker & Hamilton, Sacramento; Sweepstakes Plow Co.'s street goods wagon, $5; best imported (Bain) farm wagon, dip.

E. A. Ames, Sacramento; best display of carriage wheels, dip.

Keller & Co., Sacramento; carriage or wagon brake, diploma.

J. McRoss; two-horse truck, California manufactnre, special premium, $20, recommended.

J. F. Hill, Sacramento; best two-horse family carriage, $20.

THIRD DEPARTMENT—CLASS I.

Joseph Green, Oakland; best exhibit of silk goods by one factory, $25, and silver medal recommended.

Capital woolen mills, Sacramento; best display of woolen goods by one factory, $100; best Mackinaw blankets, $5.

Alex. McKay, San Francisco; best 10 yards rag carpet, $10.

M. Kraker, Sacramento; best display shoulder braces and corsets, silver medal; best display fancy goods, $20.

Mrs. J. S. McDerman, Sacramento; best hearth-rug, $5.

Miss A. Huhbard, Sierra valley; one hearth-rug, special premium recommended.

Mrs. J. F. Hill, Sacramento; five rag-rugs, special premium recommended.

E. Ruisman, Sacramento; two rag-rugs, special premium recommended.

JUVENILE DEPARTMENT.

Miss M. B. Arnold, 11 yrs of age, Sacramento; 1 gent's shirt, napkin ring.

Kate Van Voorhies 12 yrs of age, Sacramento; worsted embroidery, hutter knife.

Bell Knox, Sacramento; cotton crochet, napkin ring.

Emily Thompson, 11 yrs of age, Sacramento; leaf and moss work, napkin ring; worsted embroidery, special premium recommended.

Pauline Morrill, 13 yrs of age, Sacramento; decalcomanie picture, special premium recommended.

Grace Morrill, 12 yrs of age, Sacramento; work box, special premium recommended.

Katie Jackson, Elk Grove, 1 log cabin quilt, napkin ring.

Nancy Jackson, Elk Grove; 1 log cabin quilt, special premium recommended.

Emma Hartwell, 11 yrs of age, Sacramento; hand sewing, special premium recommended.

Katie Allmond, 11 years of age, Sacramento; plain and ornamental penmanship, napkin ring; pencil drawings, special premium recommended.

Minnie McNeil, 6 yrs of age, Sacramento; 2 tidies, special premium recommended.

Mary H. Moore, Sacramento; medley picture, special premium recommended.

Mary Heilbron, 6 yrs old, Sacramento; 1 crochet tidy, special premium recommended.

Carrie E. Usper, Sacramento; pen-drawing, napkin ring.

Nellie Dunlap, Sacramento; pen-drawings, special premium recommended.

Eloise Marvin, 12 yrs of age, Sacramento; best cotton embroidery, butter knife; best braid work, napkin ring.

Nellie Lansing, 11 years of age, Sacramento; dried fruit, special premium recommended.

CLASS II.

Huntington, Hopkins & Co., Sacramento; best display rubber hose and belting, silver medal; best display leather hose and belting, silver medal.

Frazer & Scullion, Sacramento; best lot carriage harness, $10 and silver medal.

R. Stone & Co., Sacramento; best farm harness, $10; best display saddles and bridles, $10; best display hames, $3.

S. S. Kast, San Francisco; best pair gent's dress boots, $5; best pair gent's heavy boots, $5; best pair gent's dress shoes, $5; best pair gent's Congress gaiters, $5; best pair ladies' slippers, $3; best pair ladies' gaiters, $3; best pair ladies' bootess, $3.

J. C. Meussdorffer, Sacramento; best gents' silk hat, $5; best exhibit men's hats and caps, silver medal.

D. H. Quinn, Sacramento; best soft hat, $5.

CLASS III.

M. Kraker, Sacramento; best display ladies' and children's clothing, $25; best silk embroidery, $5; best specimen braid work, $5.

Miss Jovete M. Pierce, Sacramento; best table cover, $5.

Miss C. D. Aldeu, San Francisco; best chenille embroidery, $5.

Mrs. H. Kuhl, Sacramento; best crochet shawl, $5.

Mrs. W. E. Wood, Oakland; best fancy chair cushion, $5.

Mrs. D. W. Welty, Sacramento; best embroidery with beads, $5.

Mrs. L. Howe, Woodland; embroidered sofa cushion, $5.

Mrs. H. Kuhl, Sacramento; knit cloak, $3.

Mrs. R. W. Murphy, Sacramento; best display of millinery, $20; best velvet bonnet, $5; best silk bonnet, $5; best display of artificial flowers, $10.

Mrs. H. Kuhl, Sacramento; lamp-stand mat, $3; one case zephyr goods, special premium recommended; silk embroidery, special premium recommended.

Mrs. E. W. Wilson, Elk Grove; best crochet afghan, special premium recommended.

Mrs. Mary Chambers, San Francisco; embroidered afghan, special premium recommended.

Mrs. J. H. Winn, Sacramento; child's affgahn, $5.

Mrs. M. E. Scott, Moore's station, El Dorado county; best display of tatting, special premium recommended.

Mrs. W. M. Lyons, Sacramento; best embroidered handkerchief, $3; best specimen of leaf work, $5.

Mrs. M. E. Millar, Sacramento; best embroidered picture, $10.

Mrs. Anna Getz Lucas, San Francisco; best preserved natural flowers, silver medal; best wax statuary, $10; best specimen wax flowers, $10; best specimen wax fruit, $5; largest variety wax fruit, $10.

Mrs. C. N. Hartwell, Sacramento; best moss and lichen work, $5.

Mrs. E. A. Barton, Sacramento; best specimen shell work, $5.

Miss Jovette M. Pierce, Sacramento; feather wreath, special premium recommended; tatting collar, $3.

Miss Isabella Liebenthater, Sacramento; best white quilt, $5.

Miss N. J. Favers, Sacramento; best patchwork quilt, $5.

Mrs. C. W. Clark, Sacramento; best silk quilt, $5.

Mrs. H. J. Jackson, Sacramento; best log cabin quilt, special premium recommended.

G. D. Almond, Sacramento; best assortment leather gloves, and mittens, silver medal.

D. H. Quinn, Sacramento; best collection furs, $25.

Mrs. E. M. Wilson, Elk Grove; 1 buggy robe, special premium recommended.

Mrs. M. Gerrish, Sacramento; patchwork quilt, special premium recommended.

M. Kraker, Sacramento; best display fancy goods, special premium recommended.

Mrs. C. M. Jenkins, Los Angeles; Mohair opera cloak, special premium recommended; wool boquet, honorable mention.

Mrs. U. Nehrbass (70 years old), Sacramento; knit work, special premium recommended.

Miss Irene Felter, Sacramento; sofa cushion cover, special premium recommended; silk lounge afghan, special premium recommended.

Mrs. Dr. H. H. Pierson, Sacramento; sofa cushion cover, special premium recommended; crochet affgban, special premium recommended.

W. A. Smith, Florin; dried grasses and flowers, special premium recommended.

Mrs. Dr. Logan, Sacramento; crochet cloak, special premium recommended.

Mrs. A. Thsiss, Sacramento; display of lace work, special premium recommended.

Mrs. R. H. Haskell, Sacramento; knit stockings, special premium recommended.

Mrs. James Lansing, Sacramento; down spread and pillow, special premium recommended.

Mme. Cecil Romer, Sacramento; dressed figure, special premium recommended.

Mrs. Wm. M. Lyon, Sacramento; cotton embroidery, special premium recommended, display of fancy work, special premium recommended.

Mrs. G. Howlett (age 75 years), Sacramento; cotton embroidery, special premium recommended.

Mrs. Mary A. Beck, Sacramento; waxwork, special premium recommended.

Mrs. J. Joleins, Sacramento; tarlatan wreath, special premium recommended.

Mrs. Mary Baroes, Truckee; best specimen worsted flowers, special premium recommended.

A. Manning, Sacramento; fruit and seed wreath, special premium recommended.

Miss Gussie M. Wilcox, Sacramento; snow-flake basket and headwork, special premium recommended.

Mrs. F. N. Fish, Sacramento; crochet work, special premium recommended.

Mrs. J. B. Storch, Sacramento; hair work, honorable mention.

Mrs. Geo. Cox, Sacramento; waxwork, honorable mention.

Mrs. E. M. Wilson, Elk Grove; tidiss, honorable mention.

Mrs. Charles Arnold, Sacramento; embroidery, honorable meution.

Mrs. J. R. Quinn, Sacramento; headwork, honorable mention.

Mrs. R. W. Murphy, Sacramento; display of feathers, honorable mention.

Mrs. Wm. Kendall, Sacramento; knit stockings, special premium recommended.

Mrs. L. H. Hows, Woodland; bead cushion, honorable mention.

Miss Gussie M. Wilcox, Sacramento; tidies, honorable mention.

Mrs. Dr. Clunsss, Sacramento; phantom bouquet, honorable mention.

Mrs. Dwight Pierce, Sacramento; one quilt, honorable mention.

Mrs. Joseph Idions, Sacramento; slnm basket and crystalized flowers, honorable mention.

Mrs. Robinson (age 74 years), San Francisco; embroidered pin-cushion, special premium recommended.

FOURTH DEPARTMENT—CLASSES I AND II.

Sol. H. Davis, Sacramento, 1 case mechanics' tools, dip.; one California Farmers' tool chest, dip.

J. F. Harrison & Co., Sacramento, 1 case plated ware, dip.

Bush Bros., Sacramento, display of gas chandeliers, glass shades, portable lamps, gas toddy kettls and flat-irons, dip.

Wick & Clark, Sacramento, burial caskets, dip.

J. Hurtsll, Rocklin, models for stone-cutter's tools, $5 and dip.

Warren Holt, San Francisco, 1 set double-acting gate hinges, dip.; 1 set single-acting gate hinges, dip.; Norton door hutte, dip.

Gillig, Mott & Co., Sacramento, Jewett's water cooler and filter, dip.; coach lamps, dip.; miner's safety candlestick, dip.; metal lined wooden pails, dip. and special mention; Rathbone ranges, $10.

Warren Holt, San Francisco, improved pattern folding desk and seat; dip. and special premium recommended.

G. Heilge, Sacramento, locks for store and house, and padlocks, $5.

G. Thomas, Reno, Nevada, automstic car coupling, honorable mentiom.

J. M. Keeler & Co., Sacramento, 1 "chass" pipe-cutting machine, dip.

C. B. Brown, Placerville, 2 hydraulic mining lamps; dip. and special premium recommendsd.

G. A. Potter, San Francisco, the Excelsior cooking materials, honorable mention.

Huntington, Hopkins & Co., Sacramento, best display of brass work, $20 and dip.; best display of axes, $5; best display of general hardware, $10; best display of iron and steel, $5; best display of mechanic's tools, $10 best display of pocket cutlery, $5; best display of circular saws, $5; best display of mill saws, $5; best display of hand saws, $5; best display of files, $5; best display of pruning knives, $5; best display of shot, $5.

Wm. Friel, San Francisco, the Paragon vapor stove burner; $5 and diploma.

P. J. Chrisler, Vallejo, can openers; honorable mention.

Mansfield, Wing & Co., Sacramento, assortment of fancy mouldings, $5.

CLASS III.

Kohler, Chase & Co., San Francisco; Decker's grand piano, $20; Decker's parlor piano, $10.

T. W. Strobridge, Jr. Sacramento; Hallett, Davis & Co.'s grand piano, $20; Hallet, Davis & C.o's houdoir piano, $20; George Woods' parlor organ, special mention; George Woods' small organ, special mention.

J. F. Cooper, Sacramento; Estey organ, special mention.

A. Menke, Sacramento; best display of small musical instruments, silver medal; 2 inlaid boxes, California manufacture, $5.

Rickoff & Clark, San Francisco, spring beds, dip.

John Brenner, Sacramento, best dressing bureau, $10; best sofa, $10; best lounge, 5; best extenrion table, $5 best office chair, $5; best set parlor chairs, $10; best center table, $5; best pair side tables, $5; best set parlor furniture, $10; best display of furniture $10; best display of mattresses, $5; best writing desk, $5; best book case, $5; best wardrobs, $10; best set bedroom furniture, $10; best display of upholstery, $10; best office desk, $5; best sick chair, $5; best display of hair and feather pillows, $5, best spring mattresses, dip.

Warren Holt, San Francisco; school furniture, $10.

I. J. Hatturbough, San Jose; wire suspension spring bed, dip.

Rickoff & Clark, San Francisco; Crandall's improved spring bed, diploma and special premium recommended.

J. B. Sherburn & Co. Sacramento; spring bed cover; special premium recommended.

Kendall, King & Co.; wool mattress, "Lane patent," special premium recommended,

A. Menke, Sacramento; assortment of brushes, special premium recommended.

CLASS IV.

John Becker, Sacramento; best display willow-ware, $10; best display osier willow, $5.

Nichols, Felvey & Co., Sacramento; display of cedar ware, $5; display of pine ware, $5; display of wooden ware, $25; assortment of coopers' ware, $15.

J. F. Harrison & Co., Sacramento; display of split-wood baskets, $3.

Robinson, Fowler & Co., Vallejo; patent socket brooms and brushes, special premium recommended; best display of broom-corn, brooms and brushes, $5.

CLASSES V. AND VI.

W. C. Harding, Sacramento; specimens of dentistry very meritorious, gold medal recommended.

C. Jurgens, Sacramento; best glue, $5 and dip. recommended.

Bowen Bros., San Francisco; best exhibit of yeast powders, $5.

J. F. Fugszi, Sacramento; best exhibit of hair restorative and hair dye, perfumery and toilet articles and perfumery fountain, silver medal recommended.

Carlton Newman, San Francisco; best demijohn, dip.; fruit jars, special premium recommended.

John Brenner, Sacramento; best mirror, dip.

Withington & Bagley, Sacramento; best bleaching soap and best washing powder, special dip.

CLASS VII.

Aitken & Luce, Sacramento; display of California marble, $20.

Bergman Bros., Sacramento; best specimen of Rockingham ware, dip.; best specimen stoneware, $10; best specimen roofing tile, $5; best specimen flooring tile, $5; best display queensware, $5; best display terra cotta, dip.; best display pottery, various kinds, silver medal; best display firebrick, $3.

Withington & Bagley, Sacramento; best display of soap, silver medal; best display washing powder, dip.

Huntington, Hopkins & Co., Sacramento, best stove-polish, $5.

A. Henley, Yolo County; samples of building brick, dip.

CLASS VIII. AND IX.

B. E. Gogings, Sacramento; best stuffed animals and birds, silver medal,

B. R. Sweetland, Sacramento; one case minerals and shells, silver medal.

G. D. Allmond, Sacramento; one case minerals, silver medal.

G. Griffith, Rocklin; one piece dry-dock stone, honorable mention.

F. E. Davis, Sacramento; one framed Masonic emblem in marble, and one framed Odd Fellows' emblem in marble, honorable mention.

Robert Moore, San Francisco; best design of an engine or machine of any kind, gold medal.

J. K. Firth, San Francisco; second best design of an engine or machine of any kind, silver medal.

FIFTH DEPARTMENT—CLASS I.

D. R. Prince, Oroville; best exhibit silk cocoons, $25; best exhibit silk in skeins, dip.

CLASS II.

M. Byrte, Sacramento; best exhibit chicory, premiums recommended.

M. Biggs, Butte County; best exhibit wheat, $20; best exhibit Nepul barley, $10; best exhibit Chevalier barley, $10; best exhibit common barley, $10.

W. S. Manlove, Sacramento; exhibit of bearded Chile wheat, $20.

Wm. Kendall, Sacramento; exhibit of mulatto corn, $10.

W. M. Haynie, Sacramento; best exhibit hops, $10.

James Black, Suisun; exhibit white Mediterranean wheat, $20.

A. T. Hatch, Suisun; exhibit Excelsior Club wheat, $20; exhibit Touzelle wheat, $20.

P. H. Fisher, Sacramento; best exhibit white corn, $10.

John Smith, Sacramento; best exhibit sugar-beet seed, premium recommended.

T. L. Chamberlin, Lincoln; best exhibit of Tappahanock wheat, $20.

Wm. Van Wort, Butte County; best exhibit of prids of Bntte wheat, $20.

Goss & Co., Butte County; exhibit of flour, Durham Mills, silver medal.

John Bidwell, Chico; exhibit of Chico Mills flour, silver medal.

A. B. Gilbert, of Sacramento; exhibit of yellow corn, $10.

CLASS III.

Peter Burns, Sacramento; best exhibit of Sweet potatoes, $5.

F. Gabrielle, Sacramento; best half bushel sweet potatoes, $5; best 12 parsnips, $3; best 12 carrots, $3; best six long blood beets, $3; best six drumhead cabbage, $3; best six heads of red Dutch cabbage, $3; best six heads of any other variety, $3; best three heads cauliflower, $3; best three heads of brocoli, $3; best six heads of lettuce, $2; best half-peck of red onions, $3; best half peck of yellow onions, $3; best half peck of white onions, $3; best half peck of peppers for pickling, $3; best 12 roots of salsify, $3; best six stalks of celery, $3; best half peck Lima beans in pod, $3; best half peck kidney bush beans, in pod, $2; best half peck pole-beans, other than Lima, in pod, $2; best three purple egg plants, $5.

F. Gabrielle, Sacramento; ssoond best table of varieties of vegetables, $20.

G. W. Fern, Sacramento; best and greatest variety of potatoes, $10.

Peter Burns, Sacramento, variety of turnip beets, $3; variety of Valparaiso squash, $3.

John Smith Sacramento; best six sugar beets, $3: best Tromlay tomatoes, $3.

A. B. Gilbert, Sacramento; best six mammoth squashes, $3; best sweet corn, $3; best three mountain watermelons, $3; best six cucumbers, $3.

F. H. Fisher, Sacramento; best and largest pumpkin, $3.

C. W. Hoit, Sacramento; best three green-fleshed melons, $3.

W. S. Manlove, Sacramento; best white beans, $3.

Wm. Kendall, Sacramento; best field peas, dry, $2.

B. F. Aiken, Sacramento; best garden peas, $2; best castor oil beans, $5; best and greatest variety peas, $5.

Mrs. Cronkite, Sacramento; best gherkin cucumbers, $3.

W. D. Pickot, Yolo county; best cranberry beans, $3.

De Bernardi & Salna, Sacramento; best table of vegetables, $30.

CLASS VI.

Miss Hattie E. Sprague, Sacramento; best butter in bulk, $15.

Miss S. M. Burns, Sacramento; best butter in rolls, $10.

Miss A. J. Gerrish, Sacramento; best brown bread, $5; best white bread, $5.

CLASS VII.

J. S. Harbison, San Diego; best honey, $5.

Capital Sugar Refinery, Sacramento; best sugar from beets, $10.

Mrs. S. M. Hoover, Elk Grove; best branded fruit, $5; best fruit in jars, $20; best salad, $5; best spiced fruit, $5.

Mrs. H. Cronkite, Sacramento; best exhibit of jellies, $20; best exhibit of preserved fruits in glass, $10; best exhibit of pickles, $15.

SIXTH DEPARTMENT—CLASS I.

Ira S. Bamber, Placerville; best display of apples, $20; best 12 varieties apples, $10; best display of pears, $20; best 12 varieties pears, $10; best six varieties peaches, $10; best single variety peaches, $5; best display plums, $10; best five varieties plums, $5; best single variety pluma, $3.

W. S. Manlove, Sacramento; best three varieties of apples, $3: best display figs, $5.

T. K. Stewart, Sacramento: best three varieties pears, $3: best display tropical fruit, $10: best display oranges, $5.

Joseph Putnam, Mokelumna river: best six varieties apples, $5.

J. M. Madden: single variety apples, special premium recommended.

E. M. Smith, Coloma: display six varieties pears, $5: best display peaches, $5.

O. H. Swift, Sacramento: best display of quinces, special mention.

CLASS II.

Mrs. H. Cronkite, Sacramento: dried berries (11 varieties), $5.

Miss F. M. Smith, Sacramento: display of sundried apples, $5.

Mrs. A. Cohen, Sacramento: display of sundried pears, $5.

Mrs. E. F. Aiken, Sacramento: display of sundried peaches, $5.

Miss F. M. Smith, Sacramento: display of sundried plums, $5.

Mrs. E. F. Aiken Sacramento: display of dried apricots, $5.

Miss Nellie Lansing, Sacramento: display of raisins, dried apples and almonds, $5.

Miss Hattie F. Sprague; display of dried pears, plums and corn, $5.

J. M. Purington, Sacramento: display of dried fruit, special premium, $20 recommended.

G. W. Deitzler, San Francisco: display of dried and preserved fruit, dip. recommended.

Mrs. A Crowne, Sacramento: variety of dried fruit (apples, peaches, almonds, etc.), $15.

Ira S. Bamber, Placerville; best 25 pounds of raisins, $25 and premium recommended.

J. A. Rose: display of almonds, $5.

J. R, Nickeson, Lincoln; best 12 varieties wine grapes, $26; best 6 varieties wine grapes, $20; best 3 varieties wine grapes, $15; best 2 varieties wine grapes, $10; best single variety wine grapes, $10; best and greatest variety wine grapes, $25; second and greatest variety of wine grapes, $15. Gold medal recommended for this display.

J. H. Carrington, Sacramento county; best 12 varieties table grapes, 10; best 6 varieties table grapes, $5; best 3 varieties table grapes, $3.

B. N. Bugbey, Folsom: best brandy of 1870, $25; best white wine of 1873, $25; best red wine of 1872, $25.

Robert Chalmers, Coloma; best sweet wine from Green Hungarian of 1872, $25.

Mrs. H. Cronkite, Sacramento; best California port, $25.

B. N. Bugbey, Folsom; best California aberry of 1870, $25.

Robert Chalmers, Coloma; best Angelica wine of 1872, $23; Calawba wine bitters, special mentiou.

SEVENTH DEPARTMENT—CLASS 1.

Norton Bush, San Francisco; best landscape painting in oil, $25; best exhibit by one artist, $150.

P. Jay Lewis, Sacramento; best painting by any exhibitor, $100.

Charles Warren, Sacramento; best painting in oil by minors, $20.

Mrs. George D. Stewart, Sacramento; best specimen landscape paintiug in water colors, $25.

Mrs. M. E. Hayden, Sacramento: exhibit of oil paintings, special premium recommended.

P. J. Hopper, Sacramento; best monochromatic drawing, $25.

Mrs. George D. Stewart, Sacramento; best crayon drawing, special premium recommended.

Mrs. George Cox, Sacramento; one crayon drawing, special premium recommended.

Miss Helen M. Brooks, Sacramento; best display of crayon portraits, silver medal recommended.

F. J. Lewis, Sacramento; one pen drawing from nature, special premium recommended.

Al. Smith, Sacramento; best exhibit of photographe, $50.

Mansfield, Wing & Co., Sacramento; display of chromoe, special premium recommended.

H. S. Beale, Sacramento; exhibit of photograpbe, special premium recommended.

C. C. Brown, Sacramento; display of ornamental penmanebip, special premium recommended.

E. C. Atkinson, Sacramento; specimen of plain penmanship, special premium recommended.

CLASE II.

Aitken & Luce, Sacramento; best exhibition of sculpture, $25; best exhibition of statuary busts in plaster, $25; best collection of marble-work, $75.

MISCELLANEOUS.

Mrs. Hoover, Elk Grove; display of nine varietiee of candied fruit, special mentiou; also, one silver tree, honorable mention; one lead tree, special premium; one tin tree, honorable mention.

Mrs. Cronkite, Sacramento; two jars pear syrup, hon orable mention.

Leland Howe, Sacramento; one scrap-book, honorable mention.

R. S. Thompeon, Napa; one Adam's chart of history, honorable mention.

C. H. Allmond, Sacramento: collection California bird-egge, bonorable mention; also, one newspaper printed in 1800, honorable mention; collection of ancient coine, bonorable mention.

Mrs. E. Wilson, Elk Grove; pair of blankets woven and spun by a lady 65 years old, honorable mention; also one bedspread, bonorable mention.

Joeoph Purrington, Sacramento; crystallized fruit, six varieties, special mention.

Miss S. Abbey, San Francieco; grand excelsior American chart, for dress-cutting, special mention.

W. P. Sherwood; one utility adjustable table, special mention.

P. McCarty; cage of Irish thrushes, honorable mention.

J. Lindo, San Francisco; one case of fancy sbell work, special premium.

A. Menke, Sacramento; one fancy baby carriage, "The Bon Ton," Englisb manufacture, special premium; also one fancy baby carriage, "The Bon Ton," American manufacture, especial premium.

H. C. Harrison, Sacramento; rustic cone table, especial premium.

E. R. Keener, Sacramento: confectionaries and candy were, special premium.

Mrs. J. R. Quinn, Sacramento; two hanging satchel bage and one bag, special premium.

Mrs. Idiene; one wax picture frame and one loather bracket, honorable mention.

Stewart & Hamilton, Dixon; one door and fancy panels, special premium.

Henry Fieber; one csse of confectionary and 24 jars candy, honorable mention.

V. S. W. Parkhurst, San Francisco; one money drawer, bonorable mention.

J. H. Corliss, Reno, Nevada; vessel for measuring and drawing liquids, diploma.

G. Thomas, Reno, Nevada; automatic car coupling, bonorable mention.

M. C. Hawley & Co., Sacramento; fuse for mining purposes and exploders for mining purposes, diploma.

Pacific Jute Company, Oakland: grain and wool bags California manufacture, eliver medal.

A. Callaban, San Francieco: combined vice and anvil for farmers' use, diploms.

Headrick & Dirvin, Sacramento: axle grease, diploma.

John Hibbert, Nevada County: section of square tree, honorable mention.

Dr. L. Moore, Santa Cruz: one Knowlton's universal bath, special mention.

Thos. A. Wand, San Francisco: California sardines, special premium.

Mrs. M. T. Griffin, Sacramento: chart for cutting dresses, (Taylor's,) especial premium.

Dr. Lyford, San Francisco: apparatus for embalming dead bodies, apparatus for ventilating and disinfecting burial vaults, apparatus for propagating oysters, special premium recommended.

REPAIRING MIRRORS.—To replace the small patches of quicksilver often found removed from the back of looking-glassee, cleen the damaged spot by very careful rubbing with fine cotton until there is no traco of grease or dust; then with a point of a knife cut the size of the required piece of the silvering off another glass; a small globule of mercnry (the size of a pin's head for a surface the size of the finger nail) is dropped npon the cut piece. The mercury peuetrates as far as the cut, and allows the piece to be removed. It is then gently pressed on the spot with a piece of cotton.

No pillar or support of brick or stone should ever exceed in bight twelve times its least thickness at its base.

Good Health.

Unaired Chambers.

I pass soms houses in every town whose windows might as well be sealed in with tbe walle for any purpose tbsy have bad but to let in the light. They are never opeaed, enmmor or winter. In winter it is too cold; in the summer the flies stray in, or, if they are netted, the dust sifts through the nets. Now I can tell a person who inhabits such chambers when I pass him in tbe etreet—there is euch a smell about his clothing. I always wisb for a sniff of cologne or hartshorn or burnt feathers, or something of tbs sort, to "take tbe taste out." A house that is never aired bas every nook and corner filled with the stale odors of cooked meats, boiled vegetables, especially cabbage nad onions, which, as the weeks go by, literally reek in their hiding places. Who has not wished sometimes to bang a new servant's clothing out of doors some frosty night until it shonld be thoroagbly aired? But I have seen the fins ladies eome swooping into church, with their velvets and silke, when said velvets and silks gave unmistakable evidence of having been housed in juet such shut-up chambers. Oh, what a tale that odor of cabbage and pork tells abont the lady's style of housekeeping! Ths very garments of the children tell the same story of uncleanliness. It is bad to have unwashed clothes, but there may be aa excuse for it. But what excuse esn there be for unaired ones, when air is so cheap and free? Thore is dosth in such nnaired chambers. Bettor a swarm of flies or a clond of dust, better frost aad snow in a room, than these intolerable smells.

Doar girls, the first thing in the moruing, when yon are ready to go down stairs, tbrow open your windows, take apart the clothing of your beds, and let the air blow through it as hard as it will. There is health and wealth in such a policy. It helps to keep away the doctors with their loag bills. It helps to make your eyes sparkle and your cheeks glow, and to make others love yonr presence. Girls who live in these close, shut-up rooms, can only be tolerated at the best in any circlo.—*Country Gentleman.*

WEAR AND REPAIR OF THE BRAIN.—The notion that those who work only with their brains need less food than those who labor with their hands has heen the cause of nntold mischief. Students and literary men have often been the victims of a slow starvation, from tbeir ignorance of tbe fact that mental labor causes greater waste of tissue than muscular. According ing to a careful estimate, three hours' hard study wears ont the body more than a whole day of work on the anvil or on farm. "Without phosphorus, no thought," is a German saying; and the consumption of that essential ingredieat of the brain increasos in proportion to the amount of labor whicb the organ is required to perform. Tbis wear and tear of the brain are easily measured by careful examination of the salts in the liquid excretioas. The importance of the brain as a working organ is shown by the amount of blood it receives, which is proportionally greater than that of aay otber part of the body. One-fifth of the blood goes to the brain, though its average weight is only one-fortieth of the weight of the body. This fact alone would be sufficient to prove that brain-workers need more food and better thau mechaaics and farm laborers.

OVERWORKING THE BRAIN.—Softening of the brain is becomiag a more common disease than formerly; as it is ntterly incurable, attention should be given to its canses. The softening is caused by an inflammatory condition or a gradnal degeneration of the substance of the brain, arising from intense mental excitement, as a result of study, of the use of spirituous liquors, or allowing the mind to dwell on one subject unpleasantly, especially when there is no real canse, or conjectured injuries, or injustices and the like, moping over them, cherishiag thonghts of them. This lameatable malady comes on at one time with a sudden head or ear ache, at another with difficulty of speech, or nmmbness, or convulsions, or paralysis, or actual insensibility; at other times there is simply a decline of the power of the senses, sight, hearing, speech, and tho mental powers generally. The eame diseaso is cansed by the want of something to do, when there is no compulsion to mental effort or muscular exertion. To ameliorate a malady arising from causes so diametrically opposite, antipodal means should be employed—less work to the overworked, more work for those who have nothing to do.—*Hall's Family Doctor.*

SUNSHINE AND SLEEP.—Sleepless people—and there are many in America—should conrt the sun. The very worst soporific is laudanum, and the very best, sunshine. Therefore, it is very plain that poor sleepers should pass as many hours as possible in sunshine, and as few as possible in the shade. Many women are martyrs, and yet they do not know it. They shut the sunshine out of their houses and their hearts, they wear vails, they carry parasols, they do all possible to keep off tho subtlest and yet most potent influence which is intended to give them strength and beauty and cheerfulness. Is it not time to change all this, and so get color and roses in yonr pale cheeks, strength in your week backs, and courage in your timid souls? The women of America are pale and delicate; they may be blooming and strong, and the sunlight will be a potent aid in this transformation.

Useful Information.

HOW THE EYE IS SWEPT AND WASHED.—For us to be able to see objects clearly and distinctly, it is necessary that they should be kept clean. For this purpose it ie furnished with a little gland from which flows a watery fluid (tears) which is spread over the eye by the lid, and is afterwards swept off by it, and runs through a hole in the boae to the under surface of the noso, where the warm air, passing over it while breathing, evaporates it. It is remarkable that no snch gland can be found in the eyes of the fish, as the element in which they live answers the same purpose.

If the eye had not been furnished with a liquid to wash it, and a lid to sweep it off, things would appear as they do when you look through a dusty glass. Along the edges of the eyelids there are a great number of tubes and glands, from which flows an oily substance which spreads over the surface of the skin, and thus prevents the edges from being sore and irritated, and it also helps to keep tears within the lid. There are also six little muscles attached to the eye, which enables us to move it in every direction; and when we consider the different motions they are capable of giving to the eye, we cannot but admire the goodness of Him who formed them, and thus saved us the trouble of turning our heads every time we wish to view an object.

A SIMPLE MODE OF ANALYSING SOILS.—M. Schlosing gives the following simple process for separating the clay in soils from other constituents, and consequently for determining the quantity of the former present. The earth is thrown in water and the calcareous matter eliminated by means of hydrochloric or other suitable acid. The carbonate of lime and humic acid found in nearly all vegetable earth, hinders the clay from remaining in suspension in the water and it is hence precipitated. By treating the liquor with ammonia, the humic acid is removed. The residue is composed of sandy matter and clay; but the former falls to the bottom, leaving the clay in suspension in the liquid, from which it may be separated by decantation. This method, though almost mechanical, it is said will prove of much value to agriculturists. M. Schlosing has found that earth, considered argillaceous, in some cases contained little over 2 or 3 per cent. of clay, while others, supposed to be composed almost entirely of that substance, contained but 30 per cent.

HARDENING STEEL TOOLS. — The following composition, suggested by the chemist Kulicke, has been employed with success at Saarbrucken for restoring burnt steel to its primitive condition; and as it affords a peculiarly hard metal, it is also used for temporing steel tools that are too soft, or may have become so by use, as chisels, saws-blades, etc. Burut steel, heated to a cherry red, and forged somewhat ou an anvil, is plunged in a well-mixed doughy mass (in a box near by) composed of tartaric acid, six ounces; cod oil, 30 ounces; charcoal power, two ounces; bone bleck, eight ounces; beef tallow, 10 ounces; yellow prussiate of potash, five ounces; and burnt hartshorn, three ounces, and is then completely treated. Small articles of cast-iron such as wheel-boxes, axle-bearings, etc., may be successfully case-hardened by being plunged red-hot into a mixture of 10 buckets of urine, five pounds of whiting and four pounds of salt.—*Scientific American.*

TO RENDER A CESSPOOL INODOROUS.—The contents of a cesspool may be rendered comparatively inodorous by frequent addition of plaster, or ground unburned gypsum, or diluted oil of vitriol, or solution of copperas. Probably the easiest way of using the contents for manure is to throw fine earth into the vault until a semi-liquid mass is formed, and to scoop this out and cover it with a quantity of dry soil gathered in readiness for it. The earth absorbs all the liquid and all the gaseous matter, and if kept covered from rain for a few days, it will be in excellent condition to spread over meadows or fallows to be prepared for fall crops.

AN ALCOHOLIC VARNISH THAT WILL ADHERE TO METAL.—In order to make alcoholic varnish adhere more firmly to polished metallic surfaces, A. Morell adds one part of pure crystallized boracic acid, to 200 parts of the varnish. Thus prepared it adheres so firmly to the metal that it cannot be scratched off with the finger nail; it appears, in fact, like a glaze. If more boracic acid is added than above recommended, the varnish loses its intensity of color.

TO RESTORE PAPER.—It is often a source of annoyance, in using forms that have been printed on writing-paper, to find that the ink from the pen will not flow in certain places, owing to grease-marks from the printer's finger in laying on the sheet. If a piece of common white india-rubber be lightly rubbed over such places, the grease will be taken away, and the writing done as easily as on any other part of the sheet.

A CORRESPONDENT asks how can melted glue be kept liquid when cold. Ans. Take best pale glue 2 lbs., soft water, 1 quart, dissolve in a warm bath; after cooling add (slowly) 7 ozs. nitric acid. When cold, bottle off.

To make an imitation of coral, color prepared chalk with sesquioxide of iron or rose pink, pass through a sieve, and make into a paste with white wax.

Domestic Economy.

How to Make Soup.

A correspondent of the Spriagfield *Republican* says: I never buy fresh meat to make a soup, unless it be for company. The bones and bits of meat left from the "roasts" and "broils" are sufficient.

I take a slice of salt-pork, and cutting it up small, I put it in the bottom of my soap kettle with three large or six small onions sliced, half a tea-cup of water, all my bones and scraps of meat (but no fat whatever), two heaping spoonsfull of salt and a small quarter tea-spoon of pepper. Let all these simmer ten minutes or over. Stir them often, but do not let them scorch, and, when just ready to dry up, pour on five pints of cold water. Add two good-sized carrots and a turnip cut in slices, and let all boil together moderately for an hour or two. (If you have a large proportion of meat on your bones, an hour will make it.) Strain it through a sieve, and skim off the fat, if any, and it is fit for the every day table. While boiliag, the kettle must be covered tight, to keep it from boiling away. I like to make my soup after breakfast and set it away, as then, by dinner-time, the fat which may be on it will have hardened, and is easily skimmed off. Any grease floating on a soup is unpardoable. Send it to the table boiliag hot, and if you add a little boiled macaroni, rice, or barley, or a few green peas, or slivers of striag beans, or even of deepised carrot, it will improve it. When you have tomatoes, celery-tops, parsnips, a bay-leaf, a bit of thymo, green-pea hulle—anything—put it in to enrich and complicate the flavor. As the wife of a distinguished Cambridge poet, who is very particular about his dinner, said to me, "Everything goes to make a soup—like cologne." Most housekeepers make awful preparations in getting up a soup—a whole shin of veal, boiled all day, etc. But after a few experiments, the housekeeper will find that the above recipe is cheaper, quicker and quite as good.

The Secret of Fried Potatoes.

"G. B. B.," writes to the Spriagfield *Republican* a bit of information that willl interest many: Saratoga potatoes, the poetry of common life, and costly charm of Delmonico's and Parker's, can be made in perfection in any kitchen, by the use of very simple apparatus, consisting of a sharp blade set slantiug into a wooden trough with a narrow slit in the bottom, two wire screens or sieves, and a common spider. Select eight large potatoes, pare them, and slice very thin with the cutting machine, soak them in cold water for two hours, and stir common table salt into the water, one teaspoonful to a quart, and allow them to remain in the brine half an hour longer. Pour them npon the screen to drain, and put on a spider, with a pound of clear lard, over a brisk fire. Wipe the sliced potatoes dry on a towel, wait until the lard is smoking hot, and pour a large plateful into the spider. The result is like a small sea in a white squall; and now the cook shows the artistic soul which every votary of that nohlest of the arts must possess to be worthy of the name. Patient and calm, with steady and incessant motion of the skimmer, she prevents adhesion of any too affectionate slices, and watches carefully for the tender blush of brownnese to appear. Slowly it creeps and deepens natil it outrivals the hue of the fragrant Havana. Haste then takes the place of caution, lest any martyrs burn for the protection of others; and they must be quickly spread upon another sieve to drain until dry and greaseless enough for the feirest fingers; then served hot, to melt away like a kiss on sweet lips, with a dying crackle, like the fallen leaves in autumn.

TO PRESERVE GRAPES.—Pluck the clusters carefully, remove those that are green or bitten by insects or blasted, and tie them to a pole about 10 feet long and so firm as not to bend much beneath the weight. Hang the poles with the clusters suspended in a loft or chamber where there is a free circulation, and there let them remain till freezing weather, looking over them occasionally and removing any that have begun to decay. Then pack in dry sawdust in dry shallow boxes, and keep in a cool, dry cellar. The French often keep them a number of months by dipping them in a thick white-wash, which on drying covers stem and fruit with a thin, white crust and excludes the air. Any one who knows a better way than those will confer a favor on our readers by communicating it to them.

BOILED BREAD PUDDINGS.—Crumb your stale bread in a pudding pail and cover with sweet milk, and set by the stove to warm and soft n. Then to every quert of the mixture add two well beaten eggs, a cup of sugar, and a heudful of raisins or sweet dried fruit of any kind. Do not have your pail full, as it needs some room to rise. Put the cover on tightly and set it in boiling water, and do not allow it to stop boiling till done. If you try that once you will never make a baked pudding again.

FRIED SWEET POTATOES.—The evening before they are wanted peel and slice them, lay them in a stew-pan and sprinkle sugar between the layers of potatoes; pour on water enough to cover them, and set the stew-pan on the stove. In the morning by the time you are ready to fry them, they will be cooked just enough; fry in hot lard to a light brown on both sides.

MINING AND SCIENTIFIC PRESS.

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San Francisco:

Saturday Morning, Oct. 10, 1874.

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THE Virginia and Truckee railrosd company have about 225 men at work hetween Washoe City and Steamhoat, on the Reno Division, grading off the high places on the line and making the road as level as possible, so that the locomotives hauling freight hetwoen Reno and Carson can pull one or two cars more than heretofore, without having to double up at the steep grade near Washoe City.

MAD BULLS IN NEW YORK.—As a drove of Texas cattle were being driven through New York, on Mouday last, and when near the city Hall, on Chatham street, a bull became furious and broke away, followed hy several others. Tbey dashed furiously through the streets, and hefore they conld be secnred injured more or less severely 40 persons—several quite seriously.

A TERRIBLE cloud hurst occurred on Friday last near Mirage statiou, ou the C. P. Railroad, by which the rosd was so washed away that two engines attached to the Western bound train were precipitated into a washway. Both engineers were killed and the engines hadly smashed up; but no passengers were injnred.

BEAR GULCH.—The recsnt discovery of new placers at the mouth of Bear gulch, Montana, bids fair to prove one of the most important yet made in that section of the country. Five claims are now being worked with the most flattering results, the pay heing from $12 to $15 per day to the man.

AT A LOSS.—The connectiou between the up-raise in the Sierra Novada mine and the tunnel at the old Sacramento chimney has not yet been made. There wae an error somewhere in the work, but a new survey has heen made and exact bearings obtained.

WATER. — The flow of water into the main ehaft, at the 500-fuot levsl in the Utah mine, continues in great volume. In addition to the quantity pumped, 400 tanks, containing 1,300 gallons each, are raieed daily.

THE K. K. company at Eureka intend to erect new hoisting works over tbe Skylark shaft. The coudition of the mine is very flattering.

NEW and powerful machinery is heing erected at the Justice mine, on the Comstock, and will be used in sinking the main shaft.

California in the Pliocene Epoch.

At the meetiog of the California Academy of Sciences on Mondsy last, Dr. J. G. Cooper, formerly of ths Stste Geologicel Survsy made some remarks on Cslifornia in the Pliocene Epoch, of which the following is an abstrsct:

Ths mep here exhihitsd is that of California snd Nevsde, published hy the Geologicsl Survey, and of which this new edition is issued, hy euthority of the University of Californis, and presented to ths Academy hy the chief topographer, Mr. C. F. Hoffmaun. On this there ars pinned pieoes of orangs colored paper, (chosen from its contrest with the blue and brown (tints of ths map) to represent the portions now lend, but covsred hy salt or brakish wster during tbe epoch just preceding ths sge of man. A considsrahls part of thsss slong the edge of the Coast, is, however omitted, beiug to nsr row to show on this smell scale at a distance. Probebly mnch of tho Coast rsnge wse also under water, of which no evidence from fossil remains is now left, the strats, if any were deposited, having been weshed awey.

Numerous small fresh weter lskes also existed, which hsve left deposits, especially on tho slope of the Sierra Nevada, hut not yet surveyed enough to define their limite. The Sierra must then have been much lower to ellow these lakes to stand where they would now drein out completely. Most of the stetes of Nevada and Utah were also covered by large fresh water lakes, filling what is now called the "Great Basin," and which hsve since evaporated so ae to form the salt lakes now sxisting, hy condensation of the salts always contained in lakes and rivers. This is shown by the deposits of freeh water shells at high levels ebove the present salt lakes, and the absence of selt weter fossils later than the cretsceous in the Great Besin.

Iu California, the whole great interior basin of the Sacramento and Ssn Joaquin valleys wes occupied hy brackish water, as proved by the remains of sharks and porpoises fonud by Profeseor Blake and others near Keru river. All the principal level valleys now forming our best agricultural lands were also occupied by arms of this inland sea or of tho ocean. The gulf of California extended over the desert a hundred miles or more north of its present limits.

The Sacramento basiu had other outlets besides the Golden Gate, (if that existed at all) through an inlet opening at Russian river, aud another through Santa Clara valley iuto Monterey bay. Thus many islands probably exieted, which are now joined to the main lsnd, amoug them the peninsula of San Francisco. Some of tho inlets near the coast were occupied by marshes through which the animals of that period reached the nearest islands, as shown by the remains of the fossil elephant found near this city. Similar remains fonud by Blunt and Harford, of the Coast Survey, on Sauta Rosa island, show tbat it was then either joined to the main lsnd hy dry ground or marshes, as were probably the whole inner row of islands now formiug the south shore of the Santa Barbara channel.

The evidence of all these changes is iu the remaius of marine, laud, and fresh water animals now found in the valleys mentioned, which have become more or less filled np by deposite from tha adjoining hills.

The following are the most striking forms, described hy Prof. Leidy in the "Report of the U. S. Geological Survey of the Territories," iseued lsst yesr.

A tiger (*Felis Imperialis*) ae large as the Bengal tiger, found in or near Livermore vslley, by Dr. L. G. Yates.

Wolf (*Canis Indianensis*) larger than the existing kinde, from same deposit; also found in the tertiary of Indiana, etc.

Llama (*Palauchenia Californica*) from the foothills of Merced county, found hy C. D. Voy, larger than the existing camel; also remains of perhaps another species from Alameda county hy Dr. Yates.

Buffalo (*Bison latifrons*) found in several parts of this State and the Eastern States; larger aud differing from the living form. A very perfect skull wae found by Mr. C. Brown, engineer of the Pilarcitos valley aqueduct, in excavating for thst work.

Horse (*Equus occidentalis*) of which remains are common in most of the Statee, thongh no horses existed on this continent when it was discovered by Enropeans.

Rhinoceros (*R. Hesperius*), of wbich teeth were obtained by Prof. Whitney iu Sierra Nevada.

Elephant (*E. Americanus*), one of the commonest of the great fossil animals throughout the United States.

Mastodon *M.* (*Americanus*), more rare, hut also found in many localities.

Another species (*M. obscurus*) first found in the Gulf States, and since by Dr. Yates in the foothills of the Sierra, Alameda county, etc.

A great tortoise, equal to the Galapagos species in size, hut probably of fresh water, from a lake deposit of Nevada county. This is still undescribed, heing one of the fossils obtained hy the University from the Geological Survey.

Remains of palms and other tropical trees, chiefly from the lake basine of the Sierra, were sent by Prof. Whitney to the eminent Prof. Lesquereux, to be described in one of the Geological Reports, that *ought to be* published by the State of California.

From these evidsnces we perceive that the climats of that day was tropical. The country consisted of peninsulas and islands like those of the present East Indies, resembling thsm also in climate and prodnctions. From tbe extent of water surrouuding them, there was ehundent reinfall and luxuriant vegetation, snitahle for the animals mentionsd.

It is not unlikely that some of thsse animals may have existed hefore the pliocsne epoch as well as in it, hut the explorations ere still insufficient to decide this.

Volcanic Age.

Ths tsrmination of this tropical epoch in California, wes marked (as described first by Prof. Whitney), hy enormous volcenic outhursts, which poured out grset streems of lave on the slope of the Sierra Neveda covsring entirely largs tracts toward the north. At the same tims the whols country was appsrsntly rsised hy ths elevstion of new mountain renges, and increase of old ones, causing the lakes to be drained, and their beds filled hy washings from the hills, mixed with volcanic materials. This greet convulsion no douht exterminated most of the tropical flora snd fauns of Cslifornia, although some of its representatives might heve existed later in neighboring regions, and their descendants may etill be found in tropical America. That all sre not extinct, is probable from the analogy of tertiary species elsewhere, and from the fact thet most of the marine end fresh water shells of the strsts deposited at that time are etill living, some however, only south of California.

Meny extinct lsnd animals have hsen found to have lived in Europe since the appearsnce of man on the earth, and there is strong evidence in the "Calsveras sknll" and others, that the eame fect is true of California.

It does not, however, necessarily prove that man existed in the Pliocene epoch, ss his remains may have heen huried under volcsnic outflows of later date together with Postpliocene animals, or even bones of Pliocene species mixed with them by aid of volcsnic convulsions.

Postpliocene Epoch.

The immense psriod of time thet hes elapsed since the Pliocene epoch is shown by tbe vest accumulatione of volcanic materials ponred out by Mt. Vesuvius on top of marine strata of shells, every one of the species etill living in the Mediterrauean, and therefore of late Postpliocene date. Yet history, and the evidence of human remaius go back through only a thin portion of these volcanic strata! California hefore the end of the Pliocene, was certainly badly euited for the exietence of man. The deposits found during the convulsive age, to the thickness of hundreds of feet, are themselves almost destitute of all fossils, although burying such a rich collection.

While this wss going on in California, there was probahly a great geological change taking place in other parts of the world, followed hy the Glacial Age. In this, the northern hemisphere down to ahout let. 38° wss mostly covered by ice, and the great deposit called the "Drift" found in Europe and the Eastern States.

The Geologicsl Survey proved conclusively that this depoeit of erratic houlders did not reach over California, and it is donhtful if even as far south es Vanconver's Island. Still the influence of the frozen period was no doubt exerted here in the form of extensive glaciers covering the Sierra, at least half way down their western slope, and probably tho highest parts of the Cosst Range. *Now* we have in summer a mere remnant of that great ice field, which no douht did a great part in tho excsvstion of the tremendoue cañons now cut deep helow the previous volcanic deposits of the Sierra. The thawing of such an ice field muet have acted much more rapidly in this erosion, than the comparatively slight water oourses of the present time. There is evidence slso, in the present existence of far northern land-shelle along the whole length of our Sierra Nevada, that the glacial period progressed slowly, allowiug them to spresd southward before its advance, without heing exterminsted. In Europe it has been found that man existed hoth before and after this period, living like the present Esquimanx on the edge of the perpetual snow, and advancing north again as it receded.

Present Epoch.

The eud of the reign of ice brings ne to the prsent epoch, in which there hae been very little chenge in the ontlines of the land in California, although eome changes in the fauna and flora, ae well as climate, which are yet nndetermined. The volcanic distnrhances have continued with decreasing intensity since the advent of man in the post pliocene epooh, and may have elevated considerable portions of land, especially southward, followed by increase of dryness and probahly greater extremes of temperature. A rising of land near the Arotic sea would further decrease the temperature. Judging from the continual discoveries still hsing made in the study of these latest formations of the earth's snrface in Europe and the Eastern States, we may safely eay that a vast field etill remaine open for the investigations of science in California.

CALIFORNIA LAND PATENTS ISSUED.—Washington, October 5th. Patents have been issued for the following California private land claims: Rancho Mission San Buena Ventura, in Santa Barbara county, containing 48,822.91 acres, Marie Depoli confirmee, patented August 19th, 1874; Ranebo Los Alamotos, in Los Angelee county, containing 28,027.71 acres, Abel Stearns confirmee, patented August 19th, '74.

Antimony—Plumbago Crucibles.

There has bsen considerable talk within the past few ysars, concerning ths antimony mines of this cosst, and what oonld be dons with them if the ores could be worked or sold. Now, works have bsen established in this city for the reduction of antimony ore, and althongh the propristors will buy all ths ore they can gst, they srs unable to procure snough to kesp the works running to their full capecity. It will not pay thsm to work low grede ore; it mnst at least contain 50 to 60 per csnt. antimony to be marketable. They work all the ore they csn get, hut as yst hsve never heen able to get enongh of it. Ths works are only large enough to reduce 40 tons of ore per month, hnt they will double the capscity if they can get ors. They will pay as much, or more, for the ore as people get who ship to England.

Here is a ohance then for minsrs who have bsen telking ahont their rich antimony mines to make some money ont of them, and we hope our contemporaries in the mining districts will inform them where they oen sell their ore. The works are on Bsrry street, between 4th and 5th, end Starr & Methison are the proprietors.

The works have bsen in operetion for ahout eix monthe. Most of the ore comes from Battle Mountain station, on the C.P.R.R., Nevada. Considerable money wss spent at that place, hnt the works there were a feilure. Want of facilities and lack of knowledge of the husiness were the csnses. One of the proprietors of these works was principal owner of the works at Bettle Mountain, but has men with him who thoroughly understand the business, having worked at it for many yeare in Englend. The redncticn is done in crucihlee, exactly as it ie in Englend. Esch crucible holds ahout 50 pounds of ore. The ore remains in the pot about 70 or 80 honrs. The antimony is then refined and cast into the nsuel cakes, being then "Regulns of Antimony, French Star." We saw at the works a number of these cakes, which present an eppearance exsctly similert o thoee made in England. Seversl of these cakes are exhibited at the Mechenics' Institnte Pavilion.

The antimony made here is shipped by steamer to New York, in the eame ehape as that brought from England. It is just se good as the English, and can be had here ae well aa thsre. They work the same ore here thet nsed to be shipped to England, reduced and refined there and sent hsck to this oountry. Consumers can purchase the identical article here, less cost of freight, etc.; hnt in order to find a market the proprietors of these works are compelled to ship to New York. In this roundahout way consnmers on this coast purchase their supplies, when they oonld procure the ssme thing here less cost of freight. But, nnfortunately, they seem to think thst nnless it comes from England it is not as good. Here are two English workmen, working on the English method, with the same class of ore, yet they mnst ship the home product to New York, where it is bought as English antimony, and sent hack to this coast. There ie something radically wrong in this, but until the people of this coast become impressed with the fact that our home productione are as good as foreign, this sort of think will continue.

The works run night and day. The pots in use are made here, of the beet English clsy, and will last from 70 to 80 hours in the fire. At the works wo eaw a lsrge pile of ore from a mine in Kern county. They are said to have extensive deposits and as good ore as any in the world. They do not know how it will work yet, but it ie now heing tested. The proprietors of the works do not think it is as good as that from Battle Monntain station. The works expect to turn out from 150 to 200 tons a year to start with, but they did not get ae much ore to work as they were led to expect. The conenmption of sntimony in this city is quite small, only about eight tons a year being used. It is nsed generally in type foundries, by Britania metal workers, and a large amonnt is ueed in making Babbitt metal.

They make at these same works plumbsgo crncibles, and are now grinding up plnmhago to make pots, and will test them in working the antimony. They get the plnmhago from England and the Esst, and csn make the crucihles as cheap as they are sold in this city. They have done very little in thie line as yet, hut hope to ehortly. If anyone has plnmbago of the proper sort to make into crncibles, he can sell that aleo at these works. Here, then, is a chance for those owning the plumbago and antimony mines we hear so much ahont, to prove their assertions of richness of ore, and extent of mines. The workmen employed have followed the bnsiness for many years in Englend, and can turn ont as good crncibles and as good antimony as is shipped from there. If they are patrouized, as they should he, a very important addition to our home industries will become a permanent institution.

CHART OF THE INDUSTRIAL EXHIBITION.—The proprietors of the San Francisco *Journal of Commerce* have publiehed, as a snpplement to their paper, a chart giving the interior of the Mechanic's Institute during the Ninth Industrial exhibition. The plan was well conceived and is executed in a tastefnl and workmanlike mauner. A pernsal of this chart will give to those who were debarred from the pleasnre of visiting this great fair a just conception of its interior arrangement; while the more fortunats visitors will recognize at a glance its truthfulness.

Sharp-shinned Hawk.

The sharp-shinned hawk ranges far to the north and to the south, and is met with in every State and Territory, but is more abundant in the Middle and Southwestern States than in the Northern. Mr. Audubon pronounces it "the miniature of the goshawk." Not only is this likeness in its appearance, but in the irregular, swift, vigorous, varied, yet often undecided manner of flight, which is at times, however, greatly protracted. It moves by sudden dashes, pounces upon, or strikes such objects as best suits its appetite, but so very suddenly that it appears quite hopeless for any of them to try to escape. It is often seen to descend headlong into a clump of briers, regardless of all thorny obstacles, and to emerge from the other side clutching in its sharp claws a sparrow or a finch. At other times, two or three of them may be seen conjointly attacking a golden-winged wood-pecker, which had taken position against the bark of a tree in fancied security. While defending itself from the attack of one or two of these hawks, the wood-pecker is usually vanquished by the efforts of another, which thrusts it legs forward with vivid quickness, protrudes its sharp talons and seizes the victim by the back, while it tears and lacerates. Thus wounded, it falls to the ground with its captor, where the struggle is continued; but a disengaged hawk now tears out its vitals with its claws, and the repast of the assailants commences. Young chickens are often seized by it, even in the presence of their keepers; and as many as twenty or thirty have been carried away by one hawk in as many consecutive days. Birds of various sizes, from the smallest warbler to the passenger pigeon, and small reptiles and insects, also, it is said, comprise its food.

The roosting-places of these hawks, in ordinary seasons, are in the fissures of rocks, in tall trees in isolated situations, and in precipitous declivities overhanging turbulent streams; but it cautiously retires after daylight has departed, and leaves its resting-place before the light of morning. Its nest has not often been invaded by the curious investigator into its habits at the season of incubation.

Aboriginal Botany of California.

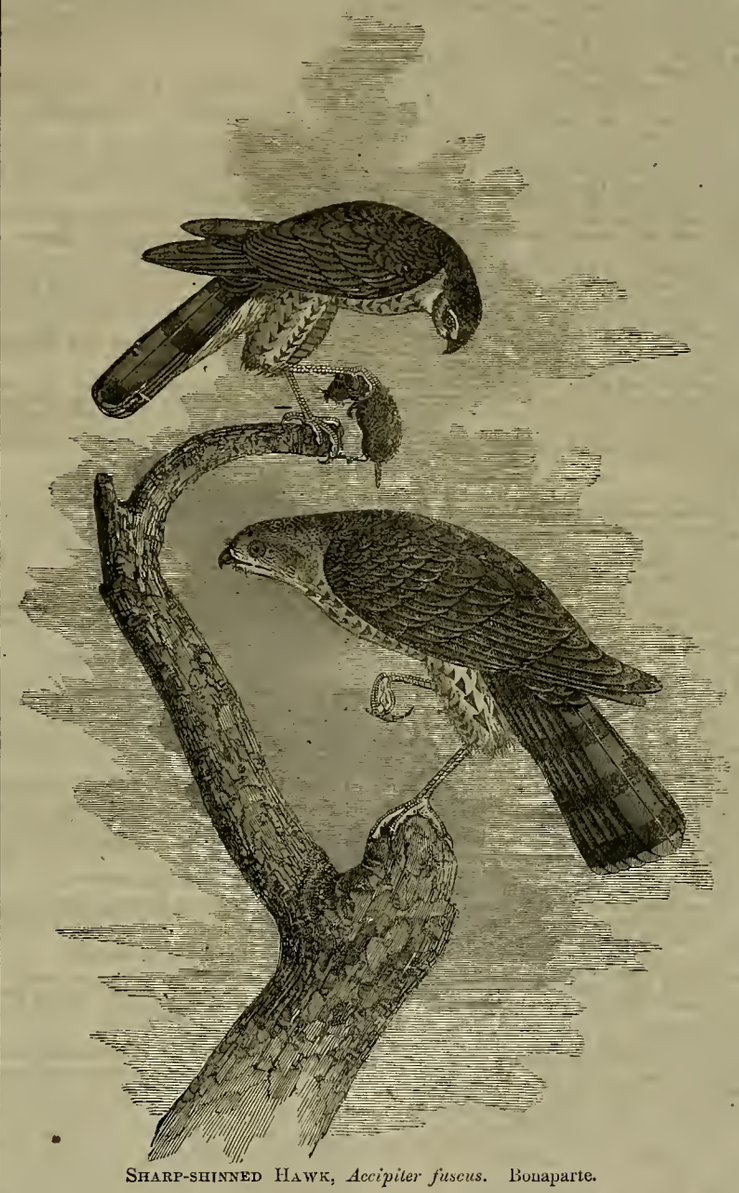
At a recent meeting of the California Academy of Sciences, the Secretary read the following interesting paper on "Aboriginal Botany" by Stephen Powers, of Sheridan, Placer county, California:

As employed in this paper the word "botany" is somewhat loosely comprehensive, and is used for lack of a better. Under it are included all the forms of the vegetable world which the aborigines use for medicine, food, textile fabrics, ornaments, etc. Among savages, of course, there is no systematic classification of botanical knowledge. Every oak, pine, grass has its seperate name; the Indian never groups individuals together, except occasionally, by adding one of the words *cha, doo, popo, com, wi, back,* (tree, bush, grass, seed, root, leaf), or something of that sort. But it is not for a moment to be supposed that the Indian is a superficial observer; he takes careful note of the forms and qualities of everything that grows on the face of the earth. True, he ascribes marvellous and impossible qualities to some plants—frequently those which do not grow in his neighborhood—but that does not blind him to their real properties. And as his perceptions of individual differentintions is nice and minute, so his nomenclature is remarkably full. I assert without hesitation that an average intelligent Indian, even if not a medicine-man, knows a much greater catalogue of names than nine-tenths of Americans. Nothing escapes him, he has a name for everything. And, indeed, there is reason. In times of great scarcity they are driven by the sore pangs of hunger to test everything that the soil produces, if perchance they may find something that will appease the gnawings of appetite. They therefore know the properties of all herbs, shrubs, roots, leaves, whether they are poisonous or nutritive, whether purgative, astringent, sedative, or what not, or without any active principle. And they have often found out these things by bitter experience in their own persons. It is surprising what a number of roots, leaves, berries and nuts the squaw will discover. She will go ont in the spring with nothing but a fire-hardened stick, and in an hour she will pick a breakfast of green stuff, into which there may enter 15 or 20 ingredients, though, of course, they are seldom reduced to this extremity nowadays. Her eye will be arrested by a minute plant that will yield her only a bulbous root as large as a large pea, but which the American would have passed unnoticed. The women are generally best acquainted with the edible matters; while the old men are the authority as to the medicines.

There are seventy-three vegetable substances mentioned in this paper. I am indebted to the kindness of Prof. H. N. Bolander, who identified for me many plants that I was unable to determine. There are a few specimens which are so scarce, nowadays, owing to the ravages of stock, or so difficult to find in flower, that it was impossible to give their scientific names.

I will take this occasion to say that there are many substances popularly called "Indian medicines" which are humbugs, and which have been fathered upon the aborigines by patent-medicine men. Whatever is set down in this paper has been learned from the Indians themselves

In regard to medicinal herbs and plants, their usages are peculiar and sometimes amusing. As the practice of medicine among them is a source of great profit and prestige, it is sought to be invested with mystery. The medicines always are crafty men, keen observers, reticent. An old doctor always clothes his art with a great deal of superstition, secrecy, and pompous solemnity. In answer to impertinent young questioners, he says his simples do not grow anywhere in that neighborhood; he is obliged to purchase them from tribes living at a great distance. I have known an old doctor and his wife, both as full of guile and subtlety as an egg is of meat, who always arose at the dead of night, crept stealthily out of camp and



SHARP-SHINNED HAWK, *Accipiter fuscus.* Bonaparte.

gathered their potent herbs, roots, etc., then returned before any one was stirring and concealed them.

The Indians referred to in this paper are the Neeahenams, of Bear River: and the flora is that of the extreme lower foothills of Placer County. Their general name for "medicine" is *wenneh*, which denotes "good;" but they frequently use the word "medicine," even among themselves.

To begin with the oaks, the species which produces their favorite acorns is the *Quercus Gambelii*, Indian name, *chacow*. They generally select those trees which have a free, coarse bark and large acorns. About the middle of October the harvest begins, when the Indian, armed with a long, slender pole, ascends the tree and beats off the nuts. A tree which has been well stripped looks as if had been scourged in a mighty hail storm. The old men generally assist in carrying them home in their deep, conical haskets, and there the squaw's duties commence. Holding an acorn on a stone, she gives it a slight tap with a stone pestle called *soonah*, to crack the shell, which she strips off rapidly. They are then dried and beaten to powder in small hollows on top of some great rock. The flour is soaked a few hours in a large hollow scooped in the sand, the water draining off and carrying away the bitterness; after which it is cooked into a kind of mush in baskets by means of hot stones, or baked as bread underground. The acorn which stands second in favor is that of the burr-oak (*Q. lobata*—Indian, *towh*). In Placer County this oak seems to be more properly *Q. Douglasii*; as its branchlets are erect and rigid. There is an oak which they call *shuheh*, which seems to be something like a cross between the white and burr-oaks, having very white and coarsely rimose bark, and glebrous, shining, deeply sinuate leaves. But Professor Bolander pronounces this also *Quercus Gambelii*. The live-oak is *haha; Q. Wislizenia, hammut*; the black oak (*Q. Sonomensis*), *hamchu*. The acorns of these last are eaten only when they can procure no others. There is one other very small species called *cheepis*, found growing in the mountains; but I cannot determine from their descriptions whether it is the chinquapin or the whortleberry oak.

The nut-pine or silver pine is *toan, toanem cha*. It is a great favorite with them, the most useful tree they have, and they always regret to see an American cutting one down. The nuts are a choice article of food; and, burned and beaten to powder, or crushed up raw and spread on in a plaster, they form their specific for a burn or a scald. The pitch and the mistletoe which grows on this pine are very valuable, in their estimation, for coughs, colds and rheumatism. They set them afire, making a dense smudge, and then the patient, wrapped in a blanket, squats over it or stands on all-fours over it, and works and shuffles his blanket, so as to make the smoke circulate all through it, and come in contact with every portion of his body. When an Indian has an arrow-wound, or wound or sore of any kind, he smears it with the pitch of this tree, and renews it when it wears off. In the spring, if food is scarce, they eat the buds on the ends of the limbs, the inner bark, and the core of the cone (*tach*), which is something like a cabbage-stalk when green. The coue-core and bunch-grass are boiled together for a hair dye. They are as proud of their black hair as the Chinese; and when an old chief who is somewhat vain of his personal appearance, or one of the dandies of the tribe, finds his hair growing gray, he has his squaw boil up a decoction of this kind, and he sops his bleaching locks in it. The tar *shindac*, which is worn by widows in mourning, is made of hot pitch and burned acorns, powdered; it is removed by means of soap-root and hot water.

(In adding the word for "tree" or "bush," they generally suffix the syllable *em*, thus *toan, toanem cha; paddit, padditem doo*).

Chippa is the willow, the long twigs of which are used both for arrows and basket-making. In making an arrow, the hunter employs a rude kind of turning-lathe, a couple of sticks held in the hand, between which the twig intended for the arrow is tightly clamped and twisted around, which rubs off the bark and the allurnum, and makes it round. The long straight shoots of the buckeye, *poaloh, poalem doo* are used for the same purpose. For the woof in basket making, they employ the wood of the redbud (*Cercis occidentalis-paddit*), which is split up with flints or the finger-nails into five strings, used substantially as thread. The willow twig is passed round and round the basket, the butt of one lapping the tip of the other, while the redbud strings are sewn over the upper and under the lower.

Cotoh is the manzanita. Its berries are a favorite article of food, and are eaten raw, or pounded into flour in a basket, the seeds separated out, and the flour made into mush, or sacked and laid away for winter. They also make quite an agreeable article of cider from them, by soaking the flour in water several hours, and then draining it off.

Alder is *Shootoom*; poison oak is *cheetoc*. They are less easily poisoned by the latter than Americans; their children handle it a great deal while little. They eat the leaves both as a preventive, and as a cure for its effects; though it sometimes poisons them internally. The women use the leaves freely in cooking; they lay them over a pile of roots or a batch of acorn bread, then lay on hot stones and earth. The bright red berries of the California holly (*Photinea arbutifolia—yoarus*) are eaten with relish; also the berries of the elder, *nock*, and wild grapes—*peemen*. They call a grapevine a bush, *Speemenem doo*.

Soaproot, *howh*, is used for poisoning fish. They pound up the root fine, and mix it into pools where the fish and minnows have no way of escape, and as the same time stir up the bottom until the water becomes muddy. The minnows thrust their heads out of the water stupefied, and are easily scooped up. Buckeyes are used in the same manner. Soaproot is also used to heal and cleanse old sores, being heated and laid on hot. Both soaproot and buckeyes are eaten in times of great scarcity; they are roasted underground thirty-six hours or more, to extract the poison.

For toothache the remedy is the root of the California buckthorn, (*Frangula Californica—luhum doo*). It is heated as hot as can be borne, placed in the mouth against the offending member, and tightly gripped between the teeth. Several sorts of mints, *keesuh*, are used in a tea or decoction for colds or coughs. Ague is believed to be cured by a decoction of the little mullin, (*Eremocarpus setigerus—badah*) which grows on black adobe land in autumn. Colic is treated with a tea made from a greenish-gray lichen, (*Parmelia soxicola—wahattac*), found growing on stones. For rheumatism they take the leaves and stems of a parasite vine (*Galium—sheshem*), which grows up in the middle of the chaparral bush, heat or burn them, and clap them hot on the place.

Yellow dock, *heet*, is a valuable specific in their pharmacopœia. In case of acute pain of any description the root is heated hot and pressed upon the spot. In the spring the leaf is eaten boiled, for greens, together with clover and many other things.

Bunch-grass, *boopuh*, is the subject of superstition. They believe that the long, slender stalks of it, discharged as arrows from a little bow against a pregnant woman, will produce a miscarriage; also, that they will hasten the time of maturity in a maiden. There is another thing which they call *wocoamah*, probably wild parsnip, which they believe to be a deadly poison. It will produce nose-bleed, and the people who keep it in their houses will surely die. I will here state that I can not discover that the Indians ever used poisons to any considerable extent to rid themselves of enemies; if they did, it was the old medicine-men, and they keep the matter a secret. The Indians profess to stand in great and perpetual dread of being poisoned by one another; and no one will taste anything handed to him by one who is not a member of his family, unless the other tastes it first; but they imagine a hundred cases of poisoning where one actually occurs.

Of grasses, they eat the seed of the wild oat, (*tootootem com*), but very sparingly. Wild clover, *cheewee*; alfilerilla, *ballis*; and a kind of grass growing in wet places (*Melica—holl*) are all eaten raw when young and tender, or boiled for greens.

There are two kinds of mushrooms which they consider edible. The one of which they are fondest is called *poolcut*, and is a little round ball, from the size of a marble to that of a bleck walnut, found under-ground in chaparel and pine thickets. They eat it raw with great relish, or roast it on the ashes. Another kind is the *wachuh*, which grows in the ordinary form, brown on the upper side, chocolate-colored and deeply ribbed underneath, and easily peeled. It is eaten boiled.

Higher up in the mountains they find a root looking somewhat like cork, a piece of which they sometimes wear suspended to their clothing as a charm. It is called *chook* or *champoo*. Indians of other tribes in the State invest different species of *Angelica* with talismanic attributes.

Under the popular name of grass-nut there

[Continued on Page 236.]

Boat Building.

The handsome ladies' bsrge exhibited at ths late Mecbanics' Fair by the Cslifornia Theater Boat Club, has attracted considerable sttention from even those with no inclination for aquatic pleasures. They see thst she is beautifnlly fitted up with tasty awnings, cushions, oarpets, etc., and that she is totally different from tbeir preconceived ideas of boats. Msny people tbink tbat a boat is a concern which flosts snd imperfectly keeps ont the water, where the psssengers set on dsmp seats with their feet in puddles, in a perpetual state of anxiety as to whether they will ever gst ashore again. The appearsnce of the boat in qnestion unsettles this tbeory, as she reslly looks neat and comfortable, as well as perfectly safe. There is one thing in connection with her, bowever, tbat has not been explainsd. It is supposed by many that she was built by the California Theater Boat Club, which she was not. She does not even beloug to the club, but to an individusl member. The club owns and uses boats, but does not build them; althongh in ons instance some of the members did build a boat, but that was a four-oared shell, entirely different in size and shape and appssrance from the one latsly on exhibition.

In a Fair hsld under the anspices of a Mechanic's Institute, the artizans and manufacturers ought to have full credit for what they have done; mnch more credit, in fact, tban those who simply exhibit srticles made by other persons. This is not always given, however. We do not thiuk it wonld be a bad idea at exhibitions of this sort to give the usmes of the workmen who construct a bsautiful piece of machinery or anything else, as well as tbe names of the persons for whom it was made. This is not a commou custom, but it ought to be, as it wonld encourage individual artisans and make their names known outside of "shop" ciroles.

Well, perhaps the reader is anxious by this time to know who did build that boat, aud thinks it sbout time we told him if we know. In answer to tbis mental query, we say, Mr. Wm. Stone, a first-rate boat builder, but so modest withal thst he didn't put his nsme on the boat as its builder. Bill Stone, as he is called in yachting and boating circles, is one of the leading boat builders of the town. He bas a fine boat yard, houss, etc., in front of bis residence on the Potrero, where he has facilities for hauling out of water any of the yachts, or large craft which ueed repair. He built the yacht "Peerless" for Capt. Ogden, and afterward reconstructed her, turning her into a eteamer, and after that turned ber into a schooner agaiu. He has built several other good sized vessels and smsll boats innnmerable. He is specially patronized by the members of the S. F. Yaoht Club, with whom his bosts receive a well deserved reputatiou. Tbere are a grest number of his boats in the boat houses and steps in tbe sonthern part of the city, where he is well known among the boatmen and gentlemen who are fond of sport on the water. The boat in tbe Fair is a good sample of his work, and he is capable of turning out anything, from a duck-punt to a first-class yacht, both of which he has done. His boats are remarkable for their strength and fine and elegant finish, as well as for the beauty of model.

A Success.—It is a matter of congratulation, not ouly to Harry Strout, the manager of the Hoosac works, but to all interested in the welfare of our mining district, tbat the experiment made by him in erecting a matting furnace at his smelting works is a success—one beyond his moat sauguinary expectations. Yesterday morning, at 9 o'clock, ore was tbrown in, and for two hours, anxiously expectant of the result, the manager watched the workings of the furnace, until at length be had the satisfactiou of seeing a perfect separation from tbe rich quartz ores which contained too much lead to be properly reduced by the smeltiug furuace. By the matting furnaoe all classes of ore can be advantageously worked; that from Silverado, Secret cañon and Newark, can all be reduced to a flux which hitherto was almost impossible to procure, and a perfect separation of all siliciferoue eubstancee. By the mattiug process 20 tons of ore can be treated each 24 hours, so elated is Mr. Strout over the success attendiug his first effort that he will have another, similar in desigu, erected immediately.—*Eureka Sentinel.*

Technical Schools.—Where onr future skilled workmen are to come from is a question wbich is crowding for a solution. The decline, or rather the total abrogation of the apprentice systsm has deprived the youth of the opportunity of learniug trades. The result is that there are few who are learning, so that skilled labor is getting scarcer in every department of industry. It is therefore a matter of urgent importance that some method ebould be devised to remedy this difficulty. Of all the plans discussed there seems to be but one which promises success; that is, the establishment of technical schools. The large degree of success which has followed the introduction of these schools in some departments of our activities is strong proof of their utility in all branches. We might refer to our various schools of design and art, to our medical schools, and schools of mining and engineering.

The Big Tailings Flume.

Tbe Big Tailings flume on Carson river, uear the Woodwortb mill, is now in successful operation. It is 1,700 feet in length and 19 feet in width. It contains over 150,000 feet of lumber, and it is claimed that it is tbe largest flume of tbe kind in the world. It doubtless is all tbat is claimed, as there are but few places in the world where snch flumes are in use. It is divided into 12 compsrtments, each 19 inches in width. The bottom of each of these compartmeuts is covered with blsnkets of a particular kind, manufsctured expressly for this use. It is among the tbreads and in the wool staple of these strips of blanketing that the silver sulphurets are caught. In tbe majority of the flumes of this kiud now in nse in the country, it is a good deal of tronble to secnre the sulphnrets after they are caught in tbe blankets. The old plan of doing this was to turn the water out of tbe compsrtments, tske up the strips of blanketing, and losding them upon a wheelbarrow or car, take them to a tank aud wash tbem ont, wben the precions sulpburets would fsll to tbe bottom and so be saved. With the new flume this business is msnaged much more expeditiously. A deep and narrow sluice runs by the side of the flume, and into this the flume is washed by sections of 150 feet. The blankets are washed where they lie in the compartments, and the sulphurets obtained are tben run ont into the side sluice, which carries them to where they are to be dumped. In this way the work of wasbing the blankets is cheaply and spbedily accomplished. All the tailings flowing down Gold cañon pass over this flume. A dam across tbe cañon turns the tailings into a large string of sluices, which carries them scross the conntry to the flume, situsted about two miles above Dayton. Tbe blsnkets catch a considerable per cent. of the valuable materisl contained in the tailings, but no matter how many sluices tbey psss through, tbey still contsin much gold and silver. In this way millions on millions of dollars have found their way into the Carson river aud thence into the sink or lake into which it empties. Not only are gold and silver thus lost in the river, but also tons on tons of quicksilver. All the quicksilver brought to the country is eventually lost, eithsr in the water or in tbe sir, for none is ever carried out of the State.—*Virginia Enterprise.*

New Pump.—The *Desert News* has been exsmining a new double-action plunger pump, invented and completed by W. J. Silver, Salt Lake City. The *News* says: The oastings for this steam-pump were prodnced, some of them (the hesviest) at tbe rsilroad shops, some at Davis & Sons', and some at the Salt Lake Iron Works, that used to be. All the turning, boring and fitting were done at Mr. Silver's machine shops, and that gentleman fitted up a steam boring machine expressly for this work, which operates with astonishing rapidity. The steam cylinder of the pump has a 16-inch bore, the plunger is 10 inches in diameter, and has a 24-inch stroke. At a moderate rate of speed the pump will throw out 450 gallons of water a minute, but the capacity cau be incressed, when required, to from 600 to 700 gallons a minute. Tbe great advantage of this pump over others, and which constitutes the improvement on which the letters patent were granted, is that it can operate with as great facility in one position as another, at any angle, which is an incalculable advantage for pnmping mines, saving a large amount of expense in excavating to attain positions necessary with pumps which do not bave this improvement. Tbe cost of this piece of machinery is, we are informed, about one-fifth what it would have taken to put a Cornish macbine of similar capacity at tbe Emma, for the use of which mine it is designed, and to the locality of which it will be taken on Friday.

Working Coal in Depth.—The *Ironmonger* says: It bas been stated that it is not likely coal can be worked below 4,000 feet in depth; but in the neighborhood of Cbarleroi, in Belgium, coal is worked without any difficulty at nearly 4,000 feet. In reference to the hindrance expected to arise from increase of heat, Mr. Hunt states tbat bis measurements of temperature have tended to sbow that the rate of increase diminishes; down to 100 fatboms from the surface he has found the increase one degree in 50 feet, but in the next 100 fathoms only one degree in 70 feet, and in the tbird 100 one degree in 85 feet. Even supposing the heat to be as great as some people imagine, he believes that tbat very heat will be found to be an engineering agent which will help in the process of ventilation, so as to produce a temperatnre sufficiently low to enable men to work tbere with no great difficulty.

Kentuck Hoisting Works.—The old Kentuck hoisting works building was torn down some two months ago. Tbe sngines and boilers constitute about tbe only machinery left on the premises. The Crown Point Raviue Company, who have secnred the use of the Kentuck sbaft for the purpose of prospecting their own mine, will have to make some extensive repairs npon the works before the machinery can be used for hoisting.

Winter Supplies.—The Consolidated Virginia mining company are at present laying in an immense supply of lumber and mining timbers for the coming winter at their yard, near the depot. The timbers are from 12 to 16 inches sqnare, and are all hewed. They were floated down the Careon river this summer from the Sierra Nevada mountains to Empire City, and from there were brought to this city by the Virginia and Truckee railroad.

The Progress of the New Mill.—The new mill of the Consolidated Virginia Company is beginning to loom up grsndly. Tbe wing in which will be situated the batteries and tbe macbinery therewith connected is fast drawing to completion. It is inclosed and roofed. The wing running eastward, which will contain the pans, settlers and other apparatus counected with the amalgamating department, is also up and is now being roofed. The vsst dimensions of these buildings sre not st once apparent to the casual observer, as they are not of great hight, but when ons descends to the level on which the structures stsnd they spread away to a great distauce in all directions. Tbe new mill will be connected with tbe company's hoisting works by a railway; the works and the mill being but a sbort distance apsrt. The ores from ths mine will be rnn directly to the mill in cars, and will be dumped in the bsttery-room just wbere tbey are wanted. Around the mill are half a dozen large sheds, under which are engaged workmen of all kiuds. In one of these temporary sheds is a steam engine, driving planes and all kinds of labor-saving machiuery. The mschinery running in this shed would constitute a first-class planing mill and shop in some towns.—*Virginia Enterprise, Sept.* 30.

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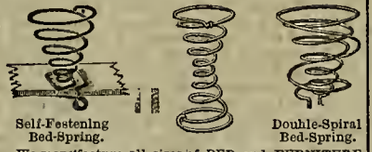

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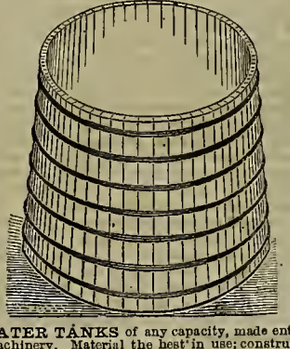

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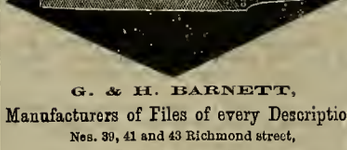

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PURCHASERS please say advertised in Scientific Press.

[Continued from Page 233.]

is included a lsrge number of plants with a small, rondd, bulbous root, sll of which, with one exception, the Indians est with much satisfsction. They are generally pried out of the ground with a sharp stick and eaten raw on the spot; but sometimes the women collect a quantity in a hasket and mske a roast in the ashes, or hoil them. Most of them are hy no msans disagreeable to the civilized taste. There is the beavsr-tail grass-nut (*Cyclobothra-wallic*), the turkey-pea (*Sanicula tuberosa—tuen*). the purple-flowered grass-nut (*Brodiœa congesta—oakow*); the tule grass-nut (*coak*), a small hulb, with a siugle, wiry, cylindrical stalk, growing in wet places, which I could not identify; the climbing grsss-nut (*Brodiœa volubilis—oampoom wi*), sometimes planted by Americans for ornaments; the littlo sosproot (*Chlorogalum divoricatum—poyum*); the wild garlic (*Allium—cooceh*); the eight-leafed garlic (*shal*), the five-leafed garlic (*inshal*), snd the three-leafed garlic (*woolcwe*); the yellow-hlossom grass-nut (*Calliproa lutea—ustuh*); the long-leafed grass-nut (*Brodiœa congesta*, although the Indians have a different name for it from that mentioned just above, namely, *yoang wi*); the white-flowered grass-nut (*Hesperoscordium lacteum—yowak wi*); and the wild onion (*Allium cepa—chan*). There is one other grass-nut, with a black hulh (*Anticlea—haccul*), which the Indians consider poison, although it probahly contains no more poison thsn other members of the liliaceous family.

The list of greens which thoy eat in the spring is also quite extensive. Besides the grssses and the yellow dock ahove mentioned, there is ths mask-flower (*Mimulus luteus—poosham*); two species of the *Angelica* (*hen* and *oamshu*), which are difficult to determine; the California poppy (*Escheholtzia Californica—tapoo*), either hoiled or roasted with hot stones, and then laid in water; the rock-lettuce (*Echeveris lanceoluta—pettitac*), eaten raw; the wild lettuce (*Claytonia perfoliati—yau*), and a species of *Sanicula* (*mancoo*), the root of which, long and slightly tuherose, is also eaten. Of the wild lettuce a curious fact is to he noted. The Indisns living in the mountains, about at the elevation of Anhurn, gather it and lay it in quantities nesr the nests of certsin large red ants, which have the hahit of huilding conical heaps over their holes. After the ants have circulated all through it, they tske it np, shake them off, and eat it with relish. They say the ants, in running over it, impart a sour taste to it, and make it as good as if it had vinegar on it. I never witnessed this done, hnt I have heen told of it, at different times, hy different Indians whom I have never known to deceive me.

Of seeds, they eat the following: A kind of cosrse, wild grass (*Bromus virens—dodoh*) a species of yellow-hlooming, tarry-smelling weed (*Madaria—coamduc*), the sёeds of which are as rich as hntter; the yellow-blossom or crow-foot (*Ranunculus Californicus—tiss*) of which the seed is gathered hy sweeping through it a long-hsndled hasket or s gourd; a little weed which grows thick in ravines (*Blennosperma Californicum—poll,*) gathered the same way; also a weed (*sheeoo*) with little white hlossoms distrihuted all along the stalks, which are thickly covered with minute prickles —I know not what it is. All these seeds are generally parched a little, and then heaten to flour, and eaten without further cooking, or made inlo hread or mush. The dry, parched flour of the crowfoot seed has that peculiar, rich taste of parched corn.

There is nn umhelliferous plant (*shokum*), the root of which the Indians esteem very highly for food; more highly than any other, it being their nearest equivalent to potatoes. I know not if it is the true cammas; I think it is at least a species of it. It grows on rocky hill-sides, hlossoms in June and July, has an extremely delicate, fringe-like leaf, and a root about an inch long and a quarter as thick, sweetish-pungent and agreeable to the tsste. In Penn valley, Nevada county, they gather large quantities of it.

They are acquainted with the *Yerba santa*, but attsch no particular value to it.

Around old csmps snd corrals there is found a wild tobacco (*Nicotiana plumbaginifolia—pan*), which they smoke with great satisfaction. They gather the leaves and dry them in the snn in a rnde fashion, then cut them up fine. It has a puugent, peppery taste in the pipe, hut is better thau nine-tenths of the Chinese-msde cigars. It is smoked iu a wooden or stone pipe, which is constructed of a single straight piece, the bowl being simply a continuation of the stem, enlarged. I saw one made of soapstone, about six inches long, five inches of it heing the bowl, which was nearly an inch wide at the extremity, so thst it wonld hold enough to last half an hour. It was quite a handsome piece of workmsnsbip, perfectly round and smooth, tspering evenly down to a bulh, which was inserted in the mouth. The tohscco pipe is called *panemcoolah*.

There are two plants used for textile purposes. One is a kind of tule-grass or small bulrush (*uncas doccun*), which they hetcheled with flints or with their finger nails, hleached and wove into breechcloths. For strings, cords and nets they uaed the inner hark of tbe lowland milkweed (*Asclipias—poo*). Wheu it is dry the Indian takes both enda of a stalk in his mouth and crushes it with hia teeth, or else passea it over a stone while he gently taps it with another; then atrips off the bark and twists it into strands, then into cords. The rock milkweed (*oampoo*) has a medicinal value; they nse the root for the toothache, the same way the root of the buckthorn is nsed.

It is necessary to state thst most of the medicines ahove mentioned are of the clsss which the women are allowed to become acquainted with and to employ it. There are several other suhstances which sre more rare snd valuahle, or at least they deem them more valuable, and which the medicine men alone know anything ahout. They are found far up in the mountains or in other locslities, and may be called the medicines of commerce, having a tolerably well-settled value in shell-money. I regret thnt I was generally unable to secnre sufficiently complete specimens to determine them. For instance, there is a rout, (*luhno,*) which I should call Seneca Snakeroot, hut of which I could procure only a little piece. A root ahont as large as a pipe-stem and ahout four inches long and is worth about $1. A decoction of it is used for diarrhea, that scourge of aboriginal life, also for venereal diseases. There is a hnsh (*chapun,*) found in the monntains, with a very pale tea-green hark, aud minute golden speeks on the small limhs, which is probably California sassafras, and which is very highly esteemed for coughs and colds, a tea of the bark being given. Another root, (*pallic,*) spignet from its appearance, is made into a tea and drank for diarrhea; this also is very valuahle. There is still another root, (*litway,*) found on the Truckee, which is good for the dropsy.

Although it is not strictly germain to the topic, I may be permitted to state that the Indians hsve names for all the internal organs of the human hody; and their idess of their functions and of the operations of medicine are at least as respectshle as the Chinese.

Cornell University and Ours.

A correspondent of the Santa Bsrhara *Press*, writing from Ithica, New York, after a hriet retrospect of Cornell University as it was six years ago, continues as follows: Then, but one huilding was oompleted, and another just rising to the diguity of a roof—now, eight massive piles of hrick, and stone, and mortar, rise to greet the eye of the returning pilgrim to his alma mster. Those were hsrd yeara for hoth college and collegian; those were years that mesnt work, and a "dig" was an honored man. There were 20 professors, all hard, earnest workers to be snre—now, 51 gather in the Friday council. Yet, students have not increased as fast as might have heen anticipated. Over 300 were here at the opening, and now the University mnsters but 500 on its roll.

Mr. Cornell, the grand old founder, is in very feehle health; gradually dying, it may be, from lung complaint. He has some thoughts of trying Southern California the coming winter, and I have heen urging him to do so; yet it is very douhtful whether he accepts my advice. I learn that his business affairs are very much involved by the recent psnic, and that they, too, are weighing down his weakened frame. For this reason, also, a winler's rest iu California might he useful and beneficial. It seems hard thst one who has resred to his nsme such a monument as those eight hnge hnildings now in sight, should die just before he hears the "God hless you" of the students they hsve turned out better fitted for the hattle of life. Mr. Cornell is a grsnd, good man, and has fonnded a University which, in seversl respects, surpasses sny on this oontinent; a fact, and I am making no idle statement. In engineering and in the mechanic arts, there is no institution to compare with Cornell in tnrning out practical men. And why? Because it has prsctical common seuse men, who teach in a practical common sense way. A machine shop is added to the lecture room, where the student applies the theory of the one to the practice of the other. It also turns out architects that nre already hscoming fsmiliar; and some of the most handsome and commodions buildings of the Alma mater are monumental to the men it has instructed.

While on Universities, let me say a word to your resders ahont the California University, its regents, and its president. I have no sympathy with the regents in some of their manoenvers; hut I have a word to say for President Gilman, of whom, here where he is well known, I hear the most flattering expressions. Talking to the President, while on this subject, a day or two ago, he spoke in the very highest terms of Mr. Gilman, saying that he had repeatedly offered and desired him to take the presideucy of Cornell; that he considered him one of the best scientists of the country, and that to him alone Sheffield scientific school owed its great success. Said he, "while certain parties have tried to create the impression that we differ widely in our educational views, we are prohahly more nearly together than any two other men in the conntry."

"But," said I, "howahout depriving the University of its Agricultural Chair, and providing six non-resident lecturers?" "Yon hsd better wait," he replied, "and see the six he selects. One I know to be the very hest man in the chemistry of soils in the country. Then, too, it is probahle that the Agricultural Chair will be immediately refilled, and these six lecturers be added to the force of instructors."

In view of these facts and considerstions, I would request the members of Santa Barbara Grange to go slow in their denunciationa and resolutiona. The hopes of a great University are pinned to no one man's coat-tail.

In Yavapai county, Arizona, there nre five quartz milla, there are also five water power and eight horse-power arastraa. The average yield of quartz per ton for the past year as computed hy the county clerk waa $117 per ton. Smith's quartz mill crushed ore lsst year which yielded $150,000.

The Gold Hill Tragedy.

A little sfter six o'clook on the evening of Octoher 3d, one of those wretched mining affrays which periodiosily disgrace our coast, occnrred at the Waller Defeat shaft of the Justice mine, in Gold cañon, hetween Lower Gold Hill and the Devil's Gate. Five men were killed. The murderous fight grew out of the contentions of two factions, each striving for the possession of the mine.

There has, it seems, for some time past, heen trouhle among the trustees of the Justice mining company, and dnriug the day of the 3d the side represented by Mr. Minear, President of the company, appointed one C. F. Kellogg, Superintendent in place of one T. F. Smith, who hss held the position of superintendent for some months past. It is ssid that the opposing members of the Board of Trustees instructed Smith to hold the works at any hazard. How well he obeyed orders, the bloody result shows. A party of 12 or 14 men, headed hy W. P. Kellogg, brother of the newly appointed Superintendent, approached the works to take possession, and the fight hegan. Having the advantage of position, the Smith faction made short work of their opponents, killing two instantly and wounding three others so hadly thst they died hefore morning. Kellogg was shot while advancing to parley. The nnmes of the killed are given as follows: Wm. P. Kellogg, aged 42 years; Michael Cain, aged 40 years; John Brown, aged about 40 years; Michsel Reiley, nged 38 years, and W. D. Shiflet, aged 45 years.

From evidence taken at the Coroner's inquest it has heen learned that the men with Kellogg were armed, ss he was determined to take and hold possession of the mine.

It was known that the Smith factiou had a force of men ahont the works, both at the Waller Defeat shaft and at the old Justice shaft, who were to keep possession of the works until they received instrnctions from Superintendent Smith, then in Virginia, to turn them over. It appears to have heen Kellogg's idea to have a talk with John Dunn, foreman of the Justics mine, and those with him, in order to find out what they were disposed to do. He had the men with him in order to hold the works if they were given up to him. A talk was had with Mr. Dunn, when he said he was ready to tnrn the works over whenever Kellogg should oome with the proper authority; that there would he no trouhle ahout it, etc. It was then thought that there would be no trouhle, snd and Constahle Harkin and Mr. Kellogg started toward Gold Hill, After they had gone some distance Kellogg saw his men going down towsrd the Waller Defeat shaft. Ahout this time six men left the old Justice works, and also made their way toward the Waller shaft. Mr. Kellogg now feared, his men not understanding what had passed hetween himself and Mr. Dunn, that there might he trouhle; he therefore told Harkin that he would go back and prevent his men from going to the Waller shaft. When he reached his men they were close to the huilding over the works, and were still advancing. Kellogg got hefore his men and tried to stop their advance. The men in the building warned them not to advance, and while Mr. Kellogg was remonstrating with his men two of them pushsd psst him and advanced toward the building. One raised his revolver as he moved forwsrd, snd instsntly a volley wss fired from the huilding. Three men fell, so hadly wounded that they died shortly. A parley then ensued. Kellogg told them that he desired to talk with them, and said that this work must not go on; that he didn't come there to have a battle with those in possession, and asked if he might enter. They answered that he might if he came alone, hut said that if another attempted to follow they wonld fire on the whole party. Mr. Kellogg now sdvanced toward the building, had reached the door, and wss in the act of rsising his foot to step in, when he was fired upon hy those inside and fell at the door. Michael Cain ran up to bring Mr. Kellogg away, he being still slive, when he wss shot in the hresst and killed. During this time two or three sbots were fired by the Kellogg party at those in the hnilding, bnt with what effect is not known. After the killing of Cain there seems to have heen an entire cessstion of hostilities on hoth sides, and the outside parties were allowed to approach and carry off the dead.

The inquest at the time of our going to press was still in progress. The murderers are in jail at Virginia City. It is to be hoped that the disgraceful affair will he thoronghly sifted and the guilty parties pnnished.

Ore Prnduct.—The average daily yield of ore in the Comstock for the past week has been, according to the *Chronicle*, Belcher, 500 tons; Crown Point, 550 tons; Con. Virginia, 300 tons; Chollar, 100 tons; Sierra Nevada, 65 tons; Ophir, 60 tons; Hale & Norcross, 40 tons. The Buckeye is producing enough ore to keep the Hope mill constantly running. The Ramsdell mill will be started np on ore from the Leo mine to-day. Several other mines are yielding ore in less qnantities.

The machinery of Messrs. Cialer, Zinn & Co's qnartz mill, nt Broad Guage City, is heing placed in proper position, and every wheel, belt and stamp will be ready to work in ahont two weeks. The mill will contain 20 stamps, and the *Montanian* thinks it will be the best of its kind in the Territory. It was made iu Chicago.

General News Items.

The fifteenth wheat ship of the season is at south Vallejo, and snother one is daily expected.

Lieutenant-Colonel F. D. Grant, son of the President, will get married in a few weeks in Chicago.

The State Fair of Nevada is to open at Reno on the 21st instant, and continne for three days. The premiums nnd purses offered amount to $7,000.

Immigrants.—During the six months just passed 18,529 immigrants have srrived from the Esst, making an averse of 3,088 per month, or a little over 100 per day. These fignres include only those who came in immigrant cars.

The Pavilion is to he utilized for regimental parades. The First Regiment will be reviewed hy Major-General Thompson in the building, toward the close of the month, and in Novemher and Decsmher, the Second and Third regiments will parade.

If Joe Herling, the San Msteo murderer, has escaped from the Stockton Insane Asylum three times, and gone skirmishing ahont the conntry after amsn he wants to kill, somehody wants to know how often this thing is to be repeated.

A Healthy Locality.—It is stated that to detain a physician in Berryesss vallcy, the residents are oompelled to pay a fixed sslary, for cases of sickness are so very rare that the income from his practice would not suffice to snpport a doctor.

Enterprise.—The proprietor of the New York *Herald* proposes to pay one-fourth of ths expense reqnired to fit out a Polar expedition. The enterprise of Bennett is very commendshle; indeed, we may say fully up to the spirit of the sge.

A Very Proper Law.—After the year 1876, no person will he allowed to vote in the State of Missouri, who csnnot read and write. The provision is an excellent one, and one which should become a law in all the Ststes. As the Oakland *Transcript* says: "Universal suffrage without universal educstion will in time swsmp any nation adopting it.".

Looking up Again.—A good deal of the old-time energy is heing displayed at Mokelumne Hill by the sufferers from the late fire. Several snhstantial stone buildings are in process of erection, more than half the wooden buildings that were destroyed have been rebuilt, and the prospect is that by the time the rainy season sets in, all the unfortunstes will hs comfortshly provided for. Business in the town, it is reported, is nearly if not quite as hrisk as ever.

Railroad ann Ship.—In anticipation that the railroad between Salinss and Monterey will be completed in a few days, the *Herald*, puhlished in the latter town, learns that a ship is expected to arrive there immediately to load with grsin for Enrope. The *Herald* prediots that "next harvest Monterey will ship more grain to Europe than any other port on ths coast, outside of San Francisco, and thst shs will be the most popular watering place in the State.

Big Blast.—Eight hundred pounds of giant powder placed in 30 drilled holes in Rincon rock were discharged on Tussdsy lsst. This rock lays some eight or ten feet nnder wster, off Rincon hill in this city, and directly in ths way of navigation. The blast was a most satisfactory one. The water was thrown to s hight of 100 feet, and the commotion all aronnd was great; a number of fish were thrown to the snrface—one, it is said, weighing 200 pounds; the wharves in the neighborhood, and the Norwegian hark *Aristos* were shaken like twigs.

Troubles Among Settlers. — Information reaches us that there is a likelihood of trouhle arising hetween some of the oldsr settlers in the vicinity of Pleasant valley, in this conuty, and parties coming in from San Benito and Monterey counties with sheep and stock. Ths original settlers in the neighborhood mentioned were stock-raisers, and they fenced in large trscts of the pnhlic domain, which is unsurveyed for ranges for their cattle. Parties coming in from the counties mentioned, tear down the fences snd drive their sheep in and let the settlers' stock ont. In several instances, we are informed, weapons have heen drawn, snd wordy wars indulged in, bnt fortunately resulted in nothing worse, but fears are entertained that jndgment may not always prevail. —*Fresno Expositor, Sept. 30th.*

Yosemite Valley Awards.—It will he recollected that the last Legislature made an appropriation of $60,000 to pay the claims of settlers in Yosemite valley, and made the necessary srrangements for the appointing of commissioners to appraise the value of the property. These commissioners visited the valley, gave the subject the attention it deserved, and submitted their reports to the State Board of Examiners—majority and minority reports. The majority report was in favor of paying ss follows: To J. M. Hntchings, $24,000; A. G. Black, $22,000; J. C. Lamon, $11,000; Ira B. Folsom, $3,000. The minority report was: Hutchings, $35,000; Lamon, $12,000; Black, $10,000; Folsom, $3,000. The State Board of Examiners, after taking the testimony of the commissioners, and slso of the settlers, awarded to Hutchings; $24,000; Black, $16,000; Lamon, $12,000; and Folsom, $3,000; which leaves $5,000 of the appropriation to he returned to the general fund.—*Sac. Union, Oct. 1st.*

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Oct. 6th, 1874.

FOR WEEK ENDING SEPT. 22d, 1874.

AUGER.—Benjamin Forstner, Salem, Oregon.

BREECHING STAY FOR HARNESS. — Eugene Crongbwell, Augustus Tillman and E. L. Vaaderberg, S. F., Cal.

COMPOUND IMPLEMENT. — Linda H. McNair, Oakland, Cal.

REVOLVING HARROW.—Heury N. Daltou, Pacbco, Cal.

ELEVATOR.—Philip Hinkle, S. F., Cal.

DITCHING AND EMBANKING MACHINE.—Wm. B. Hyde, Oakland, Cal.

WATER-CLOSET AND CHAMBER-POT GUARD.—John F. Larrabee, S. F., Cal.

ORE CONCENTRATOR.—James M. Thompson, S. F., Cal.

REISSUE.

PROCESS OF MANUFACTURING ARTIFICIAL STONE. Ernest L. Ransomo, S. F., Cal.

DESIGN.

HANDLES FOR SPOONS AND FORKS.—Wm. K. Vanderslice and Lncius Thompson, S. F., Cal.

——*The patents are not ready for delivery by the Patent Office until some 14 days after the date of Issue.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventers transacted with perfect secrirty and in the shortest time possible.

CARSON MINT.—The *Appeal* says: "The largest month's work ever done at the Carson mint was that of the past month of September. Following are the figures: In trade dollars, $209,000; in double eagles, $120,000; in eagles, $59,590; in half eagles, $34,250; total, $432,840. Taking into consideration the fact that they run bnt one press thie is a splendid showing. There are, we believe, eome eound reasone for hoping that the capacity of the institution will, before long, be largely iacreaeed, as needs to be."

THE air compreeeors for the Ophir mine have arrived. It ie expected the compreesors will be in active operation thie week. The weight of the machiuery, including the halance wheel, ie 15,050 pounde.

THERE are only a few vacant lots left on the "Divide" between Gold Hill and Virginia City, the connection between the two towne being nearly accomplished.

METALS.

WEDNESDAY M., Oct. 7, 1874.

American Pig Iron, ₰ ton	— —	@	42 00
Scotch Pig Iron, ₰ ton	42 00	@	48 00
White Pig, ₰ ton	— —	@	43 00
Oregon Pig, ₰ ton	— —	@	48 00
Refined Bar, bad assortment, ₰ ℔	— —	@	— 3½
Refined Bar, good assortment, ₰ ℔	— —	@	— 4
Boiler, No. 1 to 4	— —	@	— 5½
Plate, No. 5 to 9	— —	@	— 5¾
Sheet, No. 10 to 13	— —	@	— 5½
Sheet, No. 14 to 20	— —	@	— 5¾
Sheet, No. 24 to 27	— 08	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	— 9½	@	— —
Norway Iron	— 8	@	— —
Rolled Iron	— 5	@	— —
Other Irons for Blackemitha, Miners, etc.	— —	@	— 4½
COPPER—			
Brazers	— 31	@	— 32
Copper Tin'd	— 45	@	— —
Q. Nie'e Pat	— 50	@	— —
Sheathing, ₰ ℔	— —	@	— 24
Sheathing, Yellow	— —	@	— 25
Sheathing, Old Yellow	— —	@	— 12½
Composition Naile	— 24	@	— —
Composition Bolts	— 24	@	— —
TIN PLATES—			
Plates, Charcoal, IX ₰ box	13 00	@	14 50
Plates, 1 O Charcoal	12 75	@	14 50
Rooting Plates	11 50	@	14 00
Banca Tic, Slabs, ₰ ℔	— 31	@	— 33
STEEL—English Cast, ₰ ℔	— 20	@	— 25
Anderson & Woode' American Cast	— 10	@	— 17
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC—	— —	@	— 11
Zinc, Sheet	— —	@	— 11½
NAILS—Assorted sizes	— 5¾	@	— 8
QUICKSILVER, per ℔	— —	@	1 45

LEATHER.

WEDNESDAY M., Oct. 7, 1874.

Leather is now held quite firmly. The fall trade is ful as fair as was anticipated.

City Tanned Leather, ₰ ℔	25@30
Santa Cruz Leather, ₰ ℔	28@30
Country Leather, ₰ ℔	24@28
Stockton Leather, ₰ ℔	25@29
Jodot, 8 Kil., per doz	$50 00@ 54 00
Jodot, 11 to 19 Kil., per doz	66 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₰ doz	58 00@ 72 00
Cornellinn, 12 to 15 Ko	57 00@ 67 00
Cornellian Femalee, 12 to 13	60 00@ 54 00
Cornellian Females, 14 to 16 Kil	66 00@ 74 00
Beaumoral, 15 Kil	60 00@ —
Simon, 18 Kil. ₰ doz	61 00@ 63 00
Simon, 20 Kila ₰ doz	65 00@ 67 00
Simon, 24 Kil. ₰ doz	72 00@ 74 00
Robert Calf, 7 and 9 Kil	35 00@ 40 00
French Kips, ₰ ℔	1 00@ 1 35
California Kip, ₰ doz	40 00@ 57 00
French Sheep, all colors, ₰ doz	8 00@ 15 00
Eastern Calf for Backs, ₰ ℔	1 00@ 1 25
Sheep Roans for Topping, all colors, ₰ doz	9 00@ 13 00
Sheep Roane for Linings, ₰ doz	5 50@ 10 50
California Russeett Sheep Linings	1 75@ 4 50
Beat Jodot Calf Boot Legs, ₰ pair	5 00@ 5 25
Good French Calf Boot Legs, ₰ pair	4 00@ 4 75
French Calf Boot Legs, ₰ pair	4 00@ — —
Harness Leather, ₰ ℔	30@ 37½
Fair Bridle Leather, ₰ doz	48 00@ 72 00
Skirting Leather, ₰ ℔	33@ 37½
Welt Leather, ₰ doz	30 00@ 50 00
Buff Leather, ₰ foot	17@ 23
Wax Side Leather, ₰ foot	17@ 23
Eastern Wax Leather	—@— —

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Subscribers for this journal can obtain our Patent Elastic Newspaper File Holder and Binder for $1.50—containing gilt title of the paper on the cover. It preserves the papers completely and in such shape that they may be quickly fastened and retained in book form at the end of the volume, and the binder (which is very durable) used continuously for subsequent volumes. Post paid, 25 cts. extra. It can be used for Harper's Weekly and other papers of similar size. If not entirely pleased, purchasers may return them within 30 days. Just the thing for libraries and reading rooms, and all who wish to file the PRESS. lambp

THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines and Agricultural Lands in Mining Districts of the U. S., printed in circular sheet, for sale at this office. Sample copies 25 cts

Mining and Other Companies.

Cincinnati Gold and Silver Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Kelsey Mining District, El Dorado County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 25th day of September, 1874, an assessment of two and one-half cents per share was levied upon the capital stock of the corporation, payable immediately in United States Gold and Silver coin, to the Secretary, at the office of the Company, No. 531 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the second day of November, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday the 24th day of November, 1873, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. SMALL, Secretary.

Office—Room 1, No. 531 California street, San Francisco, Cal.

Confidence Mining Company---Location of

Principal place of business, San Francisco, Cal. Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the nineteenth (19th) day of September, 1874, an assessment of thirty (30) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 217 Sansome street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the twenty-sixth (26th) day of October, A. D. 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on the sixteenth (16th) day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. S. ANDERSON, Secretery.

Office—No. 217 Sansome street, San Francisco, Cal.
sep26-4t

Electric Mining Company—Location of

principal place of business, San Francisco, California.

NOTICE.—There are delinquent upon the following described stock, on account of assesement levied on the third day of September, 1874, the several amounts set opposite the names of the respective shereholders as follows:

Names.	No. Certificate.	No. Sheres.	Amount.
C J Rsder	302	150	$ 7 50
Gso Hasen	301	300	15 00
John D Connick	290	88	4 40
Joseph Taylor	289	58	2 90
Willord Calkins	288	58	2 90
Peter McEntirc	287	58	2 90
Geo Mullen, Trustee	164	500	25 00
Geo W Mullen, Trustee	126	1000	50 00
Geo W Mullen, Trustee	292	1500	75 00
Geo W Mullen, Trustee	129	500	25 00
Walter G Holmes, Trustee	190	100	5 00
Walter G Holmes, Trustee	185	100	5 00
Walter G Holmes, Trustee	186	100	5 00
Walter G Holmes, Trustee	187	100	5 00
Walter G Holmes, Trustee	188	100	5 00
Walter G Holmes, Trustee	189	100	5 00
Walter G Holmes, Trustee	191	100	5 00
Walter G Holmes, Trustee	192	100	5 00
Walter G Holmes, Trustee	193	100	5 00
Walter G Holmes, Trustee	245	135	6 75
M G Rader	182	200	10 00
M G Rader	244	30	1 50
M G Rader	249	157	7 85
M G Reder	250	23	1 15
M G Rader	269	50	2 50
M G Rader	279	100	5 00
Wm H Sherp	241	15	75
Wm H Sherp	163	100	5 00
Henriette Grant	162	400	20 00
Henrietta Grant	240	60	3 00
Lonise Thompson	161	400	20 00
Louise Thompson	239	60	3 00
G S Eeton	132	25	1 25
G S Eeton	133	50	2 50
G S Eeton	134	25	2 50
G S Eaton	135	60	3 00
G S Eaton	232	24	1 20
J S Houghton	141	50	2 50
J S Houghton	142	50	2 50
J S Houghton	144	40	2 00
J S Houghton	173	200	10 00
J S Houghton	174	68	3 40
J S Houghton	230	51	2 55
J R Logen, Trustee	103	50	2 50
J R Logen, Trustee	225	7	35
Miss Anna Woods	76	100	5 00
Miss Anna Woods	131	500	25 00
Miss Anna Woods	280	550	27 50
Miss Anna Woods	303	147	7 35
H W Shaw	72	100	5 00
H W Shaw	237	15	75
H W Shaw	260	58	2 90
H W Shaw	274	50	2 50
H W Shaw	276	8	40
Alfred Briggs	65	1334	66 70
Alfred Briggs	220	200	10 00
M Ellsworth	178	50	2 50
M Ellsworth	282	200	10 00
G W Terrill	47	600	30 00
G W Terrill	51	500	25 00
G W Terrill	266	5	25
G W Terrill	212	390	19 50
M A Paris	35	1000	50 00
M A Paris	36	1000	50 00
M A Paris	37	250	12 50
M A Paris	38	250	12 50
M A Paris	40	500	25 00
M A Paris	41	500	25 00
M A Paris	42	200	10 00
M A Paris	43	200	10 00
M A Paris	70	180	9 00
M A Paris	209	512	30 50
G W Haskell	29	500	25 00
G W Haskell	30	500	25 00
G W Haskell	31	500	25 00
G W Heskell	32	500	25 00
G W Haskell	83	500	25 00
G W Haskell	208	375	18 75
W S Thompson	273	75	3 75
Geo W Malone	56	50	2 50
Geo W Malone	57	50	2 50
Geo W Maloue	58	50	2 50
Geo W Malone	59	50	2 50
Geo W Malone	60	50	2 50
Geo W Malone	177	1000	50 00
Geo W Malone	206	187	9 35

And in accordance with law, and an order of the Board of Directors, made on the third day of September, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 326 Pine street, San Francisco, California, on the fourth day of November, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assesment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—Room No. 13, No. 318 California street, San Francisco, California.

Kincaid Flat Mining Company---Location

of principal place of business, San Francisco, Cal. Location of Works, Sonora, Tuolumne County, Cal.

NOTICE—There are delinquent upon the following described stock, on account of assessment levied on the eighteenth day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
L Thompson	17	10	$20 00
L Thompson	18	10	20 00
L Thompson	53	20	40 00
L Thompsen	54	20	40 00
L Thompsou	126	5	10 00
L Thompson	127	5	10 00
A Ludlum	19	10	20 00
A Ludlum	20	10	20 00
A Ludlum	21	10	20 00
A Ludlum	22	10	20 00
A Ludlum	40	5	10 00
R H Cornell	132	10	20 00
T D Melville	136	20	40 00
T D Melville	137	12	24 00
T D Melville	138	10	20 00
I D G Ishaun	110	50	100 00

And in accordance with law, and an order of the Board of Directors, made on the 18th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the auction house of R. D. W. Davis, 217 Sansome street, San Francisco, on the twelfth day of October, 1874, at the hour of one o'clock, P. M., of said dey, to pey seid delinquent Assessment thereon, togsther with costs of advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office—217 Sansome street, (up stairs,) San Francisco, California. sep26

Manhattan Marble Company of California.

Principal place of business, San Francisco, California. Location of works, Oakland, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 26th day of August, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Sheres.	Amount.
A P Brayton	22	60	$120 00
A P Brayton	23	59	118 00
E P Flint	24	60	120 00
E P Flint	25	59	118 00
E P Flint	267	57	114 00
E Trlpp	265	40	80 00
E Trlpp	204	15	30 00
Geo S Ladd	83	50	100 00
Geo S Ladd	84	50	100 00
Geo S Ladd	85	19	38 00
J P Dyer	47	60	120 00
John Curry	49	20	40 00
John Curry	50	20	40 00
John Curry	51	20	40 00
John Curry	52	10	20 00
John Curry	53	10	20 00
John Curry	54	10	20 00
John Curry	55	10	20 00
John Curry	56	10	20 00
John Curry	57	9	18 00
B & J S Doe	58	50	100 00
B & J S Doe	59	50	100 00
B & J S Doe	60	19	38 00
Josiah Belden	51	119	238 00
Warren Dutton	127	30	60 00
Warren Dutton	205	50	100 00
Warren Dutton	206	50	100 00
Warren Dutton	207	18	36 00
Charles Barlow	94	50	120 00
Charles Barlow	95	59	118 00
A L Warner	96	20	40 00
A L Warner	98	20	40 00
A L Warner	100	20	40 00
A L Warner	101	19	38 00
A L Warner	282	10	20 00
A J Moulder	285	3	6 00
W H Raymond	105	100	200 00
W H Raymond	106	19	38 00
L G Sylvester	107	59	118 00
C C Warner	116	20	40 00
C C Warner	117	20	40 00
C C Warner	118	20	40 00
C C Werner	119	20	40 00
C C Warner	120	20	40 00
C C Warner	121	19	38 00
Charles Webb Howerd	126	119	238 00
James L Berker	129	119	238 00
E H Dyer	130	59	118 00
D M Bokee, Trustee	193	100	200 00
D M Bokee, Trustee	281	5	10 00
C C Tripp, Trustee	148½	5	10 00
C C Tripp, Trustee	149⅗	5	10 00
C C Tripp, Trustee	150	10	20 00
C C Tripp, Trustee	291	108	215 00
C C Tripp, Trustee	147	5	10 00
T M Antisell	169	50	100 00
Charles Griffith	163	119	238 00
R Wegner, Trustee	164	50	100 00
R Wegner, Trustee	165	50	100 00
R Wegner, Trustee	166	19	38 00
Wm. Holden, Trustee	158	119	238 00
G W Blake	169	7	14 00
L E Dem	186	10	20 00
L E Dam	188	10	20 00
L E Dam	189	10	20 00
L E Dam	190	10	20 00
L E Dam	197	10	20 00
L E Dam	199	10	20 00
Louisa R White	191	50	100 00
Loulsa R White	192	50	100 00
Mrs Matilda Dam	211	20	40 00
Marshall Curtis	214	10	20 00
Marshall Curtis	215	10	20 00
Mershall Curtis	216	10	20 00
Marshall Curtis	218	10	20 00
Marshall Curtis	219	10	20 00
Lawrence Lane	225	10	20 00
Lawrence Lane	229	2	4 00
Murray Curtis	230	10	20 00
Lewis Starkweather	231	30	50 00
Geo D Gregory	232	30	60 00
Mrs A E Edwards	233	10	20 00
Mrs A E Edwards	234	9	18 00
Elihu Avery	242	1	2 00
Elihu Avery	243	10	20 00
Elihu Avery	244	10	20 00
Elihu Avery	245	10	20 00
Elihu Avery	246	10	20 00
Elihu Avery	247	10	20 00
Ellhu Avery	248	10	20 00
Ellhu Avery	249	10	20 00
Ellhu Avery	250	10	20 00
Ellhu Avery	251	10	20 00
Elihu Avery	252	10	20 00
Elihu Avery	253	5	10 00
Elihu Avery	254	5	10 00
N P Cole, Trustee	252	119	238 00
A J Morrell	255	22	44 00
A J Morrell	269	50	100 00
A J Morrell	271	30	60 00
Theron R Hopkins	272	119	238 00
J D Fry	276	19	38 00
James Swan, Trustee	277	119	238 00
E A Richardson, Trustee	283	100	200 00
E A Richardson, Trustee	284	100	200 00
E A Richardson, Trustee	286	35	70 00
James A Johnson	287	19	38 00
James A Jobuson	288	20	40 00
James A Johnson	289	100	200 00
James A Johuson	290	100	200 00
W H Phelps	292	112	224 00
W H Phelps	293	30	80 00
C H Leavitt	295	35	70 60
Irad Cochran	125	119	238 00
Wm Holden	280	5	10 00

And in accordance with law, and an order of the Board of Directors, made on the 24th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at No. 212 Sansome street, San Francisco, on Tuesday, the 20th day of October, 1874, at 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. B. CLASON, Secretary.

Office, 212 Sansome street, San Francisco, Cal.

Oceanic Quicksilver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, San Simeon Mining District, San Luis Obispe County, California.

Notice is hereby given, that at a meeting of the Directors, held on the 12th day of September, 1874, an assesement (No. 1) of forty cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company, 438 California street, upstairs, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 19th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 10th day of November, 1874, to pay the delinquent assesment, together with costs of advertising and expenses of sale.

F. F. CRONISE, Secretary.

Office—No. 438 California street, San Francisco, Cal.

Saw Pit Flat Gravel Mining Company

Consolidated—Location of principal place of business, San Francisco, California. Location of works, Saw Pit Flat, Plumas County, Califorule.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 17th day of August, 1874, the several emounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificete.	No. Shares.	Amount.
Allen, D H	48	25	$125 00
Clark, J W, Trustee	22	66	330 00
Clark, J W, Trustee	23	10	50 00
Clark, J W, Trustee	24	10	50 00
Clark, J W, Trustee	25	10	50 00
Clark, J W, Trustee	26	10	50 00
Clark, J W, Trustee	27	3	15 00
Clerk, J W, Trustee	28	3	15 00
Clark, J W, Trustee	29	3	15 00
Clark, J W, Trustee	30	3	15 00
Clark, J W, Trustee	31	3	15 00
Clark, J W, Trustee	46	6	30 00
Dexter & Co	47	25	125 00
Doud, E S, Trustee	63	20	100 00
Doud, E S, Trustee	64	20	100 00
Doud, E S, Trustee	65	5	25 00
Doud, E S, Trustee	66	5	25 00
Engelbrecht, H	51	5	25 00
Engelbrecht, H	52	5	25 00
Engelbrecht, H	53	5	25 00
Engelbrecht, H	54	5	25 00
Engelbrecht, H	55	5	25 00
Engelbrecht, H	56	6	30 00
Garness, J R	68	25	125 00
Garness, J R	69	25	125 00
Gerness, J R, Trustee	70	12	60 00
Hinckley, Geo E, Trustee	71	10	50 00
Hinckley, Geo E, Trustee	72	10	50 00
Hinckley, Geo E, Trustee	73	10	50 00
Hinckley, Geo E, Trustee	74	10	50 00
Hinckley, Geo E, Trustee	75	5	25 00
Hinckley, Geo E, Trustee	76	5	25 00
Hinckley, Geo E, Trustee	77	5	25 00
Hinckley, Geo E, Trustee	78	5	25 00
Hinckley, Geo E, Trustee	79	3	15 00
Lewis, S & Co	2	3	15 00
Levy, H	57	5	25 00
Levy, H	58	5	25 00
Levy, H	59	5	25 00
Levy, H	60	5	25 00
Levy, H	61	5	25 00
Levy, H	62	6	30 00
Phillips, L	44	62	310 00
Pbillips, D L	67	1	5 00
Slawson, J S	32	11	55 00
Sharp, Wm H	82	125	625 00
Small, A E H Mrs	80	20	100 00
Thomas, J H	3	10	50 00
Thomas, J H	4	10	50 00
Thomas, J H	5	10	50 00
Thomas, J H	6	10	50 00
Thomes, J H	7	10	50 00
Thomes, J H	8	10	50 00
Thomes, J H	9	10	50 00
Thomes, J H	10	10	50 00
Thomas, J H	13	5	25 00
Thomas, J H	14	5	25 00
Thomas, J H	15	5	25 00
Thomas, J H	16	5	25 00
Thomes, J H	17	5	25 00
Thomas, J H	18	5	25 00
Thomas, J H	19	5	25 00
Thomas, J H	20	5	25 00
Thomas, J H	21	5	25 00

And in accordance with law, and an order of the Board of Directors, made on the seventeenth (17th) day of August, A. D., 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction at the office of said company, on Thursdey, the fifteenth (15) dey of Octoher, 1874, at the hour of two (2) o'clock P. M., of such day, to pay delinqnent assessments thereon, together with costs of advertising and expenses of the sale.

J. W. CLARK, Secretery.

Office—No. 418 California street, room No. 2, San Francisco, Cal.

Stanislaus River Mining Company—

Location of principal place of business, San Francisco, California. Location of property and works, Stanislaus River, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees held on the 23d day of Septemher, 1874, an assessment (No. 4) of twenty cents per share, was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 113 Leidesdorff street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Tuesday, the 27th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 13th day of November, 1874, to pay the delinquent assessment, togsther with costs of advertising and expenses of sale. By order of the Board of Directors.

WILLIAM STUART, Secretary.

Office, 113 Leidesdorff street, San Francisco, California.
sep26

Taylor Mill and Mining Company--Location

of principal place of business, City and County of San Francisco. Location of works, Garden Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 21st day of September, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 607 Montgomery street, in the City and County of San Francisco.

Any stock upon which this assessment shall remain unpaid on the 26th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 23d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

SAMUEL S. MURFEY, Secretary.

Office, No. 607 Montgomery street, City and County of San Francisco, California. sep26

Machine Builders.

THE RISDON
Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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James D. Walker.

WM. H. TAYLOR.....President
JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
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Foundry and Iron Works.

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MANUFACTURERS OF
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Established for the Manufacture of
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Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
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IRON CASTINGS of all descriptions at short notice.
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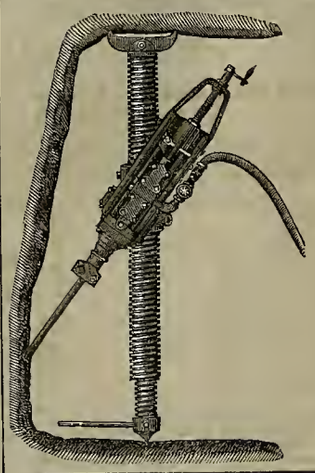
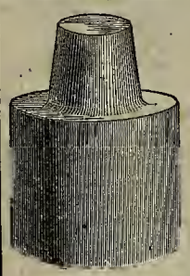
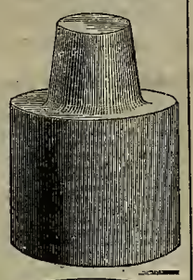


PARKE & LACY,

AGENTS FOR THE
Burleigh Rock Drill Company.
—MANUFACTURERS OF—
PNEUMATIC DRILLING MACHINES,
AIR COMPRESSORS AND OTHER MACHINERY.

The only Drilling Machinery that has ever done any successful Tunnel work in America, is being used upon the largest tunnels and mining operations on the Comstock lode; also in Placer, Mariposa and Nevada Counties, Cal. Sample machinery can be seen and further information given, by applying to
PARKE & LACY,
Sole Agents for States and Territories west of the Rocky Mountains, 108½ Leidesdorff steeet, Hayward's Building, San Francisco, Cal. 21v28-3m-hdl4p



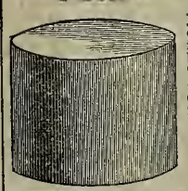


Improved Cast and Forged
STEEL SHOES & DIES FOR QUARTZ MILLS.
[PATENTED MAY 26TH, 1874.]

To Superintendents of Quartz Mills and Mining Men Generally.

We guarantee these SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper. They are gradually coming into use in all of the principal mills on this coast.

Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.
Address all orders, with dimensions, to
CAST STEEL SHOE & DIE CO.,
Room 1, Academy Building, San Francisco.
1v29-3m



DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.
DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

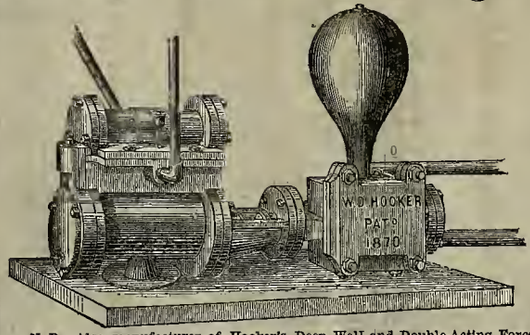
NUMBERS.	0	1	2	2½	3	3¼	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	5	6	7	8	9	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches	2½	2½	3	3½	3½	4	4	4½	5	6	7	8
Stroke of Piston, in inches	1-5	6	7	8	9	10	12	12	14	15	16	18
Capacity per Double Stroke, in gallons	¾	1¼	1¾	2¼	2¾	3¼	4	4¾	5¾	7¼	8¾	10½
Capacity at Ordinary Speed, per minute	15	25	35	45	55	65	80	95	115	145	175	210
Maximum Capacity, per minute	30	45	70	90	110	130	160	190	230	290	350	420
Horse Power required to drive	¾	1	1¾	2¼	2¾	3¼	4	4¾	5¾	7¼	8¾	10½
Diameter of Steam Pipe, in inches	¾	1	1¼	1¼	1¼	1¼	1½	1½	2	2½	3	3½
Size of Exhaust Pipe, in inches	¾	1	1¼	1¼	1½	1½	2	2	2½	3	3½	4
Size of Suction Pipe, in inches	1	1¼	1½	1½	2	2	2½	2½	3	3½	4	4½
Size of Discharge Pipe, in inches	¾	1	1¼	1¼	1½	1½	2	2	2½	3	3½	4
Weight of Pump, in pounds	186	235	400	435	810	875	1180	1500	1512	2450	3876	4800
Length over all, in feet and inches	3-4	3-4	2-3	2-3	3-1	4-11	5-4	5-5	4-3	5-7	5-7	5-10
Height over all, in feet and inches	1-6	1-10	1-1	1-1	1-3	1-4	1-5	1-10	1-10	2-1	2-9	2-10
PRICE	$ 9	$ 10	$ 80	$ 100	$ 135	$ 165	$ 225	$ 300	$ 350	$ 425	$ 500	$ 675	$ 900	$ 1200

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons*. Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS, { No. 4, 24-in. Stroke, $ 425 / No. 5, 24-in. " $ 500 | No. 6, 30-in. Stroke, $ 675 | No. 7, 30-in. Stroke, $ 900 / No. 8, 30-in. " $ 1200

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines*.

Hooker's Patent Direct Acting Steam Pump.



N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump. Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco.

W. T. GARRATT,
Cor. Fremont & Natoma streets, S. F.,
Sole Proprietor & Manufacturer for the Pacific Coast.
SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.
The Best Pump in Use.

☞ SEND FOR CIRCULAR
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The Phelps' Manufacturing Co.,
(Late S. F. Screw Bolt Works.)

MANUFACTURERS OF ALL KINDS OF
Machine Bolts, Bridge Bolts, and Ship or Band Bolts,
13, 15 and 17 Drumm Street, San Francisco. 4v24ly

G. W. PRESCOTT. | W. R. ECKART.
Marysville Foundry,
MARYSVILLE, - - - - - - - - - - - - CAL.
PRESCOTT & ECKART,
Manufacturers of Quartz and Amalgamating Machinery. Hoisting Machinery, Saw and Grist Mill Irons, House Fronts, Car Wheels, and Castings of every description made to order.
Steam Engines constantly on hand for sale. 9v23-1y

California Machine Works,
119 BEALE STREET, SAN FRANCISCO.
BIRCH, ARGALL & CO.,
Builders of QUARTZ, SAW AND FLOUR MILLS
Keating's Sack Printing Presses,
THE ECONOMY HYDRAULIC HOIST FOR STONES,
And General Machinists. 25v28-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,
First Street, bet. Howard and Folsom, San Francisco
Machinery and Castings of all kinds.

Machinery.

BALL'S
SWEEPING DREDGE,
A NEW AND VALUABLE
CALIFORNIA INVENTION,
Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a *basis* of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right to all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

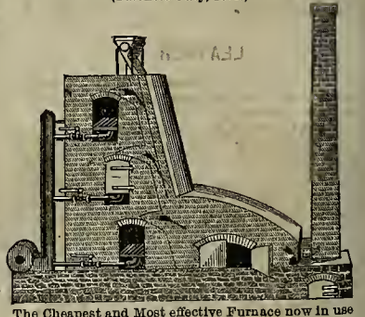
I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

Address, JOHN A. BALL,
9v28-tf Oakland.

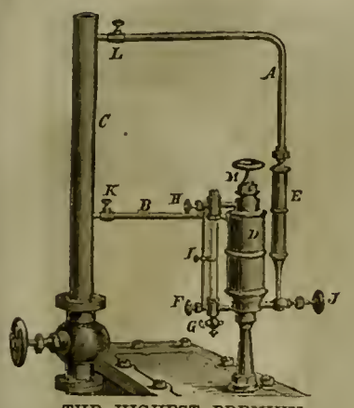
EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.
(Patented July, 1873.)



The Cheapest and Most effective Furnace now in use. Parties desirous of building above furnace, or for any information on same, address,
I. T. MILLIKEN,
a31 No. 302 Montgomery st., room No. 14, S. F.

THEODORE KALLENBERG.
MACHINIST,
and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.
Repairing done on very Reasonable Terms and in the best manner. No. 82 Fremont street, S. F. 19v23-3m

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopped; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S F. 24v23tf

STEEL SHOES AND DIES

FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy*

Die.

Shoe.

Will wear three times longer than any iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.

All orders promptly filled.

MOREY & SPERRY,
88 Liberty street, N. Y.

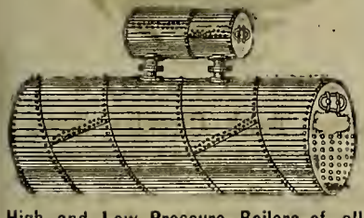
Examination solicited. 9v28-1y

San Francisco Boiler Works,

123 and 125 Beale Street.....SAN FRANCISCO

F. I. CURRY,

(Late Foreman of the Vulcan Iron Works,) Proprietor



High and Low Pressure Boilers of all Descriptions.

SOLE MANUFACTURERS OF THE CELEBRATED

SPIRAL BOILER.

SHEET IRON WORK of every description done at the Shortest Notice.

All kinds of JOBBING and REPAIRING promptly attended to. 17v25-3m

CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.

This machine, complete, weighs 1,500 lbs. Has an iron ramo, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

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BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st., between Fremont and Beale, San Francisco

THE EXCELSIOR MINING PUMP.

WITH SEVEN YEARS' USE OF THIS PUMP WE CONFIDENTLY

Recommend its use for Mining and Prospecting.

IT IS

The Cheapest Pump in the Market.

THERE IS NO TRADE PUMP MADE OF EQUAL STRENGTH AND POWER.

Every Pump is Tested

By Hydraulic power to 250 pounds to the square inch. So every Pump, large or small, is

WARRANTED

To Force Water 250 Feet High.

☞ SEND FOR CIRCULAR. ☜

VALVE.

BRITTAN, HOLBROOK & CO.,

General Agents, 111 and 113 California St..

Send for Circular. SAN FRANCISCO, (And also Sacramento.)

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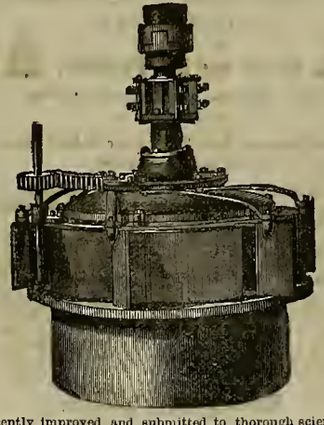
THE

AMERICAN TURBINE WATER WHEEL



Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ¾ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "These are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

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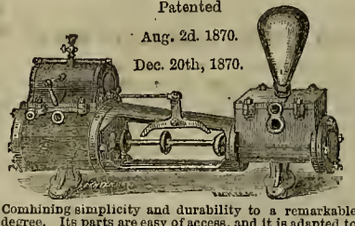
Sole Agents for the Pacific States and Territories. ap25-tf

THE SELDEN

DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

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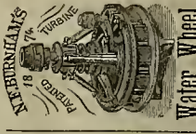

The best in the Market, and sold at less price than any other first-class Wheel. ☞ Send for a Pamphlet and be convinced.

N. F. BURNHAM,
York, Pa.
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STEAM ENGINES AND BOILERS

Of all sizes—from 2 to 50-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by

10v27tf J. HENDY, No. 32 Fremont Street.

Metallurgy and Ores.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

ASSAYERS' MATERIALS

Chemical Apparatus and Chemicals,

Druggists' Glassware and Sundries,

PHOTOGRAPHIC GOODS, ETC.,

512 and 514 Washington street, SAN FRANCISCO

We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

ASSAYERS' MATERIALS

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Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

7v25-tf JOHN TAYLOR & CO.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco

Nevada Metallurgical Works,

21 Firet etreet.....San Francisco.

Ores worked by any process.
Ores sampled.
Assaying in all its branches.
Analysis of Ores, Minerals, Waters, etc.
Plans furnished for the most suitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

E. N. RIOTTE,
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Mining Engineers and Metallurgists.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention PAID TO

CONSIGNMENTS OF GOODS.

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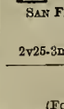
Important to Miners and Mill Men.

Silver-Plated Copper Amalgamating Plates, for Saving Gold.



Of all sizes and in any quantity, furnished to order. Full instructions sent for operating. Particular attention given to plating goods for Builders, Plumbers, etc. Hotel and Restaurant work replated.

SAN FRANCISCO GOLD AND SILVER PLATING WORKS, 555 Mission street, San Francisco.

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LEOPOLD KUH,

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Assayer and Metallurgical CHEMIST,

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SAN FRANCISCO CAL. 7v21-3m

G. W. STRONG. W. L. STRONG.

STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M. RAYNOR,
25 Bond street, New York.

Platinum Scrap and Native Platinum purchased.

THE KNOX & OSBORN QUICKSILVER FURNACE.

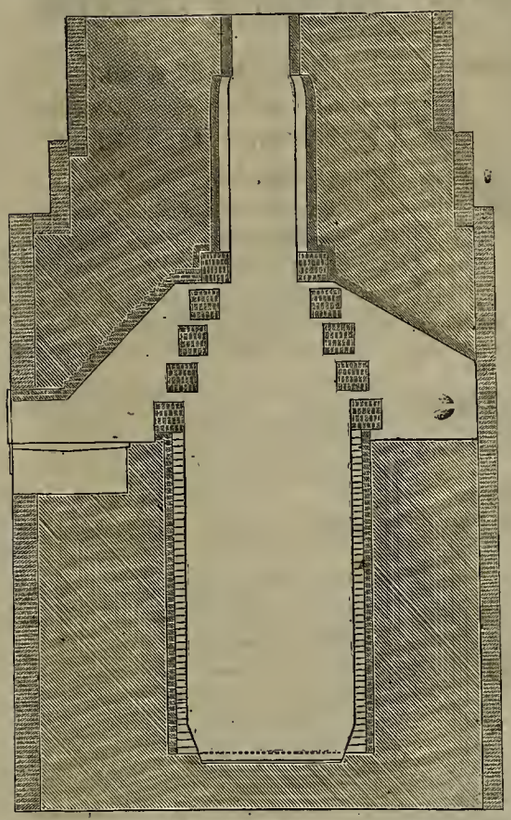

Fig. 1.—Cross Section of Furnace, Walls and Vapor Way Arches. 16v28-eow-3m-16p

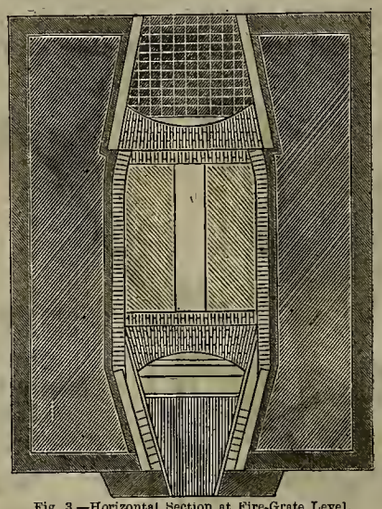

Fig. 3.—Horizontal Section at Fire-Grate Level.

THIS FURNACE REDUCES CINNABAR, AND

WORKS CLOSER TO AN ASSAY

And at LESS COST per ton than any other furnace. It will work continuously Twelve to Twenty-four months without stopping.

No Man Has Ever Been Salivated

Or otherwise affected by the mercury about the furnace, either in operating it or making repairs. For full particulars, plans, etc., apply at

19 AND 21 FIRST STREET, SAN FRANCISCO,

TO KNOX & OSBORN.

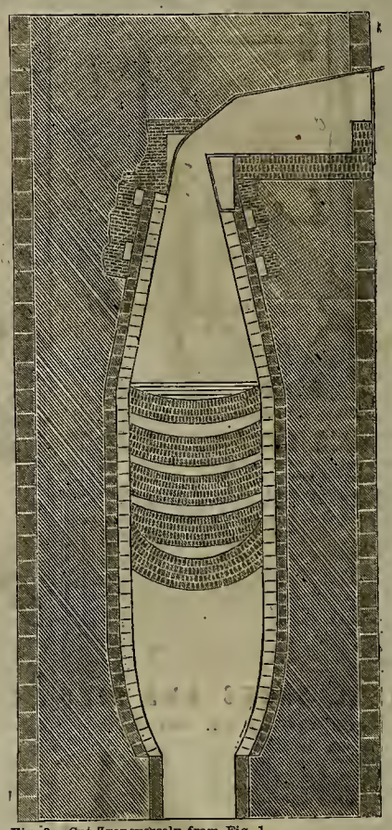

Fig. 2.—Cut Transversely from Fig. 1.

Scientific and Practical Books on Mining, Metallurgy, Etc.

Published or issued, wholesale and Retail, by DEWEY CO., MINING AND SCIENTIFIC PRESS Office, S. F.

BY GUIDO KUSTEL,

MINING ENGINEER AND METALLURGIST.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick silver. 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illnstrations of furnaces, implements and working apparatus.

It is a work of great merit, by an author whose reputation is unsurpassed in his speciality.

Price $2.60 coin, or $3 currency, postage free

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequaled by any other publisbed, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Mill man, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. PRICE REDUCED TO $5.

Nevada and California Processes of Silver and Gold Extraction, for general nse, and especially or the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a descrlption of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, $6 in cloth; $6 in leather—coin.

BY OTHER AUTHORS.

The Quartz Operator's Hand-Book; by P. M. Randall. 1871. Revised and Enlarged Edition. Cloth bound, 176 pages. Price, $2.

Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked; with a Chapter on the Blow-Pipe Assay of Minerals. By Wm. M. Barstow, M.D.; 1867; cloth bound, 114 pages. Printed and sold by DEWEY & Co. Price, $1; postage free. The best written work, and most complete work on the subject treated.

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SAN FRANCISCO, SATURDAY, OCTOBER 17, 1874.

VOLUME XXIX Number 16.

The Forests and Trees of Northern America.

The illustration which we give on this page of our paper, is a map of the distribution of North American forests. In stadying this snbject it seems most proper to commence with those regions which have few or no trees.

The Lacustrian Province.

Dr. Richardson, in his expedition in search of Sir John Franklin, tells ns that at the mouth of the Meckenzies river, latitade 68°, the following trees occur, generally dwarfed, bnt many showing by their annnal rings a very great age. *Betala paperacea* (Paper Birch); *Alnus incana* (Speckled alder); *A. viridis* (Green alder) *Salix lucida* (Northera willow) *Populus tremuloide* (Amer. aspen poplar); *P. balsamifera* (Balsam poplar); *Abies alba* (White sprnce), and *Juniperus communis* (Northern Juniper). Farther sonth on the Mackenzies river at the Arctic circle, 67° 30', some less hardy trees were met with; amoug which aro the *cerasus Virginiana* (Choke cherry); aad the *Abies Nigra* (Black spruce).

Crossing the basin of the Mackenzies to that of the Saskatchewan, about latitade 54°, we find, in still increasing variety, the following: *Negundo accroides* (Box elder); *cerasus Pensylvanian* (Red wild cherry); *TraxinusAmericana* (White ash); *Ulnus Americana* (White or Weeping elm), and the *Taxus canadenesis* (Ground hemlock).

At the end of Lake Winnipeg, about latitude 50°, we first meet the *Tilia Americana* (Linden basswood); *Acer Sacharinum* (Sugar; Maple) *Prunus Americana* (Northern wild plnm); *Tagus ferruginea* (Red beach); *Popolus caordicans* (Balm of Gilead poplar); and one or two of the more hardy varieties of oak. Farther east, in the basin of the St. Lawrence and lakes, the following species were added, occurring in the order here given coming eastward: *Abies canadensis* (Hemlock sprace); *B. Nigra* (Black birch), and one or two other varieties of birch, and the *Popolus grandidentatu* (Soft aspen poplar.

The Appalachian Province.

By this division is designated all that pert of the Atlantic States south of latitude 43 deg. and East of the borders of the prairie which commencing at the west of Leke Erie forms a cnrve nearly parallel to the Atlantic coast. All thie was originally covered by a dense forest, of remarkable richness—both in the variety and beauty of its trees—in this respect sarpassing any other part of the temperate zone, and even many parts of the tropical. Tbis province ie snbdivided into 6 regions: 1, the Alleghanian; 2, the Ohio; 3, the Tennessee; 4, the Carolina; 5, the Miseissippi; and 6, the Florida. The reader will at once recognize the impossibility of giving here a list of trees found in this wide and fruitful region.

The Campestrian Province.

The word "Campestrian" is here used to expres the most marked characteristic of the "Prairie" and great "Central Plain" regions of North America, which consists in their comparative destitution of foreste and nearly uniform surface; gradually rising from the level of the Gulf of Mexico, to the base of the Rocky Mountains, where they attain an elevation of from 4,000 to 5,000 feet. The eastern boandary of this province has been already mentioned as forming the western boundary of the Appalachian, and the soathwestern limit to the Lacustrian Provinces. Commencing at the Rocky Monntains in latitnde 60 deg. it runs southeast to the south end of Lake Winnepig latitude 50 deg., then, sweeping round with a curve, crosses Leke Michigan abont latitnde 43 deg. and termiaates at the west end of Lake Erie, latitnde 42 deg. Then turniag abruptly at a right angle it curves parallel to the Atlaatic coast in a southwest direction, and ends at the mouth of the Sabine river; the western boundary of Lonisiana.

This province may be divided into five regions of abont equal size, and with dietinct characteristics, viz: the Saskatchewan, (l) embraciug all north of latitude 49 deg., together with the basin of the Winnipeg, or the North Red River; the Illinois, (k), or eastern region, bonnded for the present by the forest provinces on the east, tbe 97th meridian on the west, the 38 deg. of latitude on the south, and the 46th on the North. The Texas regiou (j), next sonthward, and exteading West to the 101 deg. of longitude on the Rio Grende, while the remaioing bare plains East of the Rocky Mounteins are divided by latitnde 38 deg., into the Dacotah region, nortbward, and the Camancba, southward of it.

The first two of these regions have no peculiar trees, and the three remaining regions being almost entirely woodless, there are of conrse very few species of trees; but a few stragglers occur in them belonging to the Monntain regions of the West, none of these, however, are sufficiently abundant or luxuriant to be of much use.

In Amador connty during the last year there were 83,450 tons of ore crushed. There are 15 qnartz mills in the connty. There are also 11 miniag ditches, 296 milee long in the aggregate. There were 2890 tons of coal mined.

The Monitor & Northwestern mill, Alpine connty, is at present shut down, a wheel having broken. At least a week'e time must elapse before work can be resnmed.

The Vallejo Foundry ie making the castiogs for a quicksilver furnace of the Neate pattern for Amos Roberte, to be set up at his Colusa mine.

Quicksilver mining is going ahead rapidly in the neighborhood of Cambria, San Luis Obisbo county.

The Globe Iron Works.—Theae works now employ 35 hands. The machinery is driven by a ten horse-power engine. The specialty of the works is eaw mill machiuery, on which Frank Huntington is thoroughly posted, he haviag several patents on that class of machinery. A pony saw mill is now being built, intended for cutting "cants." A double circuler saw mill to be driven by a 60 horse-power engine is also beiag put np. It is expected to cut 25 M per day. These works do a business of $75,000 annnally. The iron work of the "Dexter" windmill is made here. One of these windmills is being set np at Bridgeport, above Vallejo, for W. W. Mason. It is intended for griading barley, and is calculated to grind 300 bushels per day. The power is equal to 20 horse. Another of these mills may be seen at St. Mary's College, in this city, one on the corner of Sixth and Brannan streets. About 125 of these windmills are in operation, many of them in Oakland. J. W. Pearson is building a very large one at Oakland point, intended to fill a 20,000 gellon tank. The pump is double acting, four inches in diameter and eight-inch stroke, and is capable of discharging 80 gallons psr minute.

The Carson *Tribune* of October 3d says: It is now known beyond any doubt thet the hills surroanding Eagle valley ere deposits of ore, rich, and to all eppearances of considerable extent. The North Cerson, the first discovered, is acknowledged to be as good a ledge as any on the Comstock lode; and Eegle Valley is turning out to be equally rich. It is also reported that the mine to the westward of Carson, which was discovered a few months since by the Roach brothers, shows indications of becoming a permauent and paying institution.

It is reported that new diggings have been struck on Snake creek, about thirty milee north of Pierce City, W. T., which promise well as far as prospected.

Ore Shipment.—At present the daily shipments of ore over the Virginia and Tnckee railroad to the various mills amoants to about 1,500,000 pounds.

Hydraulic miners in Nevada county are preparing for active operations after the first rains.

Sam Brannan telke of starting a custom quartz mill at Calistoga.

Sale of the Black Hawk Property.

A very important mining sale was consammated in Colorado on the 30th ult. The Black Hawk property was closed out—mines, pnmp and machinery. This company, throngh attempting to work in the former years of Indian blockade, excessive high freights, end higher priced labor, had becomo insolvent, and its property had passed into the hands of Mr. Jackson, of New York. He is becomiag old, and wiehed to close out his interests in Colorado, and thus wind np this portion of hie business even thongh it should he at a considerable sacrifice. The *Register* says that the first property sold was that of No. 8 east on the Bobtail, 100 feet, which was purchased by Mr. La France and his partner, backed by Jake Kruse, for $1,500 cash down.

The next eale was to Jeromo B. Cheffee, of 72 feet on the Bobtail hetween the Fields and Sterling properties, Nos. 16 aad 17 west on the Gregory, and 200 feet on the Mammoth adjoiniag the Mohler property, for the total sam of $14,500. The third sale was to the Briggs Bros., of 300 feet on the Gregory, adjoining the Briggs property, and including the great Cornish pump and the mill on No. 1, for $50,000 cash in band; making total sales of $66,000. This latter sale is vastly the most importaut. It was the the hig Cornish pump on this property that hes been draining the whole adjacent country, and making it possible te work the various eurrounding mines. The pnmp has been rnnning for the past six months, and has thus dreined other properties; but the fear lest it should stop on the 1st of October or soon thereafter, prevented anyone taking hold to work systematically.

The Betes, Fiske, Bobteil, Gregory, Hanter, Milwaukee, Mammoth, and twenty other valnable lodes, are all connected by natural snbterraneous water courses, so that the drainege of one is the drainage of all. Millions of dollars' worth of miniag property is thus directly affected, aud will be worked as soon as arrangements can be completed. The change will augment the bullion shipmente half a million of dollars between tbis and the first of March next—after that time the increase will be much larger.

Prior to this sale, the *Register* says, there has been the best of feeling in miniog circles, and tbis traasaction has rendered it still more buoyant. The fact that the purchase was by Gilpin coanty men, with their own money, for the purpose of working it, and not for speculation, should establish the confidence of even the most wavering. During the coming year hundreds more of miners will be ueeded. The Black Hawk mill will remain in the haade of Mr. Congdon, and will work on custom ore.

Shut Down.—The Santiago mill, on Carson river, has been shut down for repairs, and will not start up again before the first of November.

The currency value of the gold taken out of the Ophir mine, on the Barroughs lode, Calaveras, for ten yeare was $171,568.

A controling interest in the Oakland qaicksilver miae has been sold to San Francisco parties.

Quicksilver has lately been discovered in the viciaity of Bridgeport, Mono county.

Low Grade Ores.

That the great mineral wealth of Colorado, says the *Miner*, lies in its untold millions of tons of low grade ores, is a proposition that admits of no question. There are hundreds of lodes in this county, strong veins, which are not worked because the ores do not carry a sufficient amount of the precious metals to enable them to be treated with profit in our reduction works. This difficulty to a great extent will be obviated, in time, by thorough and extensive systems of concentration. For the ores throughout our silver belt, that are low grade, this will be the surest and most economical process. The works at the Terrible mine, at Dr. Pohle's mill, and at Mr. Cullom's, have demonstrated the fessibility of this process.

It is true, our mines are yielding an enormous amount of bullion now, but it is from high grade ores—mineral carrying over a hundred ounces of silver to the ton. Ores running much less than this amount scarcely pay for mining, hauling and milling. When the facilities for concentration are increased, the ore product of this section can be increased in proportion. Every year adds to the ability of our mill men to treat ores more successfully and at less expense, and we think the time is not distant when our low grade ores will prove sources of wealth to the owners of the strong veins that carry them.

The mill men in Gilpin county have, the past summer, demonstrated the feasibility of working to profit auriferous ore running only seven dollars to the ton. The *Register* gives the following instances:

"During the month ending sometime in August, Bela S. Buell, Esq., mined, hauled more than a mile to his mill, and crushed 1,400 tons of ore, which yielded less than $7 dollars per ton. This paid a handsome net profit after deducting cost of mining, timbering of mine, and keeping it in good order, wear and tear of machinery, transportation, reduction, salaries, etc., in short all the expenses of mining, which could accrue to a mine which, unlike his, should produce low grade ores. About a month ago he got thirty stamps of his new mill located over his mine in motion. He had to contend with the newness of the mill, and the impurities of the water, his water supply having been but partially provided for as yet. To avoid loss, he has been crushing material which has not hitherto been ranked as ore by him, yielding only two and a half ounces of bullion per cord, or six dollars and forty-three cents currency per ton, and yet this has returned a fair net profit after deducting from the gross proceeds every item of expense incurred.

"A. N. Rogers, Esq., agent for the Bobtail company, has been making a like experiment. The Bobtail, as everybody knows, is one of the richest gold mine in the world. It has an immense amount of rich mineral in sight, but like every other mine it has some lean ground, and following the universal custom of every mining country, the low grade ores have been left unbroken. Mr. Rogers has been desirous of testing the availability of low grade ores and has been during the past few months taking out such as has been formerly neglected. The company's mill is little over a mile from the mouth of the tunnel. To it the ores have been hauled, and in it crushed by common stamp process, and the gold amalgamated on copper tables and in sluices. He has kept accounts with the greatest care, charging up every expense, including what is known in mining parlance as 'dead work,' salaries, wear and tear of machinery, etc. He has taken the whole mass of low grade ore, and finds that the average yield has been $7.70 per ton, and that it has paid a handsome net profit at that rate. Other like tests have been made with like results. This proves conclusively that ores producing from $6.50 to $8, whether occurring in connection with richer ores in the older, and well worked mines, or in strong veins, where low grade ores exist, can be worked with profit. This shows an actual value to almost every mineral vein in the county. The working of them cannot fail to give unequaled prosperity to this region."

The gold-bearing veins about Empire, in this county, if opened and developed, could keep several large mills employed, and would add immensely to the bullion product of the county. There is no doubt that the mining district we refer to contains some of the largest and best gold-bearing lodes in the Territory; and we trust the experiments that have infused new life into mining operations in Gilpin county will stimulate the rapid development of the great gold-bearing lodes that intersect the mountains north and west of Empire, and the speedy opening-up of the valuable gold lodes on Chicago creek.

As long ago as 1860, low-grade auriferous ores of very refractory character, from the Reichenstein mine in Silesia, were treated with profit. It is true that such ore could not be made profitable here, subjected to the same treatment, on account of the greater cost of labor and fuel.

We append a description of the process, to show what poor ore can be profitably worked, with proper machinery and cheap labor.

"The ores of this mine are arsenical pyrites, and contain about 200 grains of gold to the ton. These are roasted in a reverberatory furnace, surmounted by a large condensing chamber, in which the arsenic is deposited as it rises in fumes. Oxide of iron, a certain quantity of arsenic and the gold in the ore remain beneath. These are placed in a vessel, so that a current of chlorine gas is sent through them. The gold and iron attached are separated from the residue by solution in water, and the gold is precipated by sulphuretted hydrogen. It is then washed and heated in a crucible, to drive off the sulphur, and the gold is reduced to the metallic state in the usual manner."

Jefferson River Mines.—The *New Northwest* (M. T.) says: Development of the Jefferson river mines has now progressed sufficiently to demonstrate that there is good paying ground in the cañon, and prospecting along the bars of the river, from there to Stinkingwater, gives fair promises that the pay is not confined to the cañon alone. The prospects and yield in the cañon, so far as we can learn, are good. But there is a very heavy expense attendant upon mining as at present conducted, and only a limited portion of the river bed can be got at. The methods of turning out the water as employed by old California river miners have not proved sufficient to resist the Jefforson, and stronger dams have to be put in. The method now in use is to start from the bank with bottomless boxes of 1½ inch plank, 12 feet long, 5 feet wide, and as high as necessary to turn the current. These are braced inside and taper like a sluice-box. The first one is forced in well down on the river bed, and dirt is then wheeled in and tamped down solid. When the box is full the projecting end is cleaned out and another box forced in and the process repeated until the desired ground has been "winged" off. This is tedious, expensive, and sometimes not proof against strong pressure. Wheels are then put up to pump out the water. Current wheels have generally been used for this purpose but have proven inadequate and are being superceded by overshots or steam engines. Probably not more than six or seven companies will get their ground well opened this season. There are 175 men in the mines.

Fire Trains.—The Central Pacific Railroad company employ no less than four fire trains on the mountain route across the Sierra. The first is stationed at Blue Cañon, the second at Emigrant Gap, third at the Summit, and the fourth at Truckee. Each train consists of a locomotive and three or four water cars. These cars are about the same length as an ordinary freight car, and formed of two-inch plank; they are very strongly put together, as nearly water tight as possible, and are elevated above the track about four feet. Each car will hold 3,000 gallons of water, or not far from 100 barrels—equal in weight to 24,000 pounds. The locomotives are arranged with powerful pumps that throw a steady stream, and do equally as good work as the best steam fire engines used in any of the large cities. Leather hose three inches in diameter is used, which, when not in use, is wound upon a large reel mounted on one car of each train. These trains are kept in a constant readiness to proceed with all possible speed to the locality of the fire upon the first alarm. All of the 25 miles of shedding between Emigrant Gap and Truckee is thoroughly deluged with water once a week. In sprinkling the sheds the pipe-man stands on the pilot in front of the engine, which moves slowly along at the rate of two miles an hour. In this work five men are sufficient to manage a train. Since the introduction of the fire alarm telegraph, with 32 different stations between Emigrant Gap and Truckee, the danger of any very disastrous conflagration in the sheds is nearly or quite obviated.

Big Work.—Though work on the mines near Gold Run and Dutch Flat is being shut down for the season, for lack of water, the work on the two large tunnels now being run, one from Bear river, and one from the North Fork of the American river, to tap the deep and rich gravel deposits in that section, near the bed rock, is being crowded ahead with all possible dispatch. The main tunnel, the one on the Gold Run side from the American river, is in about 600 feet. The size of this tunnel is about twelve feet wide by nine feet high. Four hundred feet from the mouth of this large drift they are running a branch 8 by 8 feet. This branch tunnel is required to be about 1,000 feet in length, and the company hope to have it completed, ready for service by the first of December. They had fixed the first of January as the time for completing this branch tunnel, but have been able to make so much better headway than they had calculated, that they are now confident of getting through a month sooner. We are indebted for this information to Mr. A. G. Oliver, a merchant of Gold Run. He tells us that with a force of about 15 men the company made of this branch tunnel, during the month of August, 153 feet 6 inches. This, probably, is the best work ever done on a similar enterprise in the world. We suppose it is hardly necessary to state that they used the Burleigh drill.—*Placerville Herald.*

Ornamenting Metal Surfaces.—A new process for ornamenting metal surfaces has been recently invented in America. It consists in plating, electroplating, or otherwise covering a plate, bar, or ingot of soft metal with a thin film of harder metal, and then rolling out or pressing the ingot into a sheet; whereby the coating is broken into irregular forms, and a marbleized appearance produced on the surface of the sheet.

To Prevent Cracks in Castings.—To prevent cracks in castings, Ehrenwerth recommends castings at the lowest temperature possible. In order to accomplish this he advises as small an opening as possible for pouring the molten metal into the mould, and continuing the operation as long as practicable.

Leo Mine.

The Leo mine is one of the oldest mining locations in Gold cañon, having been located in 1860. It is situated on the east side of Gold cañon, between the Old Pride of the West and Woodville mines, and in point of location is fully equal to those of either the Woodville or Justice. Some work was done on the claim in early times, but most of the owners being poor, the developments were never sufficiently good to make it a paying mine, although many tons of good ore were extracted, some of which gave excellent returns for milling. A year ago the control of the mine passed into the hands of men who went to work in the full belief that that the prospects were amply sufficient to justify the expenditure of time and money, in the full expectation that in due time their labors would not be without a reward; nor have they been deceived, for after running some 1,200 feet of drifts, tunnels and winzes, they now have 250 tons of good milling ore on their dump ready for shipment, and their mine so opened and the pay bodies of ore sufficiently developed to begin the reduction of ores with a full assurance of a steady and continuous supply. The prospecting of the mine to the present time has cost between $25,000 and $30,000, and Mr. G. H. Moyle, the present efficient superintendent, deserves great credit for his energetic and systematic development of its resources. Yesterday morning learning that the shipment of ore, for milling, had been commenced, we visited the mine and were shown through it by the gentlemanly superintendent, who seemed to take pride in exhibiting his mine and the fine prospects of its future prosperity. Entering the mouth of the main tunnel, which is nearly on a level with the bed of the cañon, we proceeded along it 175 feet to the eastward, at which point a drift has been run in a northwesterly course, 240 feet, following the pay streak of the ledge, which varies from a few inches up to 10 feet in width, sometimes narrowing down and then again widening out as the drift advances. At a distance of 100 feet from the mouth of this drift an up-raise had been commenced, which is up 20 feet in fine ore, the vein at that point showing 5 feet of good ore. At a distance of 100 feet beyond this, another up-raise, with a chute for extracting ore, had been commenced. This raise was up only about 7 feet, the ledge at this point showing fully 7 feet in width, and the ore of an excellent quality. On the opposite side of the drift from this raise a drift was being run on a pay streak of ore extending in an easterly direction. This drift was in 30 feet, the pay streak being about 2 feet in width and gradually widening for the last 6 or 8 feet. This streak of ore seemed to be tending to the southeast, and may yet lead to a larger and more valuable development, as it is in a new and entirely unprospected portion of the mine.

Returning to the turn-table in the main tunnel, we were shown an incline winze 140 feet in depth, which had been sunk in early days, but at too flat an inclination to follow the ore vein. Believing the winze to be on the upper side of the ledge, the present superintendent had sunk it some 10 feet more in a perpendicular course, at which point the ledge was struck and a few pieces of rich ore extracted, with which came a flow of water so strong as to force the men from the shaft and stop all further proceedings in that direction until machinery of sufficient power can be erected to drain the water. Again proceeding along the main tunnel, in an easterly course 20 feet, brought us to another ore chute, and an upraise 60 feet on the vein. One hundred feet further we came to still another chute and an uprise 75 feet on the ore vein, which in places was 10 feet in width. From this point, following the ore vein to the southeastward it showed a width of from six inches to two or three feet, for a distance of 100 feet more, much of the ore being full of iron sulphurets rich in gold. Then it appeared to break into mere seams in the hard rock, which were still continued in the face of the drift a distance of 475 feet from its mouth. It is the opinion of experts who have examined both mines that this drift will not have over 50 to 100 feet further to run to tap the large white ledge found in the Succor mine, a few hundred feet further to the northward. The ore in this mine is almost entirely free from base metals, excepting iron and sulphur, is easily worked and carries a large percentage of gold value over that of the silver. Assays of the ores vary greatly, often running from $40 up to $300 per ton. Much of the decomposed ores are rich in free gold, and a hornfull washed out gave a prospect, the eight of which would make the eyes of an old Californian dance with pleasure. The shipment of ore to the Ramsdell mill has already been commenced, and crushing will be commenced to morrow. The prospects of the Leo are very flattering for a full and early realization of their long delayed expectations.—*Evening News.*

Elasticity of Rarified Air.—Two Russian observers, M. M. Mendeleeff and Kirpitschoff, have recently been studying the elasticity of rarified air. They consider that from pressures of 650mm. of mercury to 0.5mm., air not only does not follow the law of Mariotte, but deviates from it more and more in proportion as its density diminishes. The deviations of rarified air are of contrary sign to those which M. Regnault has observed in compressed air; in the latter the product increases when the pressure diminishes; in rarified air the reverse is the case. The method of these researches is described in the July number of the *Annales de Chimie et de Physique.*

Important Sale.

The Sonoma *Democrat* notes the sale of a one-half interest, undivided, by William A. Stuart, of San Francisco, of the "Knight's Valley Ranch" and the quicksilver mines thereon, the "Ida Clayton" and the "Yellow Jacket," for the sum of $100,000 cash, to Edgar W. Steele, President of the Bank of San Luis Obispo County, G. P. Kellogg, late State Agent of the California Grangers, and Charles Laird, of Salinas, all gentlemen of wealth and rare business capacity. This sale has resulted in the formation of one of the strongest companies, financially as well as for business capacity, that there is on the Pacific Coast, and the enterprise, or rather enterprises, to which they propose to give their attention are the most important directly to the counties of Sonoma and Napa that has ever been inaugurated within their borders; the details of which have not as yet been fully arranged. We may say, however, that agriculture, manufacturing and mining, will occupy prominent places. We may further say that these gentlemen have unlimited capital at their command, and anything undertaken by them will be carried through to success, as all the members of the company are noted for their intelligence, indomitable perseverance and energy. They have organized under the name and style of the Knight's Valley Land and Contract Company. The following gentlemen compose the firm: Edgar W. Steele (President of the Bank of San Luis Obispo), Manager Land Department; Wm. A. Stuart, Manager Mineral Department; Wm. S. Bartlett (Loan Teller National Gold Bank and Trust Co., San Francisco), Manager Financial Department. The associated partners are E. W. Steele, Charles Laird, Alex. Elder, G. P. Kellogg, Wm. A. Stuart and Wm. S. Bartlett.

The importance of this enterprise, particularly to the prosperity of Sonoma and Napa counties, is beyond comprehension to the casual reader; yet, when the plans and undertakings of this company begin to unfold and be developed in their magnitude, then will people begin to realize the facts. To the genius of one man, his untiring perseverance and energy in surmounting every obstacle, in securing the Knight's Valley Ranch property, and in the formation of this company, and bringing the whole matter to a successful issue; to the conception of the enterprises to which the company propose to give their attention, all is due to Wm. A. Stuart, of the firm of Stuart and Elder, 204 Front street, San Francisco. The people of Sonoma and Napa counties have much to thank Mr. Stuart for, as it is to his unwavering energy and unstinted expenditure of money that Sonoma county to-day owes the development of her vast mineral resources.

The Chinamen at Panamint.—Capital has gone into Panamint District, Inyo county, Cal., and everything there is bustle and confusion. A large number of men are wanted and some Chinamen were sent down. A correspondent writes as follows to the *Independent* on this subject: "Considerable excitement prevails here now over a rumor that a certain company of this place intend to employ Chinamen in working their mines, and that a large force of them is now en route from Los Angeles. I would suggest to any parties desiring to introduce coolie labor that it would be well to provide themselves with balloons. The cañon is very narrow, in places not over 10 feet in width, and the boys to a man swear that no force of Chinamen shall be allowed to enter it for the purpose of working in the capacity of miners. In view of this fact their only recourse will be by balloon, as the only entrance is through the cañon." The miners seem to have become excited without cause since in a speech at Panamint the other day, Senator Stewart told the miners that he did not propose to put Chinamen at work on the mines but simply at road building and such work. He also stated that he was ready and desirous of employing every man in the camp, willing to work, at $4 per day. His talk gave general satisfaction in every way.

Sierra Nevada Water.—Before the introduction of pure mountain water by the Virginia and Gold Hill Water company, engineers were greatly annoyed by the incrustations which constantly formed inside steam boilers. In many instances a general overhauling and cleaning out was necessary each week, and men were sent in with hammers to scale off the hardened sediment, which could not be got rid of otherwise. At some mines patent heaters were used, which precipitated the earthy particles contained in the water before the steam was allowed to enter the boilers at all. Now, however, all such difficulties are obviated. The Sierra Nevada water, with which the city is now supplied, is so pure and soft that a cleaning out once a month is all that is required to keep a boiler in good condition. Not one-half the repairs formerly needed are now necessary, and a saving of thousands of dollars monthly at the different quartz mills and hoisting-works along the Comstock is made by the use of the new water. Its beneficial effects upon the health of our citizens also is apparent, as it contains no alkali, antimony nor arsenic, with which the water formerly derived from old tunnels was impregnated.—*Virginia Chronicle.*

New Strikes, with rich prospects, are reported on Mullins' Gulch, Mariposa County.

The Silver City Miners' Union have concluded not to build a hall at present.

MECHANICAL PROGRESS.

Smoke Consumption.

A correspondent of the *Scientific American* offers the following suggestions bearing upon the subject of smoke consumption: "In nearly all the furnaces used under boilers there is too little space between the grate bars and the bottom of the boiler (it is often 12 inches to 15 inches; when it would be better 24 inches to 30 inches), and that every fireman, taking boiler, grate and furnace exactly as he has it, can control and very largely prevent the smoke by simply firing on one side only of his furnace at a time, leaving the other side of the fire clear and hot until its own turn for firing comes, and by a careful admission of air by merely leaving the door slightly open. It may be urged that there is nothing new in either of these suggestions (which is perfectly true) but a wise attention to them—and wisdom, even in a fireman, is an essential element to success—will go a long way toward remedying the evil."

What the above correspondent says in regard to space between the grate-bars and boilers is corroborated by the following, which we find in an exchange: "A steam boiler of novel construction has been recently placed in Franklin, Upton & Co.'s tannery at Peabody, Mass. Its principal merit lies in the fact that the gases and smoke given out by the burning fuel, and which usually go out of the chimney, are thoroughly consumed, and therefore the waste of power is reduced to a minimum. Hitherto it has been the practice for the fire grates to be placed within 18 inches of the boiler, and the bridge wall carried up to within six inches of the boiler, in order to secure the best results. In this case we learn that the distance from the grates to the boiler is 30 inches, and from the bridge wall to the boiler 13 inches. There is a space one inch wide between the outer wall and the inner fire wall, through which air from the outside passes, and becoming heated *in transitu*, is admitted into the flame through a perforated iron plate. By this means an almost perfect combustion is caused."

Leatherette—A New Material.

The British *Trade Journal*, describes the above article—a new patent imitation of leather—as follows: It is so good an imitation that a superficial observer would, in nine cases out of ten, take it for the real article. The grains of the different kinds of leather, such as basil, seal, morocco, etc., are reproduced with a fidelity quite remarkable. In the process of "graining," a real skin of leather of any given description, which it may be desired to imitate, is taken as a mould, and from this an impression is obtained on sheets of fibrous pulp by the exercise of enormous pressure. Thus the grain of the imitation article is an actual facsimile of that of the real. Leatherette is obtainable in any color, and, while it is only about one-eighth the cost of leather, possesses some manifest advantages over the latter, which will scarcely fail to make it a commercial success. For instance, it is stronger than leather of the same thickness, and is of uniform quality, so that forty or fifty forms may be cut at a time, while the blemishes that occur in leather necessitate each form being cut singly, and that by experienced, and therefore expensive hands. It is not so prone to soil, and is waterproof. The scope afforded in different trades for the utilization of such an article is obviously great. Upholsters, hat linera, box makers, purse makers, bookbinders, etc., may, among others, turn it to useful account. For hook-binding it is admirably adapted, and probably in this branch of trade will work no small revolution, seeing that it affords handsome and realistic bindings at such a reduced cost. There can be no doubt that leatherette is an important invention.

DEPOSITS IN BOILER FLUES.—Concerning the formation of deposits in boiler flues, about which a considerable amount of speculation has been published, Prof. Hayes gives the following opinion in a late issue of the *American Chemist:* These are of two kinds, both of which are capable of corroding the iron rapidly, especially when the boilers are heated and in operation. The most common one consists of soot, nearly pure carbon, saturated with pyroligneous acid, and contains a large proportion of iron, if the deposit has been an old one, or very little iron, if the deposit has been recently formed. The other has a basis of soot and fine coal ashes, silicate of alumina, filled with sulphur acids, and containing more or less iron, the quantity determined by the age of the deposit. The pyroligneous deposits are always caused by want of judgment in kindling the fires. The boiler being cold, the fires are generally started with wood; pyroligneous acid then distils over into the tubes, and collecting with the soot already there from the first kindling, forms the nucleus for the deposit, which soon becomes permanent and more dangerous every time wood is used in the fireplace afterward. The sulphur acid deposits derive their sulphur from the coals used; but the base, holding their acid, is at first occasioned by cleaning or shaking the grates, soon after adding fresh charges of coal. Fine ashes are thus driven into the fines at the opportune moment for them to become absorbants for the sulphur compound distilling from the coals, and the corrosion of the iron follows rapidly after the formation of these deposits.

Why Iron Castings are Accurate Copies of the Mould.

Robert Mallet furnishes the *Engineer* with a lengthy but interesting paper upon this subject, from which we condense as follows: The fact that iron does take, very accurately, the form of the mould in which it is cast, has long been attributed to the supposed fact that this metal expands in volume when cooling—a supposition which has passed current for a century, but without sufficient proof to establish it as a fact. Recent experiments, however, have proven that iron does not expand in cooling.

But even if iron *did* so expand, the casting could not be an exact copy of the mould, from the fact that the expansion would distort the mould wherever the walls were least resistant. For example a flat plate, moulded from a pattern of equal thickness throughout, would have one or both of its surfaces forced outwards so as to make the plate thickest toward the central parts, while the edges or corners would remain nearly unaltered.

Cast iron does, however, as is well known, take the form of the mould, as formed of sand or loam by the usual methods of the founders, with great fidelity, except in case of chills or moulds of cast iron, the liquid metal cast into which is so instantly chilled by contact as not to form a very accurate transcript of the mould. It does not do so, however, to a quarter the extent that do several metals to which the property of expanding in consolidation has never been attributed, as zinc and lead. Gold, silver, copper, and most of their alloys afford less perfect castings.

The circumstances upon which these results arise undoubtedly involve conditions mechanical, chemical and molecular. Density is considered one of the most important, and is the mechanical force by which it is compelled to fill the sinuosities of a mould. Gold in this respect should form the most perfect casting; but, in fact, it is very inferior to iron.

The specific capillarity of a metal when in fusion, and its viscosity while cooling is considered by Mr. Mallet as having a very important influence in producing a perfect casting. Different metals are liquid in very different degrees while in perfect fusion, and therefore require very different degrees of pressure to force them into angular cavities. Upon this point physicists have as yet given us but little exact information. The greatest diameter of spherical drops capable of being assumed by any metal when taken in connection with its density is, however, a rough measure of the resistance which each presents to being forced into angular cavities of a mould of such material that it is not wetted by the liquid metal. Drops of mercury cohere at larger diameters than those of liquid lead. So also different metals differ in the range of viscosity through which they pass between their state of most perfect liquidity and that of solidity. Lead and some of its alloys, such as plumber's solder, pass through a very long range of viscosity; brass and copper do also likewise, though in less degree; cast iron, and in general all the metals that crystallize most readily and best, pass through a very brief stage of viscosity. Where the melting point of the metal is a low one, one of the effects of this prolonged viscous stage, during which the metal contracts by loss of heat, is that its withdrawal from the sides of the mould is not compensated by a sufficient continuance of hydrostatic pressure, owing to imperfect liquidity. Cast iron is remarkably free from this objection; its melting point being very high, and its range of viscosity small and confined to a small range of temperature, the metal is maintained, though constantly contracting by loss of temperature, in close contact with the mould by hydrostatic pressure up to within a brief period of its setting.

The third hindrance to perfect casting is the tendency of the metal to oxidize. Melted zinc oxidizes but very slowly up to a temperature somewhat above its melting point, but rapidly at and above a bright red heat; hence zinc gives perfect castings; but when it is alloyed with copper the melting point of the brass is raised to such a point that the zinc oxidizes very rapidly, and produces that "tailing" and general scurfiness of surface which is the plague of the brass founder, and the oxide of zinc is not reducible back to metal at the temperature at which brass is cast by any chemical agent capable of being introduced into the substance of the mould.

In cast iron, on the other hand, its tendency to oxidize by contact with the atmosphere when in fusion is opposed by the presence of silicon and carbon in the metal itself, and any oxide superficially formed is reduced back to metal with great facility by the hydrogen and carbonic oxide evolved from the moisture and charcoal, or coaldust, or other carbonaceous matter entering into the constituents of the mould. Gold is inoxidisable, but possesses a vigorous affinity for sulphur, and it is probable that the film which may be observed upon the surface of molten gold in casting, and which produces "tailiness" in the ingot or bar, consists of some sulphur compound taken up from the gases from the fuel employed for fusing it. Copper also casts badly, as when in fusion it is constantly either taking up carbon or oxygen as the heat of the furnace is either a reducing or an oxidating one, and the great cleanness of castings produced from phosphorised copper arises from the presence of the small amount of that element precluding it from taking up carbon, on the one hand, and shielding it from oxidation on the other.

SCIENTIFIC PROGRESS.

INFLUENCE OF CARBONIC ACID ON THE GROWTH AND COLOR OF PLANTS.—Starting with the supposition that at a former period of the earth's history vegetation was incomparably more luxuriant than at present, and that this was largely due to the much greater quantity of carbonic acid in the atmosphere, Joa. Boehm instituted some experiments on the green color of plants and the germination of seed in atmospheres containing definite quantities of carbonic acid. The results obtained showed that in air containing only 2 per cent. of that gas the formation of chlorophyl was much slower, while in an atmosphere containing 20 per cent. it ceased entirely, or nearly so, according to the kind of plant experimented upon. In like manner a larger or smaller quantity of carbonic acid retarded more or less the germination of seed. Some moistened beans were kept for eight days in equal parts of air and carbonic acid, and at the end of this time did not show the slightest indication of sprouting, and grew as usual when left in the open air. Boehm deduces this alternative conclusion from his experiments: Either the hypothesis that the atmosphere was richer in carbonic acid than now is false, or else that the plants of a former time must have been less sensitive to carbonic acid than their successors of to-day. The former hypothesis agrees with the view that the atmosphere is unlimited, and relieves us from any anxiety as to the unchangeableness in the future of the principal food of plants.

RETARDATION OF THE VELOCITY OF ELECTRICITY.—At the session of the American Association for the Advancement of Science, recently held at Hartford, Conn., Professor Lovering, the president of the association, read an address on "Recent Advances in Science," in which he thus refers to advances in electrical science:—"Wheatstone (he said) by a revolving mirror, determined the velocity of electricity, the duration of electrical discharges, and the duality in the direction of the transmitted disturbances. Feddersen, and more recently our own associate, Rood, repeated his experiments. Indirectly the velocity of electricity thus ascertained (and the greatest known except that of gravitation) has been tested by signals through long lines of land and ocean telegraph, giving a lower figure than that of Wheatstone. But the anomaly is due to a misinterpretation. That electricity moves through a quarter of a mile of wire at the rate of 288,000 miles in a second is not evidence that it would move over 288,000 miles in one second. Electricity has no velocity in the ordinary sense. The transmission of the electrical disturbance is proportional to the square of the disturbance to be transmitted; therefore the velocity varies with the length of the journey."

ENDOSMOSIS—SINGULAR FACTS.—It has recently been noticed that if the membrane which lines the interior of an egg shell be used to close the tube of an osdometer, the latter being filled with sugar and water, and its containing vase with pure water, an odd circumstance will be noted. If the external surface of the membrane is towards the pure water, endosmosis is very rapid, and the water rises at the rate of some four inches per hour. But if, on the contrary, the interior surface is turned to the water, the phenomenon is almost annihilated. Matteuci, it appears, has noticed a somewhat similar peculiarity in the skin of a frog. It would seem that the phenomenon is worthy of study, since it shows that a liquid does not traverse the interior of a cellule with the same facility outward as in the contrary direction.

ETHER AND ATOMS.—Professor Lovering, late president of the American Association for the Advancement of Science, in an address delivered on the 12th of August to this society, called attention to the fact that Professor Challis, in an elaborate work, has discussed the interplay between ether and atoms, and the theory may now be regarded no longer as a speculation, but as a physical reality, with substantial mathematical support. He does not yet claim full mathematical proof, but his work is a guide post that unmistakeably points the way. In one respect the theories of Le Sage and Challis coincide. The driving storm of atoms must come from outside the world of stars; the universe is not even temporarily automatic, but must be fed continuously by an agency external to itself. Our science thus is not a finality.

THE ETHEREAL BLUE COLOR OF THE SKY is due to minute particles of matter which float in the air. Were these particles removed, the appearance of the sky would be dead black. It is a fact in optics that exceedingly fine portions of matter disperse or scatter the blue rays of light, coarser portions scatter red rays, still coarser portions scatter all the rays, making white light. The atmosphere is full of aqueous vapor, the particles of which diffuse white light in all directions. When these particles are enlarged, they become visible in the form of clouds. The vapor particles of the white clouds are supposed to be finer and thinner than those of the dark clouds. That the diffusion of light in our atmosphere, the blue coloring of the sky, and the colors of the clouds, are due to the presence of matter floating in the air, has been conclusively proven by Tyndell.

Progress in Astronomical Discovery—The Lights in the Heavens.

We clip the following from the published proceedings of the French Association of Science: The spectroscope has explored the far-off space of heaven. The light of hundreds of stars has been analyzed, and nebulæ, scarcely visible, have had the quality of their radiations revealed by its aid. The light, in some cases very feeble, with which a number of stars shine, gives a spectrum with dark lines like the solar spectrum, and this fact proves to us that the constitution of these stars is like that of our sun. Aldebaran sends us records of hydrogen, magnesium, and calcium, which abound in solar light, but also those of metals which are rare or absent, as tellurium, antimony, and mercury.

Nebulæ, twenty thousand times less brilliant than a candle at a distance of 13,000 feet, have still given a spectrum; for their light, although feeble, is very simple in its constitution, and the spectrum which it gives consists only of two or three bright bands, one of hydrogen, the other of nitrogen. These nebulæ, which give a spectrum of bright lines, are those which the most powerful telescopes cannot resolve; there is an "abyss" between them and resolvable nebulæ, which like ordinary stars, give a spectrum with dark lines.

What an effort of the human mind! To discover the constitution of stars of which the distances are unknown, of nebulæ which are not yet worlds; to establish a classification of all the stars, and still more to guess their ages—ah, tell me, is not this a triumph for Science? Yes, we have classed them according to their ages. Stars colored, stars yellow, stars white; the white are the hottest and the youngest; their spectrum is composed of a few lines only, and these lines are dark. Hydrogen predominates. Traces of magnesium are also met with, of iron, and perhaps of iodium; and if it is true that Sirius was a red star in the time of the ancients, it owed perhaps its tint to the greater abundance of hydrogen at that epoch. Our sun, Aldebaran, Arcturus, are among the yellow stars. In their spectra the hydrogen lines are less developed, but the metallic lines are fine and numerous. The colored stars are not so hot and are older. In consequence of their age, they emit less vivid light. In them there is little or no hydrogen. Metallic lines abound, but one also finds channelled spaces like the lines of compounds. The temperature being lower, these latter can exist whether they consist of atoms joined to others of the same kind, or whether they contain groups of heterogeneous atoms.

As to matter, it is everywhere the same, and the hydrogen of water we meet with in our sun, in Sirius, and in the nebulæ, everywhere it moves, everywhere it vibrates; and these movements which appear to us inseparable from atoms are also the origin of all physical and chemical force.

WATER SPOUTS.—The following details of a new theory of waterspouts are from the *Journal of the Franklin Institute:* "It has been hitherto assumed that the column of air which revolves to produce a waterspout is an ascending column. M. Faye, the astronomer, has recently maintained before the French Academy the theory that these columns of air are descending ones. Precisely as in a river, vertical layers of water, moving with different velocities, form whirlpools in shape like funnels, drawing the water away from the center, so, when currents of air above the clouds move in different directions, or in the same direction with different velocities, they produce upon their borders a gyratory motion of the interposed air. This air descends like the water in the whirlpool, and if the gyratory movement be powerful enough the tube of rotating air may reach the earth. At the same time the centrifugal force determines the matter to the exterior, and causes a partial vacuum in the interior, thus explaining the lifting of objects over which the whirlwind passes, and in the case of water producing waterspouts. Of course the barometer in the center experiences a sudden fall. The solar spots Faye explains in this way, supposing them to be in a whirlwind seen vertically. The solar gas drawn into them being cooler, appears as the dark umbra."

LATENT HEAT OF STEAM.—During the change of water into steam, a remarkable phenomenon is said to have been recently discovered, which is nothing less than the apparent disappearance of large amounts of heat, which appear to be consumed in order to overcome the cohesion of the water particles, and change it into a repulsion, which is the cause of the expansive elasticity of the steam, and results in the useful application of its pressure. The heat which thus disappears is called the latent heat of steam, and it reappears again as soon as the gaseous steam returns to the condition of liquid water. The amount of this heat is about 1,000 units; that means, in order to convert 1 lb. of water of 212 deg. into steam of the same temperature, 1,000 units of heat will disappear, or as much heat as would suffice to heat 1,000 lbs. of water 1 deg., 100 lbs. 10 deg., or 10 lbs. 100 deg.; consequently, as one 1 lb. of anthracite coal gives 14,220 units of heat, it will convert 14.2 lbs. of water, and bituminous coal 13.5 lbs. of water into steam. The amount of expansion which the water undergoes during this change is an increase in bulk of about 1,700 times; and as 1 cubic foot contains 1,728 cubic inches, the usual statement that every cubic inch of water becomes a cubic foot of steam is nearly correct for practical purposes.

Weekly Variations in Stocks.

[Based on Regular Sales of the most important Stocks on the San Francisco Stock and Exchange Board.]

For 6 days ending Wednesday, Oct. 14, 1874.

NAME OF COMPANY.	SHARES IN MINE.	SHARES IN MINE.	HIGHEST.	LOWEST.	ADVANCE.	DECLINE.
WASHOE.						
Alamo	300	6000	21T	18W		
Alpha Con	3600		2½ST	1½F		½
Alta		30000	11⅝T	10W		1½
American Flat	65	24000	5½TH	5½TH		1⅛
Bacon M. & M		54000	12W	10W		2½
Baltimore Con	1040	104000	18½F	6TH		15½
Beet & Belcher	224	22400	39½T	33TH		7
Bowers	20	5000				
Buckeye		16000				
Bullion	2500	25000	11⅝S	16¼W		3¾
Caledonia	5000	20000	29½T	25TH		5
California		2500	59½T	5½TH		½
Challan-Potosi	2800	28000	68¾W	66TH		2⅛
Confidence	130	24960	26½T	21TH		2½
Con. Gold Hill Quartz	3415	20000	5¾T	2S		1
Con. Virginia	1160	108000	101M	92T	7	
Cook & Geyer	1600	24000				
Crown Point	606	100000	60½F	53W		9½
Daney	2000	24000	4F	3W		½
Dardanelle	1200	24000	16T	15TH	½	
Dayton			6¼T	5TH		1½
Eclipse	10	2500	10W	8TH		¾
Empire M. & M	75	50000	10¼T	9¼TH		¾
Exchequer	400	8000				
Fairmount						
Flowery	3000	12000				
Franklin			3TH	2½T		⅛
Globe		20000	2¾T	1½TH		
Gould & Curry	1200	48000	30T	24¾F		5½
Hale & Norcrose	400	16000	5¾T	44TH		10
Imperial	184	100000	11¾T	9¼F		⅛
Indue			2W	1¾F		
Insurance	2000	30000				
Jacob Little						
Julia	2000	30000	1T	5½TH		2
Juetice	3000	21000	40T	35TH		20
Kentucky	95	30000	24T	18F		4
Knickerbocker	1200	24000	7T	6F		2
Koseuth			1¾T	1½TH	½	
Lady Bryan			1⅛F	⅞TH		⅛
McMahon	3600	36000				10
Mint	1600	50000	35S	30TH		⅜
Nevada	3000	40000	1⅞T	1¾F		
New York Con	3600	36000				1
Occidental	500	10000	3M	2¾TH		
Ophir	1400	16800	53T	43½TH		9½
Overman	1200	37400	18M	50T		31
Phil. Sheridan	1200	24000				31
Plutou	2000	30000	40T	40T		¾
Rock Island		24000	6¾T	5⅛S		20
Savage	800	16000	93T	75F		85
Seg. Belcher	160	6400	110F	140TH		
Seg. Caledonia		10000	88¾TH	82TH		¾
Seg. Rock Island			2M	1½TH		⅛
Senator		24000	1⅞M	1TH		¾
Sierra Nevada		100000	9M	7F		3¾
Silver Hill		54000	10F	9F		
South Comstock						
South Ophir Man		24000				
Stocor M. & M	1600	32000				
Sutro		24000	1T	1T		½
Trench	20	50 0	75TH	60TH		1
Tyler	2200	33000				
Union	803	20000	2M	1½TH		¾
Utah		40000	4S	3½F		18
Woodville	1400	28000	10T	5TH		
Yellow Jacket	1200	24000	112W	96F		
NEVADA.						
Adams Hill		50000				
Alps	800	30000				
Amador Tunnel						
American Flag M. & M		30000				
Arkansas	300	30000				
Belmont			9F	7¼T		¾
Bowery		30000				
Chapman M. & M		30000				
Charter Oak	1000	30000				
Chief of the Hill		30000				
Obief East Extension		36000				
Columbue M. & M	10000	50000				
Condor		25000				
El Dorado Sonth			2¾T	2TH		1⅛
Eureka Con		50000	12¼S	11S		½
Excelsior		12000				
Harper		30000				
Hayee						
Hermes	1000	30000				
Home Ticket						
Huhn & Hunt	3600	30000				
Ingomar	1000	40000				
Ivanhoe		30000				
Jackson		50000	30TH	12½T	5	
Josephine						
Juniata Con	5000	50000				
K. K. Con						
Kentucky	1000	30000				
Kineton	1000	30000				
Lehigh	1000	30000				
Lillian Hall	1000	45000				
Louise	2400	30000				
McMahon	1000	30000				
Marion		30000				
Meadow Valley	24025	50000	7TH	6½S		3½
Mocking-Bird	1200	30000				
Monitor-Belmont			2½S	1½TH		½
Murphy	2000	60000				⅛
Newark	800	32000				
Paoific Tunnel			25	25		
Page & Panaca	2400	40000				
Peavne	1000	30000				
Phœnix		50000	7TH	5F		2
Pinche	1000	20000				
Pioche West Ex		35000				
Pioche-Phœnix		40000				
Portland			16TH	15TH		4
Raymond & Ely	5000	30000	2M	1⅞T		
Rye Patch						
Silver Peak		30000				
Silver Weet Con						
Standard M. & M						
Star Con	18000	50000				
Starlight	6900	25000				
Sterling		30000				
Spring Mount		35000				
Spring Mt. Tunnel		20000				
Ward Beecher						
Washington & Creole						
Watson	200	30000	1⅞W	1½T		⅛
Wellowstone						
CALIFORNIA.						
Alpine						
Bellevue	1200	12000				
Calaveras	8000	20000				
Cedereeg	3200	20000				
Chariot Mill		24000				
Con. Amador			17	15		1
Cottonwood Creek						
Dunderberg M. & M		20000				
El Dorado						
Eureka	1680	20000				
Gillie		24000				
Independent	1800	25000				
Keyetone		10000				
Mt. Jefferson	1500	25000				
Oakville						
St. Lawrence M. & M						
St. Patrick	1800	20000				
Tecumseh	3000	30000				
Yule Gravel	400	10000				
IDAHO.						
Empire		25000				
Golden Chariot	750	30000	4⅛TH	3W		2
Ida Elmore	1300	10000	⅞M	¾TH		⅛
Mahogany	720	10000	3¾W	3⅛F		¼
Red Jacket						
South Chariot	650	20000				
War Eagle	1000	10000	2⅝M	2TH		⅛
WHITE PINE.						
General Lee	1000	20000				
Mammoth	1800	36000				
Noonday	1000	20000				
Orig. Hidden Treas.	800	21333				
Silver Wave						
Ward Beecher		24000				
UTAH.						
Deseret Con	2400	30000				
Wellington		50000				
OREGON.						
Virtne		20000				

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
American Flag M & M Co	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney	320 California st
Arizona & Utah M Co	Washoe	10	50	Sept 12	Oct16	Nov 4	J Maguire	419 California st
Belmont M Co	Nevada	4	1 00	Oct 9	Nov 10	Nov 30	O H Bogart	402 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	R Wagener	414 California st
Empire M Co	Idaho	7	50	Aug 26	Sept 30	Oct 24	W Willis	419 California st
Globe M Co	Washoe	8	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Globe Con & M Co	Washoe	3	50	Sept 12	Oct 18	Nov 4	J Maguire	419 California st
Golden Charriot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaplan	Merchants' Ex
Gould & Curry S M Co	Washoe	23	2 00	Sept 1	Oct 6	Oct 27	A L Durbrow	438 California st
Hale & Norcross G & S M Co	Washoe	44	5 00	Sept 8	Oct 13	Nov 3	J F Lichtner	438 California st
Huhn & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball	409 California st
Ida Elmore M Co	Idaho	14	1 00	Sept 21	Oct 27	Nov 14	W Willie	419 California st
Independent G M Co	Butte Co Cal	7	50	Oct 5	Nov 5	Nov 26	G T Grimes	218 Montgomery st
Justice M Co	Washoe	11	2 50	Sept 4	Oct 7	Oct 29	F Swift	419 California st
Lady Bryan M Co	Washoe	3	50	Sept 18	Oct 20	Nov 9	F Swift	419 California st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
Mint G & S M Co	Washoe		10	Aug 23	Oct 2	Oct 28	D A Jenninge	401 California st
New York Cons M Co	Washoe	10	50	Aug 26	Oct 1	Oct 19	H O Kibbe	419 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 28	Thomas Derby	320 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	J H Gager	507 Montgomery st
Original Hidden Treasure	White Pine		1 00	Oct 12	Nov 14	Dec 9	D A Jennings	401 California st
Page & Panaca S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	H P Bueh	Merchants' Ex
Penfield S M Co	Ely District	5	25	Aug 21	Sept 28	Oct 23	F Sicday	438 California st
Sanderson G M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Liedesdorff st
Savage M Co	Washoe	15	10 00	Sept 1	Oct 5	Oct 23	E B Holmee	419 California st
Segregated Caledonia M Co	Washoe	2	10	June 22	Oct 14	Nov 2	A O Ryce	308 California st
Silver Peak M Co	Ely District	5	50	Sept 3	Oct 10	Nov 2	G T Grimes	240 Montgomery st
South Charriot M Co	Idaho	10	1 00	Sept 4	Oct 8	Oct 26	Frank Swift	419 California st
Sutro M Co	Washoe		50	Aug 14	Sept 18	Oct 12	G W R King	434 California st
Utah S M Co	Washoe	6	1 00	Sept 21	Oct 25	Nov 16	W E Dean	419 California st
War Eagle M Co	Idaho	7	1 00	Aug 21	Sept 26	Oct 17	L Kaplan	Merchants' Ex

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Buena Vieta Petroleum Co	Cal	23	75	Oct 5	Nov 16	Dec 14	L Hermann	330 Pine st
California Cone M Co	Cal	1	1	Aug 26	Sept 29	Oct 19	B J Cain	438 California st
Cederberg G M Co let Sonth Ex	Cal	7	4	Aug 27	Oct 1	Oct 20	J N Webster	420 Montgomery st
Chance S M Co	Cherry creek	1	50	Oct 7	Nov 18	Dec 14	J Marke	414 California st
Cons Channel M Co	Nevada Co Cal		20 00	Sept 7	Oct 12	Nov 6	H Cordes	44 Stewart st
Consolidated Reforma	Lower Cal	1	50	Sept 1	Oct 5	Oct 23	A D Carpenter	605 Clay st
Eclipn Quicksilver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart	113 Liedesdorff st
El Dorado W & D Co	Cal		10 00	Sept 15	Oct 15	Oct 31	H Elias	416 Montgomery st
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 27	Chas S Healy	Merchants' Ex
Gold Mountain G M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Cavallier	513 California st
Great Bine Gravel Range Co	Cal		10	Sept 23	Oct 28	Nov 20	W H Watson	302 Montgomery st
Gold Run M Co	Nevada Co Cal		8	15	Oct 14	Nov 16	C C Palmer	41 Market st
Green M Co	Placer Co Cal		1	50	Oct 7	Nov 9	W R Townsend	330 Pine st
Gualala M Co	Sonoma Co Cal			5	Sept 29	Nov 5	James R Martin	Larue's Wharf
Hayes G & S M Co	Nevada		5	20	Sept 4	Oct 8	G R Sreinney	320 California st
Independence Cons M Co	Cal			15	Sept 4	Oct 10	F J Hermann	418 Kearny st
Los Prietos M Co	Santa Barbara Co		1	25	Sept 29	Nov 2	S H Smith	6 Montgomery Av
New York M Co	Washoe		1	50	Aug 28	Oct 1	H O Kibbe	419 California st
North Belmont M Co	Nevada		2	10	Sept 30	Nov 2	D L Thomas	419 California st
Oneida M Co	Amador Co Cal		9	75	Oct 8	Nov 11	L Canlan	Merchants' Ex
Phœnix Tunnel & M Co	Utah		6	25	Sept 6	Oct 17	Chas S Healy	Merchants' Ex
Prussian G & S M Co	Nevada		2	50	Sept 1	Oct 5	R H Brown	402 Montgomery st
Quintero M Co	Nye Co Nev		3	10	Sept 30	Nov 2	H O Kibbe	419 California st
Red Jacket M Co	Idaho		4	1 00	Sept 2	Oct 9	W Willis	419 California st
Silver Cord M Co	Idaho		5	1 00	Sept 11	Nov 2	Frank Swift	419 California st
Silver View M & M Co	Eureka Nev		2	10	Aug 19	Oct 6	F R Bunker	606 Montgomery st
"Sixty-three" G & S M Co	Cal			25	Sept 2	Oct 5	J R Helm	411½ California st
Starr King S M Co	Nevada		8	25	Oct 3	Nov 6	L Kaplan	Merchants' Ex
State of Maine M & M Co	Cal		7	5	Sept 17	Oct 24	J M Buffington	Merchants' Ex
St John G M Co	Kern Co Cal		2	5 00	Oct 3	Nov 5	W R Townsend	330 Pine st
Table Mt. Alpha M Co	Cal		5	25	Aug 20	Sept 29	T F Oronise	438 California st
Tecumseh G S & C Co	Cal			25	Aug 1	Sept 5	J W Olark	438 California st
Tolman & Miller M & M Co	Cal			30	Oct 9	Nov 12	J L Traek	306 Montgomery st
Victoria & Imperial T & M Co	Utah		3	10	Oct 7	Nov 11	W H Watson	302 Montgomery st
Ward Elsie G M Co	Robinson District		2	10	Aug 21	Sept 28	J M Buffington	Merchants' Ex
Wm Shakspeare G M Co	Butte Co Cal		1	10	Sept 23	Oct 26	W R Townsend	330 Pine st
Wyoming G M Co	Nevada Co Cal		4	40	Sept 30	Nov 2	W J Gunn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Cerro-Benito Quicksilver M Co	Cal	J W Clark	418 California st	Annual	Oct 20
Exchequer M Co	Nevada	J S Kennedy	Merchants' Ex	Annual	Oct 19
Lady Washington M Co		Called by Trustees	419 California st	Special	Oct 17
Mount Savage M Co		Called by Trustees	404 California st	Special	Nov 17
San Marcial S M Co	Mexico	Called by Trustees	409 California st	Special	Nov 17
Silver Lick Cons M Co		A K Durbrow	438 California st	Annual	Oct 26
Silver Weet Cons M Co	Washoe	F E Bunker	606 Montgomery st	Annual	Oct 21
South Charriot M Co	Idaho	Frank Swift	414 California st	Annual	Oct 19

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. O. Kibbe,	419 California st.	3 00	Oct 7
Chariot M & M Co	Cal	Frank Swift	419 California st	50	Oct 15
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	Oct 12
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	Oct 12
Diana M. Co.		N. C. Fassett,	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Werener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charlee E Elliott	419 California st	50	June 30

Mining Stocks.

There hes been e marked decline along the line during the pest few days. The volume of business is still large, however, though prices are lower than they heve been for the pest few weeks. Concerning the Comstock mines the *Enterprise* pertinently eays: Our mines are all looking exceedingly well. Newmines are being constently edded to the list of those thet are sending ore to the mills, and those that have lately begun milling ere increasing their yield. The Ophir, for instance, to-dey is running two mills and will soon have three running. Thie ie the mine which the manipulators at the "Bey" and their orgene among the newepepers down there constently cried down when it was announced that there hed been developed in it a body of good ore. By their lies ehout the mine they kept all men of moderete meeus from pnrchasing the stock. From the first striking of the ore up to the preeent time we heve given truthful reporte of the condition of the mine week after week, but the miners "drifting" ahout Celifornie street end reporting their discoveries through their home newspepers gave their Sen Francisco friends other advicee. The Empire will shortly he milling ore, hut the fect will probably not he acknowledged ont of the State for some months to come.

AN OLD MINER telle the *Humboldt Register* that he and four others struck plecer mines ahont 150 miles north of Rollins Station on the U. P R. R., thet will pey from five to fifty cente to the pen. They ettempted to work the mines, hut were run off by the Indiane. He is now on hie wey to California to organize a compeny of miners strong enough to stend the Indiane off, end will return with them in the spring to the diggings.

THE mechinery for the Reymond & Ely compeny continues to arrive at Pioche deily.

THE Coos conty *Record* a new peper puhlished et Merehfield, Oregon, by C. W. Tower & M. L. Hanscom, the letter lete of the Ætne Foundry of thie city, eaye thet Mr. Crouch, the inventor of the Cronch euperheeting engine, which censed some stir in mechanicel circlee, some months eince, will prohehly stert a foundry and machine shop on Coos Bey this fell. The *Record* thinks there is a good opening for the nnderteking.

IN the month of Angust the Boston and Colorado Smelting compeny peid out $154,000, $140,000 of which wes for ore. The monthly everege snm peid ont hy the compeny, says the Colorado *Register*, for six months previous to thet time, was, in round numbere, $125,000. Since August 29th they heve turned ont 125,800 onncee of silver, worth $169,830, and 2,000 ounces of gold, worth $40,000.

THE Northern Belle compeny will immediately commence the construction of a 20-etamp mill. The *Borax Miner* says: With twenty etemps crushing Northern Belle ore, end onr steady going little five-stamps stend-hy doing the cnstom work for numerone other mines, a brighter futnre is in etore for Columhus.

THE Tacoma *Tribune* says: "Dr. O'Brien cleime to have discovered e cinneher ledge on the ehore of Fidalgo Island. He bronght np to the eound with him some of the rock end asseyed it, producing pure and heentiful quicksilver.

A MINER who worke in the Crown Point for $4 per day, hee elreedy amaseed the hendsome sum of $50,000 hy lucky ventures in stocke. How many others have lost hy etock veutures is not steted.

THE weter in the Cereon river hae reeched ite lowest point during the eeeson, end ie coming np gredually, owing to the decrease of evaporetion.

OPERATIONS have heen agein resumed on the Page & Penaca mine, at Pioche.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

SILVER RIDGE G. AND S. M. Co. Oct. 8. Location: Calistoga Mining district, Napa county. Directors: Joseph Mossheimer, James P. Goodman, A. Wason, H. K. Bolsford and T. B Shannon. Capital stock, $2,500,000.

SOUTH WOODVILLE S. M. Co. — Oct. 3. Location: Gold Hill Mining district, Storey county, Nevada. Directors: Robert Sherwood, J. D. Fry, William Sherman, J. Wall and J. R. Lee. Capital stock, $6,000,000.

NEUFCHATEL PAVEMENT Co.—Oct. 13. The purpose for which this organization is formed is the construction of street pavements in thie city, and of purchasing and importing the Neufchatel rock and other material for that purpose. Directors: Cornelius Oole, Benj. S. Brooks, Franklin D. Cottle, Geo. K. Porter and Wm. Livingston. Capital stock, $1,500,000.

Increase of Capital Stock, Etc.

The certificate of capital stock of the Woodville Gold and Silver Mining company was filed on the 14th. The capital stock has been increased from $2,800,000 to $6,000,000. The certificate states that the amount of the capital stock actually paid in is $300,000, and that the debts of the company are $95,000.

Meetings and Elections.

JULIA G. AND S. M. Co.—Oct. 12. Directors: Thos. Cole, Hill Beachy, M. D. Townsend, R. L. Tracey and G. W. Fisher. The officers are: Thos. Cole, President; Hill Beachy, Vice-President; Frank M. Thayer, Superintendent, and A. Noel, Secretary.

FLOREL SPRINGS WATER Co., OF PIOCHE, NEV.—Oct. 8. Trustees; W. M. Lubbock, S. P. Christy, Jno. H. Wise, Thos. Denigan, Jno. R. Wilson. At the Trustees' meeting, Capt. William M. Lubbock was elected President and General Superintendent, Jno. H. Wise, Vice-President and Thos. Denigan, Secretary.

EUREKA CONSOLIDATED M. Co.—Directors: John W. Shaw, Thomas Bell, George W. Kidd James Findla and W. H. Osgood. The Board organized by the election of John W. Shaw as President and W. W. Traylor as Secretary. The company have paid three dividends of $50,000 each during the year, in May, June and July. On the previous fiscal year four dividends of the same amonnt were paid in June, July, August and September; and during the year 1871 $275,000 was thus paid, making a total of $626,000 in dividends since the opening of the mine.

Mining Accidents.

A men named John Prout, last week hed hie heed ceught hetween the timhere of the shaft, on one of the lower levels of the Kosenth mine, and the aecending cege, and so hadly crushed thet he died instantly.

A man nemed Petrick McEntee, while engaged in retimhering the shaft in the Reymond & Ely mine, hetween the ninth and tenth levels, hy some mishsp slipped and fell down the eheft to the next etetion, a dietance of some fifty odd feet. When he was picked up he was fonnd to he qnite dead.

The Owyhee *Avalanche* states thet on the 10th inet. as a miner nsmed Samuel Bessett was eecending the Illinois Centrel sheft on the hucket the wire hoisting rope hroke when he had almost reeched the surface, letting him fell to the hottom of the shaft, a distance of 240 feet, end killing him inetantly.

A serions accident occurred at the Arizona mine, Unionville, lest Friday evening, eays the Humholdt *Register*, hy which Devid Woolcock had his thigh hone broken, near the hip, and two of hie ribs fractured, end, it is feersd, injured internelly. The accident occnrred on the tremway. It ie the custom to cerry the minere from the foot of the mountein to the mine. On this occesion the car was loeded with miners, and when the car came near the switch where they have to ness the descending cer, some one celled ettention to the fect that the dinner cens were ebont to slide out at the hind part of the cer, the holt which fastene the end gate heving slipped out of plece. Woolcock, who wee riding near the reer end of the cer, hent over to eecure the door, and in doing so etnck ont one leg et elmost right englee with the car, and while in this position the descending cer struck him. Hie thigh bone was hroken short off, and by the force of the hlow he wee hurled to the ground with greet violence, hreeking two ribs hy the fell. He wes hadly hrnised in meny places on the hody, and it is feared seriously injured iuternelly.

A fetel accident occurred on the 28th nltimo et the Garrison mine et Cortez. Several hlasts of gient powder hed heen ehot off in the hottom of e eheft about eixty feet in depth, end a miner named McKenise wee lowered down in the hucket to send np the rock thrown np hy the hleste. Soon efter resching the hottom he called out to those ahove to hoist him ont, es he was getting faint from the fnmes of the powder. When near the top he feinted and fell from the hucket, striking the jegged rocke at the bottom of the sheft, and killing him instently.

On the 5th instant e feerful accident occnrred in the Kossuth mine, cn the Cometock. A men nemed John Pront, who was timhering neer the mein eheft on one of the lower levele, hed hie attention celled, and looking up the shelt while the cege wes aecending, hed hie head cenght hetween the cars and timhere, and wee crushed to death in an inetant.

The platform at the ninth stetion in the Mehogeny mine, Idaho, geve wey lest Wednesday, cansing a miner named Owen Duffy to fall a distence of ehout twelve feet to the hottom of the shaft, hruising the next to the little finger of his left hend eo severely ae to necessitate empntetion et the first joint.

A miner named William Simmone wae laet Monday morning knocked from a pletform in the South Chariot (Ideho) shaft hy e descending hncket, causing him to fell e distance of 50 feet, frecturing hoth lege helow the knee, end receiving such injuries as resulted in hie deeth on Thnredey evening.

Mining Summary.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

AMADOR COUNTY.

The Big Ditch.—*Dispatch*, Oct. 10: The new pipe for repairing the recent break in the Amsdar canal has been placed in position, and the water is now rapidly flowing to the distributing reservoir. Miners who have been waiting for a supply of water from this ditch can now commence preparing to work their claims.

Quicksilver.—Reports from the Amador quicksilver mine continue to be of the most favorable character. It is being developed as rapidly as the means of the stockholders will permit.

Progressino.—Work on the new hoisting works at the Oneida mine is progressing finely, and when completed will be one of the most substantial character.

CALAVERAS COUNTY.

Gwin Mine.—*Chronicle*, Oct. 10: Intelligence from the Gwin mine is of the most encouraging character. The ledge in the 900-ft level has widened out to 22 feet, with the quality of the rock good and improving. Thirty-six stamps are in motion. Our statement last week that the "aggregate yield of the mine is $6,000 per month," was an error. We meant to say "week" instead of "month."

San Bruno.—Everything continues favorable at the San Bruno mine in Mosquito Gulch. Another crushing of rock is mixed, hauled to the mill and the stamps will be set at work upon it next Monday morning. The yield of the San Bruno, since the pay chimney was struck, has been enormous, and there are no indications that the mine will ever "let up."

West Point District.—Levels are being run from the main shaft of the Mina Rica at the depth of 110 feet. The vein is 5 feet wide, 2 feet of No. 1, and three feet of low grade ore. Twenty tons, crushed at Harris' custom mill, yielded $35 per ton of free gold; the low grade will average near $10 per ton.

The Zacatero continues to supply its 10-stamp mill with facility. The stopes above the lower levels demonstrate conclusively that the quantity and quality of the ore gain in depth. Shaft, 300 feet: deepest in the district.

Miller & Co., at Anderson's Flat, have a large, heavy sulphuretted vein at the depth of 100 feet. Ore crushed yielded $15 per ton of free gold.

Haskins & Co., at Big Flat, are sinking on a very large vein, 2 feet thick of which is valued at not less than $100 per ton. Shaft 110 feet deep.

A permanent working shaft has been started on the Woodhouse, on an extensive ore chute which yielded 400 tons of unassorted ore, milling a trifle over $100 per ton in early times.

All the deeper workings in the gold-quartz mines are proving to be profitable investments, beyond expectation, and without a single exception.

COLUSA COUNTY.

The Elgin Mine.—Colusa *Sun*, Oct. 10: We are pleased to announce that the Elgin quicksilver mine is in a prosperous condition, and its fortunate owners are taking out large quantities of the precious metal. On Wednesday they shipped 9 tanks of quicksilver to San Francisco. Our fellow-townsman, E. Chapin, is one of the principal owners in this mine, and we are glad to record the good fortune of that gentleman and those who are associated with him.

FRESNO COUNTY.

Mining Interests.—Fresno *Expositor*, Oct. 7: The mining interests have scarcely been touched. Gold-bearing quartz veins and placer mines exist and will be worked profitably; the railroad enables the better class of our copper ores to reach market at a profit to the miners, and lower freights will make this class of mines a boundless source of wealth; coal and iron, at an early day, will help to swell the mineral wealth of our county, and for years our mountains have produced a large share of the quicksilver thrown on the markets of the world, and yet this class of mining is but in its infancy, as new and valuable cinnabar mines are being frequently found within the limits of Fresno.

INYO COUNTY.

Panamint. — Cor. San Bernardino *Argus*: There is a plentiful supply of water in the cañon. The town is flourishing, and the sounds of the hammer are heard in all directions. We have one store of general merchandise, butcher shop, restaurant, barber shop, two physicians, several lawyers and any number of rum mills. The Surprise Valley Mill and Water Company, of San Francisco, are at work and doing all that can be done with lack of tools. In a few days every man who wants work can get it.

Trails and roads are being built to the mills, grading for mill sites and improvements generally are the order of the day. I have never been in a more lively camp, and a future is predicted that will be second to not even Virginia. The mines look exceedingly well, showing as fine looking ore as is ever seen for such large veins, varying as they do from three feet to thirteen and fourteen feet. The town site is about 5,000 feet above the level of the sea and the mines vary from six to eight thousand feet above the same base. The climate is delightful. Snow does not remain in the valley but a very short time, and is rarely more than twelve inches deep. Lumber is scarce and commands a high price.

LAKE COUNTY.

Our Mines.—Lake County *Bee*, Oct. 8: Our chrome mine, three miles south of town, still yields its ore by the ton, and from present prospects will continue to do so. Quicksilver casts reflections all around us so that our valleys and mountains may in time become stupendous convex and concave mirrors used for astronomical observation in discovering the inhabitants of Mars.

MARIPOSA COUNTY.

Mining on Buckeye.—Mariposa *Gazette*, Oct. 10: Catron & Co. have their mill running and are crushing quartz which promises to yield satisfactorily. The mining is done by Chinamen. Neal & Grahsm are rigging up an engine for pumping and hoisting ore at the shaft of the old Mexican mine, near Catron's, and we may expect to hear favorable reports from them soon.

MONTEREY COUNTY.

Mineral Discoveries.—Monterey *Democrat*, Oct. 10: There is quite a *furore* about discoveries of mines, of gold, silver and quicksilver in the mountains east and west of the Salinas valley. The druggist, over at Monterey, is continually called upon to test rocks which in the estimation of those bringing them promise untold fortune, and from the region about Soledad come reports of valuable leads of silver ore. As a supplement to these last, it is positively stated that there is an asphaltum spring about ten miles from the Mission. Since writing the above, we hear that magnetic iron ore of fine quality has been found recently in the hills east of Chualar, specimens sent to Santa Clara for assay having received there strong commendation.

NAPA COUNTY.

Items.—*Free Press:* A recent assay of quartz from the Bonrbon Silver mine reached $560 to the ton. The mine is located on Mt. St. Helens, near the Calistoga Silver mine, and is the property of Foss & Connelly.

Ore is being taken from three levels on the Calistoga Silver mine, at the rate of about fifty tons a day. Over a thousand tons of ore is piled up ready for milling this winter. The mill runs night and day.

NEVADA COUNTY.

Columbia Hill.—*Transcript*, Oct. 10: We learn that the Eureka Lake Water and Mining Company are going to put seventy-five or a hundred men at work on mining ground owned by them at Columbia Hill, the coming winter.

The Union gravel mining company at Kennebec Hill have stopped operations for want of water. They have commenced cleaning up their sluices and will complete their work in a few more days.

The ditch of the Milton Company to Moore's Flat is being rapidly constructed. They expect to have water through it by the first of December. The miners at Moore's Flat are waiting anxiously for the completion of this ditch, and so are the people of the Flats generally.

The North Bloomfield Gravel Mining Company are bringing their extensive and magnificent works to a rapid completion. All the connections are made in their tunnel, except two, and these will be made in a few days more. The company has commenced placing sluices in that portion of the tunnel which has been completed. They expect to be ready for washing through their tunnel by the first day of December.

New York Hill Mine.—G. V. *Union*, Oct. 11: We yesterday saw at Findley's bank a splendid specimen of quartz which had just been taken out of the further end of the New York Hill tunnel. The specimen shows the free gold in plentiful quantities and fine and heavy sulphurets. The character of the rock itself, independent of its show of metal, is what the miners call fine and lively. The New York Hill is developing a splendid ledge.

SONOMA COUNTY.

Items.—Sonoma *Democrat*, Oct. 10: The splendid furnace of the Rattlesnake mine commenced burning adobes this week. These adobes are filled with free metal.

The Annie Belcher has a good showing of metal on the dump and more in sight. A 20 ton furnace is in course of construction.

The road from the Georgia mine to Pine Flat is complete. There is 100 tons of ore on the dump at this mine.

Guerneville.—The thirteen-ton furnace for the Mount Jackson is just done, and is pronounced by those who have seen it as the best in the county. In the lower tunnel the foot wall of the ledge has been struck; at a depth of 210 feet they cut through 15 feet of pay rock. Ten thousand dollars has been expended so far. From this time it is thought that the mine will pay its way. The company have 25 white men at work.

The Great Eastern has been leased to Tiburcio Parrott and others for six years. The owners of the mine to have one flask out of every four taken out.

SAN BERNARDINO COUNTY.

Gold Mt. Co.—San Bernardino *Argus*, Oct. 5: The Gold Mountain M. Co., at Bear Valley, have been working quietly and steadily. We saw to-day the hills of lading for the first shipment of material for the construction of a first-class 40-stamp mill. When the mill is completed we will have not only the largest mill south of San Francisco, but the largest ledge in the State.

The Snow Storm.—This mine is in Oro District. From a report on the mine by J. W. Young, Jr., we learn that the ledge crops out boldly over 2,000 feet, the greatest extent of the vein not visible being less than 50 feet. The width of the ledge averages about five feet; the narrowest portion measuring three feet. The quartz is gold bearing, as the percentage of silver it carries is very small. From a general average of rock taken from the present workings the ore will mill by ordinary amalgamation $34.50. A great portion of the ore shows free gold.

TRINITY COUNTY.

Extensive Preparations.—Trinity *Journal*, Oct. 10: The Union Hill company have 500 feet of tunnel to run before any more washing is done, and they have gone to work at it with the intention of completing it as soon as possible. Three shifts are now being worked in the tunnel and shaft—8 hours on and 16 off. The shaft is being sunk on the line of the tunnel and when down to the proper level, the tunnel will be pushed ahead from it. A new 40-inch flume will also be put in.

From Cinnabar.—Mr. Fred. Loring, of Trinity Center, was in town and informs us that Cinnabar District is flourishing. Hawkett & Lytle have put up four new retorts, and Warland & Co. have also placed four in position.

TULARE COUNTY.

Mineral King Mines.—Visalia *Delta*, Oct. 8: Wiley Watson came to town a few days since from the Mineral King mines. He brought with him a ton of ore from the McGinnis lead, to be sent to San Francisco for assay. An average of six assays heretofore made of this lode shows $48 per ton in silver. Creighton, who paid $1,500 for a claim on the Lady Franklin, has suspended work for the season. This claim is on very high ground. Ford & Belden are making rapid progress with their tunnel, and expect to reach the lead this fall. The owners of the Red Comanche claim have made an arrangement with Mr. Whitcomb, of San Francisco, to sell the claim of 1,500 feet for $20,000, the money to be paid this month. An assay from the Annie Fox shows gold, $6.48, and silver, $43.38 per ton. The Lady Franklin company have drifted along the lead some thirty feet, and have taken out some forty or fifty tons of ore. What is needed in these mines, before any progress can be made, is the completion of a good wagon road.

TUOLUMNE COUNTY.

A Good Mine.—*Independent*, Oct. 10: The Old Tuolumne company will put up a large, first-class mill on their mine. This claim, about 2½ miles north of Columbia, will yet prove one of the finest in the county. The vein is four feet wide in the shaft, shows free gold all through, and will go $100 to the ton. They have also a sulphuret vein 6 feet wide, 12 feet from the above, 25 per cent. of which is sulphurets, which assay from $100 to $2,000 to the ton.

New Mill at Soulsby Mine.—Workmen have arrived from San Francisco, as also the machinery, for to put into operation on the Soulsby mine a 10-stamp mill—full Howe's mortars, weighing from thirty-five to forty hundred.

That $250 Chunk.—Chas. Wagner and Ludwig Schwartz were the lucky ones who picked up the nugget weighing fifteen ounces, in Columbia, on Friday of last week. They had just commenced working on the old claim on the northwest corner of the Northup ranch, when they were struck with this streak of good luck. The piece was nearly all gold and is worth about $250. The claim had not been worked for many years.

The Patterson mine employs right along from 35 to 40 men; and as they get down and open out many more will be needed. Our business men can see from this, the importance of having our quartz mines opened.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Gold Hill *News*, Oct. 8: Daily yield, 300 tons of ore, mostly extracted from the 1,200, 1,300 and 1,400 ft. levels. The ore breasts on the 1,200 and 1,300-ft. levels are being continued both north and south, still in rich ore. The ore stopes on the 1,400-ft. levels are being continued both north and south, still in rich ore. The ore stopes on the 1,400-ft. level are opening out richer and more extensive every day. At the point where the ledge was first opened on this level it has been cross-cut to the east clay wall, showing the ore vein to be 89 ft. in width, with 78 ft. of rich milling ore. The new mill is steadily approaching completion and will probably be in running order in about 60 days.

Sierra Nevada.—A heavy flow of water has again been struck in the bottom of the new shaft, but which is handled by the pump with the most satisfactory ease. A new and what promises to be a favorable ore development, was made during the past week in a north drift run from the old Sierra Nevada tunnel. This drift was started at a point about 650 ft. from the month of the tunnel, and had been run but a few ft. when a whitish quartz and ore was struck, assaying largely in gold. The drift has been run 14 ft. in this body of ore, which still continues in the face, and an upraise has just been commenced to ascertain the extent of the ore in an upward direction. The mill is kept steadily running on ore from the mine. Daily yield 65 tons of ore.

Woodville.—The north drift on the 300-ft. level, two days ago, encountered an entirely new body of fine ore, which promised to develop into a much larger body than any heretofore discovered. This is a very important discovery, as it is the farthest point to the northward that has been reached, and demonstrates the extension of the ore body in that direction. Stoping out on the ore body between the 200 and 300-ft. levels has been commenced. Daily yield 25 tons of ore.

Ophir.—The ore stopes on both the 1,300 and 1,465-ft. levels are still yielding the usual quantity of ore, which amount can be greatly increased whenever it is desirable to do so. The yield of the Empire State mill for 26 days' run during September was $51,000. Land's mill in seven-mile cañon, was started up on ore from the mine yesterday. The addition of this mill will more than double the yield of bullion over last month.

Imperial-Empire.—The main south drift on the 1,850-ft. level is still driven vigorously ahead, the face in fine ore. The vertical north winze on the same level mentioned in our previous reports, as being started to connect with the old incline north winze, has just reached the ore body, which is of a rich character; this drift will, in a short time, connect with the incline winze.

California.—The north drift on the 1,400-ft. level from the Consolidated Virginia shaft, will connect with the south drift from the Ophir in a day or two more, insuring a perfect ventilation of the mine to that depth.

American Flat. — Cross-cuts have been started from the south drift on the 750-ft. level to cut and prospect the ore vein, and some good results may be looked for.

Crown Point.—Daily yield 500 tons of ore. All the ore breasts on all the different levels from the 900 down to the 1,500-ft. level are looking well and yielding the usual quantity of good ore. The pump has been lowered from the 1,500 to the 1,600-ft. level, ready to drain the water when necessary. The mills are all running, although those on the river cannot yet work up to their full capacity for want of the necessary supply of water. To remedy the falling in the amount of ore crushed, the company have secured the Dangiss and Golden Gate mills, with a crushing capacity of 60 tons, both of which are now being run on ore from the mine.

Belcher.—Daily yield 500 tons of ore from all the different levels from the 900 down to the 1,400-ft. level. The ore breasts on all the levels are looking well and yielding finely. The new air shaft is finished down to the 1,000-ft. level, from which point it will be inclined to the 1,500 ft. level. It is operating finely, completely cooling the mine down as far as it is finished.

Gould & Curry.—A large body of quartz has been developed by the cross-cuts in the ledge, at the fourth station level, but no ore that will pay the cost of extraction and reduction.

Hale & Norcross.—The main south drift on the 2,000-ft. level has reached the south incline without developing any paying bodies of ore.

Rock Island.—The main west drift at the first station level, is in a distance of 545 ft. the last 8 or 10 ft. being run through the hard, tough clay forming the east wall of the ledge.

Occidental.—The upraise from the level of the lower tunnel is making good progress, the face still in ore.

Genesee No. 2.—The sinking is progressing very favorably, with some fine quartz indications in the bottom of the shaft.

East Belcher.—Sinking the fine three-compartment shaft is progressing at the rate of 2 feet per day.

Original Gold Hill.—The indications for a good ore deposit are better and better as the drifts advance.

Savage.—Cross-cutting and prospecting on the 2000-ft. level is still vigorously prosecuted, with some favorable indications.

Dayton.—The ore breasts on both the second and third station levels are yielding the usual amount of fine milling ore. The mill is kept steadily running on ore from the mine.

Julia.—The stone work for the foundation of the new pumping engine, is nearly completed. The new pump bob is being put in position. The water is now drained to the 1000-ft. level and cross-cutting on that level will be resumed in a very few days.

Chollar-Potosi.—The body of ore found in the Belvidere section has been drifted upon north and south, and cross-cut both east and west, until its limits have been reached. Daily yield 75 tons of ore.

Baltimore Con.—A cross-cut has been started on the 450-ft. level, which will reach the ore vein in a very short time. A cross-cut has also been commenced from the north drift on the 750-ft. level, which will reach the ore vein in five or six days.

Yellow Jacket.—The east drift made connection with the south winze on Sunday last giving a fine circulation of air on the 1740-ft. level. Drifts will be immediately started north, south and east, to prospect the ore vein.

Bullion.—The main north drift from the 1700-ft. station is still following the west wall at the ledge which is well defined, cutting occasionally, on the side next to the ledge, fine bunches of quartz and streaks of ore.

Mint.—The shaft is down 340 feet, the bottom in soft sinking ground. Streaks of quartz and low grade ore are frequently encountered, giving great encouragement in the prosecution of the work.

Sutro.—The main west tunnel is still driven ahead with all the force and energy possible, the ground in the face is working quite soft, and excellent progress made.

Sutro Tunnel.—Total length from the mouth to the face of the main header, 7,081 feet. The ground now met with is hard, but

[Continued on Page 252.]

Plates for Testing Seeds.

In a recent number of the PRESS we published a request for information on the subject of testing seeds; asking our friends to send us suggestions or descriptions of methods whereby this desirable object might be attained. In compliance with this request, Mr. E. C. W. McDonald sends us a description of plates for testing seeds, engravings of which we have caused to be executed and herewith given for the benefit of our readers. These plates will probably prove satisfactory in what is claimed for them, namely to test the germinating power of seeds; and in this respect they will be useful to the seedsman in ascertaining the value of what he is selling or buying. Interesting experiments may also be performed with their use by the botanist; but, as an adjunct to this, we need some method by which we may ascertain the age of such seeds as are injured by age. To expect an accurate test, of general application, would be asking too much of the present state of knowledge on the subject; but there are some seeds, which, by their external appearance, or on an internal examination, betray evidence of age. These simple rules may be made available to some extent; and we would like to have any of our friends, where observations have developed any rules on whose they can rely, furnish us with such information, no matter to how limited a class of seeds their observations may have been confined. Meanwhile we may be allowed to hope that science will in time furnish some means by which we can ascertain the age of seeds.

We give below the accompanying note, with the address of the gentleman who kindly furnished the information in regard to these plates, following which is a description of their construction and method of using, copied from the circular of Krelage & Son, Haarlem, Holland:

EDITORS PRESS:—After reading your editorial about seed tests in a late number of the RURAL PRESS, I at once thought that by sending you the description of these plates, manufactured by my friend Mr. Krelage, I should comply with your request for information on this important subject.

I have two plates in my possession, one for small and one for large seeds, and am willing to send them to you for inspection. I admit that these plates do not give all the information you ask, but they are without doubt of practical use, and deserve to be introduced in this country as well as in Holland or England, where they are in use. With the assurance that I will gladly give you any further information on this point if you may want it.

I remain respectfully yours,

E. C. W. MCDONALD.

"These plates are manufactured of fine potters' clay. The figure here given conveys an exact idea of their construction. The numbered holes are destinated to be filled with an equal number of sorts of seeds. E. H. Krelage & Son have convinced themselves, by repeated essays, of the excellency in every respect of these plates, and are happy to say that the most competent authorities agree with them on this point. For this reason E. H. Krelage and Son have thought it convenient to have manufactured these plates on a more large scale, in order to be able to offer them at a price acceptable to every one.

Use.

The plate is laid during 24 hours in water, before it is used; then it is placed in a table-plate and water is turned on the table-plate, as much as to fill the space between the edge of this and the testing-plate, taking care not to cover it with water. Then in every one of the holes one of the seed sorts is laid, of which the germinating power is to be examined. Seeds which germinate difficultly or slow, like grass seeds, etc., are covered with a little earth; this is not necessary for seeds germinating quickly, such as cabbage, etc. There must be taken care to turn fresh water on the table-plate daily in order to have the space between the edge of this and the testing-plate always filled with water. To advance the germination of the seeds it may be well to cover the table-plate with the testing-plate by a bell-glass; this, however, is not absolutely necessary. It is clear that an elevated temperature of the room where the operation takes place, equally promotes the germination. Sometimes it may happen that the testing-plates begin to grow mouldy; in such cases they ought to be washed clean, and then heated glowing; thereby every vestige of mould will be destroyed.

Sorts.

There are two sorts of testing-plates: testing-plates with 24 numbered holes (No. 1—24), as figured here above, for testing small or medium-sized seeds; and plates with 5 numbered holes, (No. 1—5), for testing large seeds, like beans, peas, mangold-wurtzel, etc. The use of both is the same.

Utility.

It needs no demonstration to prove that in many cases it is useful, in some a necessity, to test the germinating power of the seeds. At an expense of a few shillings the seedsman may on a spot of one square metre test at once nearly one thousand sorts of seeds. Besides there is easily found a place in every seedshop to place a plank with testing-plates. The agriculturist and every possessor of seeds may by these testing-plates control in a simple manner the vitality of the seeds he buys or which he wishes to sell. Besides the testing-plates may be of use to study the germinating process of the seeds, for schools, botanists or lovers of nature in general.

Exposition.

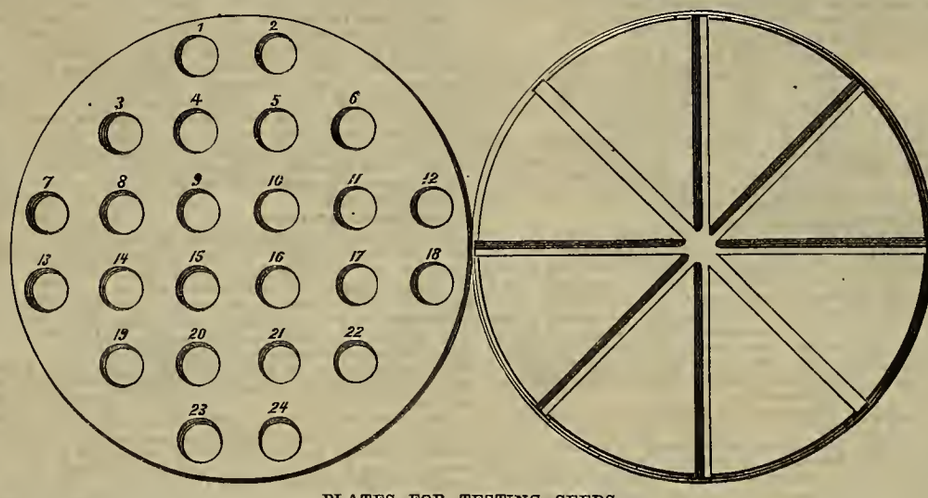
The testing-plates have caused much interest at the shows in 1870 at Amsterdam and Arnhem, and in 1871 at those of Haarlem, Amsterdam, the Hague and Hoorn. At the last named show a premium was awarded them. The testing-plates have been exhibited at Carlsruhe, at the permanent show of agricultural education-materials, on request of the committee.

The principal Dutch and German Agricultural Journals have treated on the great advantage of these testing-plates."—*Rural Press.*

United States Mints.

The following interesting extracts from the annual report of the Director of the Mint has been furnished for publication: The gold deposits were $68,961,591, and silver deposits and purchases $15,122,151; after making proper deductions, etc., the deposits of gold were $64,219,142, and silver, $11,435,678. During the fiscal year there were transmitted from the New York Assay Office to the Philadelphia Mint, for coinage, gold, $18,704,101, and silver, $2,613,636; total, $21,317,737. Compared with the previous year there was an increase of

Top-side. Bottom-side.



PLATES FOR TESTING SEEDS.

$8,924,165 in the amount of gold operated upon, and of $2,084,761 in silver received and operated on, $1,219,352 in gold coinage, $3,037,805 in silver coinage, $10,815,086 in bars, prepared at the assay office. A comparison is made of operations for the last fiscal year, with an average result for the 10 years, ending June 30th, 1872, showing the following per cent.: Increase in gold bars operated upon, about 115 per cent.; silver operated upon, about 397 per cent.; gold coinage, 121; silver coinage, 369; fine gold bars, 226; imported gold bars, 340; fine silver bars, 619, and imported silver bars, 60. The loss by abrasion is shown to have been but little over ½ of 1 per cent., and much less than usual. The renovating of gold coins is now about complete as to those in circulation in the Pacific States and Territories. The Director recommends their withdrawal before a return to specie payment, as after such resumption such coins will naturally find their way East and enter into circulation. The opinion is expressed that the reduction of weight of coins for fraudulent purposes has not been carried to any extent in this country.

The Director says whenever the specie basis shall have been reached, a large coinage of smaller denomination of gold coin, half and quarter-eagles, will be necessary, but the Mints can manufacture the same as rapidly as would be required, or bullion could be supplied for the purpose.

There are now six denominations of gold coin, which is a greater variety than is required. This being the case and the three-dollar piece corresponding so nearly as to weight, value and size with the quarter eagle, and rarely used, its coinage should be discontinued.

The coinage of trade dollars during the fiscal year amounted to $3,588,900, a greater portion of which was exported to China, where they found a ready market for trade and exchange purposes. Owing to the limited capacity of the mints on the Pacific coast, the department has not been able to meet the demands for these coins. The increased capacity of the new mint in San Francisco, to which operations will soon be transferred, and the addition of new machinery and appliances at the Carson City mint, will enable the department to meet the demand for a 1 coin, both gold and silver, which may be required on that coast for circulation and export. In reply to the question frequently asked of the department as to why the supply of five cent silver coins was discontinued, the director says the reason appears to have been that it would on the resumption of specie payment be likely to expel from circulation and send to the Treasury for redemption the five-cent nickel coins, having been issued to the extent of over $500,000, and the amount being sufficient for a token coin of that denomination, the provisions of the law discontinued five-cent silver coin. Referring to the coursa of silver bullion, the director shows that the Government can at any time, unless there should be a material advance in silver and reduction in gold value of paper dollar, supply itself with such an amount of subsidiary silver coin as it may require, to pay out at its nominal value, at about the same terms as the corresponding sum in paper currency could be obtained by the sale of gold coin. The demand for the coins appear to come from Texas and the Pacific coast, where they circulate as money. The first effect of any considerable issue of subsidiary silver coin would be the disappearance in the New York market of the difference between bullion and the market value of coins; they would be sent to the Pacific coast and Texas in such amounts to compel merchants to avail themselves of the provisions limiting legal tender of such coins to five dollars. After a time they would begin to enter more or less into general circulation in other sections of the United States, and as paper money approached parity with gold, will gradually extend to fractional notes. The latter being redeemable in United States legal tender notes will, of course, become as to subsidiary silver the superior currency. Whenever the legal tendar notes become exchangable at par for gold, they would even become superior currency as to silver coin before greenbacks had actually reached parity with gold.

The provisions of the coinage law, which authorizes the amount in silver coins for silver bullion purchased for coinage by the Mint at Philadelphia and the Assay office in New York, expire, by its own limitation, on February 12th, next, after which subsidiary coins can be procured from mints only in exchange for gold coins at par. This provision of the law should not be re-enacted or extended; the issue of subsidiary and token coins should be entirely under the control of the Government, and kept within such limits as will protect the public from the inconvenience and loss which would attend a redundant issue; when subsidiary or over-valued silver-coins of any description are issued, two things are of vital importance, and should be observed. First, a proper limitation as to the amount for which they are to be a legal tender. Second, the amount of issue limited to the requirements of the public for change. The latter is the only purpose for which such coins are designed to be used, and this can be effectually attained by their issue only in exchange at par for coin of standard metal in this country. The restriction as to the mode of issue applied particularly to the time when gold, and not notes, was based upon the debt as shall not form the basis of currency. Before we reach that basis, however, the Government may, under favorable circumstances, pay out coins at their pleasure and convenience, to the extent required to meet any legitimate demands for the same.

The amount of specie in this country is said to have been on the 30th of June last $116,000,000. The estimates show a gain in specie and bullion during the last two years of $38,500,000. The amount of gold and silver coin and bullion in the world is estimated at from $10,000,000,000 to $12,000,000,000.

RIGHTEOUS LAW.—In the French penal code it is provided that any person or persons who shall combine to raise or depress the price of articles of food above or below what it would be in the natural state of trade at the time, shall suffer two months' imprisonment and pay a fine of not less that $200 nor more than $400.

ORNAMENTING WOOD.—Wood can be ornamented by punching down carefully in patterns, planing off a little, and then wetting; the parts punched down show in relief above the planed surface and make quite a puzzle.

The Eucalyptus and Its Mission.

Those who have claimed for the eucalyptus remarkable anti-malarial influences, will be pleased to hear a reliable report of its proved efficiency in this respect in our own State. Some items have been circulated through the press of this country, declaring that the eucalyptus at home, in Australia, is not credited with the possession of the properties which have been claimed for it by its friends in this country; and many who do not go so far as to make this sweeping denial, are still inclined to treat the current reports of its anti-malarial influences as exaggerations. So that we might very naturally look for a reaction of the enthusiasm for planting this tree here. But to counteract these discouraging influences we are receiving fresh assurances of its efficacy. French scientists claim that in Algeria malignant fevers have disappeared from districts where the eucalyptus tree has been extensively planted. An essence similar to camphor has been extracted from its leaves by a French chemist, to which he gives the name of "eucalyptol," and which, he states, exercises upon the human system the same beneficent effects as other essential oils. In the island of Mauritius the leaves of the eucalyptus are used as an antidote to malarial fever.

Later accounts from Australia confirm those of an earlier date, in regard to its healthful influence. A Melbourne chemist makes the dried leaves of the eucalyptus into cigars, the smoking of which is declared to be highly beneficial in bronchial and pulmonary complaints. It is also claimed that it has been the means of introducing the honey bee into Australia. When the English began to colonize Australia, there were no honey bees there, so it is said, and the swarms that were introduced there and turned into the forests where the eucalyptus tree greatly predominated, at once commenced honey making; and it is now demonstrated that the flowers of this tree are very productive of honey.

But the most satisfactory accounts from the eucalyptus tree are those that come from nearer home. We find in the Kern County *Courier* an endorsement of claims of this tree, which we copy, being confident that it will inspire confidence in what we have on former occasions said on this subject. The editor of the *Courier* derives his information from personal observation; he being the owner of a farm upon which the matter was tested. He states his observations and experiences as follows:

"We speak somewhat positively in regard to the sanative or anti-malarial influence of the eucalyptus. If all, or even part of the evidence we have read on the subject coming from sources entitled to the utmost confidence, is true, we are certainly justified in so doing. But we are not accustomed to speak positively or to say in effect we know, unless we have the evidence of our own observation or personal experience. In regard to the anti-malarial influence of the encalyptus, we have this conclusive evidence. We have given it what we regard as a reasonably fair test on our own farm. This is cultivated by two families or companies of Chinese. One company lives near the north and the other the south end of the premises, about three-fourths of a mile apart. The localities both parties inhabit are favorable to the development of malaria. The soil is rich, moist, and teeming with vegetable life, and the free sweep of the prevailing wind is obstructed by the intervention of dense thickets. As might be expected, they have, every year, during the heated term, suffered with malarial fever. Last winter we determined to test the much vaunted virtues of the eucalyptus. In February we gave to the party at the north end two ounces of the seed, with directions that it should be planted near the house. It germinated finely and produced several thousands of young plants, but the frost killed most of them. About twelve hundred, however, survived. These, when the heated term commenced, had attained an average height of two feet, and emitted a strong aromatic or camphorous odor perceptible at a distance of a hundred yards. In due time the party at the south end were visited by their usual mildly-distressing fever, but up to the present time we have looked in vain for the first symptoms to develop in the other. They are all, to their own astonishment, in the most robust health. These trees now average more than three feet in height, and the atmosphere of the house is strongly impregnated with their odor. We have investigated in vain for other causes to which to attribute the anomalous state of health of the inmates and can find none but the reputed sanative properties of this tree. We have finally become convinced from the evidence of our own senses that it will do all the current accounts given of it allege, and propose, the coming season, to plant it on all the waste places and corners on our farm we can spare from other purposes. If everybody would do likewise the great valley of Kern county might soon take rank among the sanitariums of the State, because as yet no disease except a mild type of malarial fever has shown itself. Every land-owner, be his possessions large or small, should put it in the light of a duty to plant more or less of encalipti.

Good Health.

Indian Meal as a Vehicle for Heat.

The application of heat to the body as a remedy is very common. Wringing out cloths in hot water, infusions of hops or other plants, and placing them upon the part affected is probably the plan most frequently pursued. This practice is objectionable, because it needs close care to prevent wetting and chilling when cool, and also to be so frequently renewed and re-applied to keep up the due amount of heat. If jugs or bottles of water are employed they are liable to become broken or uncorked, or to leak and deluge the bed. Besides, when water is used as a vehicle for heat it causes moisture, which is undesirable, particularly as it is a good conductor of heat. If sand or sugar is employed the weight is objectionable. In looking about the resources of an ordinary household for a substitute I was led to select Indian meal, as it is generally on hand in the larder; it is of light weight, not unpleasant in odor, and particularly because it holds heat for a long time. This latter fact I noticed when a mere boy, finding that corn meal would, after grinding, bear several miles' transportation, and after delivery and deposition in the bins of the granary would for hours still be warm from the friction of grinding.

When, therefore, it is desired to apply dry heat to any person it is only required to place a quantity of the Indian meal in a baking-pan on a heated stove, and stir constantly till thoroughly warmed. It should not be burnt. It can now be put into woolen sacks and tied up and applied as a hot bottle usually is; or into large flannel bags if for the abdomen. In a case of successful resuscitation of a new-born child, the heated meal was poured into an oblong chopping-tray and a flannel cloth laid over it and the infant in it. The cloth yielded, and the child was partly buried in the warm meal. It is found that the meal retains its heat long, and when it cools it does not chill, which is a very important consideration. Two sets of bags or wrappers may be provided, so that while one is being applied the other may be heated. The meal is not weighty. The aroma of it when heated is rather agreeable than otherwise. It is now my favorite vehicle for applying heat.—*Cor. Herald of Health.*

Artificial Feeding of Children.—Nursing by the mother is the only natural feeding, and it cannot be substituted by any other with safety to the health of either the mother or the child. Wet nursing is only to be resorted to when the mother's milk is not suitable, and a proper wet nurse can be obtained. The so-called "prepared foods" with their flaming advertisements and testimonials, oftentimes spurious, and accompanied as in one instance, by the picture of a wonderful baby "brought up on this and no other food"—all of these originate in a desire to meet the wants of children deprived of mother's milk, and often stand in the way of a mother's duty of nursing. The country is flooded with them. Some are harmless, many dangerous and a few useful. The thoughtless endorsement of physicians is sadly deplored. A perfect substitute for mother's milk has not yet been made, and it is doubtful whether it will ever be. An exact analogy in solid and fluid constituents cannot take the place of human milk, with its inherent, unexplainable, life-giving principle.—*Sanitarian.*

Hay Fever.—From the best statistics that can at present be collected, there appears to be over fifty thousand persons in the United States who are annually subjected to this distressing complaint. In the opinion of the most intelligent physicians, it is to be classed among the nervous diseases, such as neuralgia, rheumatism, etc. An effort is being made in medical circles to obtain particulars from sufferers, and thus promote the study of proper remedies. For this purpose, Dr. George M. Beard, of New York city, has prepared a printed series of questions for answers by patients, the results of which are expected to be of value. All who are troubled with hay fever, and all who are personally familiar with the disease should send for this series and supply such information as they can.

Sleep in the Olden Time.—There are yet to be met with, in some old castles, monstrous old fashioned bedsteads, in which formerly whole families used to sleep together. This custom dates itself to the times of chivalry. These valiant souls who were accustomed in the field to share the same tent, bed and table, were also admitted to share winter quarters in each other's castles with the same cordiality. And then there might be seen, sleeping in one and the same bed, the master of the castle, his spouse and children, the knights his guests, and along with the rest sometimes the favorite dog. Admiral Bonnivet used to sleep with Francis I., who called him his knight companion.

Transfusion of Lamb's Blood.—Interesting experiments have recently been made at Cincinnati in the transfusion of lamb's blood into human blood, particularly in cases of chronic anæmia. Dr. Settle, under the direction of Dr. Dawson, has made several trials at the Good Samaritan hospital. In one instance he transferred eight ounces of blood from the neck of a living lamb to the veins of a man's arm, the connection being made by means of a silver tube in the man's arm, glass in the lamb, with a rubber tube between.

What is Hydrophobia?

Dr. Hammond, an eminent surgeon, has made a discovery touching hydrophobia of great interest. A number of extraordinary cases have occurred recently in New York. A man was bitten by a dog which appeared to be in good health—showing no symptoms of the rabies. But the man died, having all the symptoms of hydrophobia. This is by no means an isolated case. Dr. Hammond resolves the conclusion that the bite of a dog may be fatal while the dog has no discernible symptoms of hydrophobia. The dog may live, while the man may die. If this is a correct conclusion, then the bite of a dog, under any circumstances, is very dangerous. For, however healthy the dog, it cannot be known that hydrophobia will not follow. People who have a horror of the bite of even the smallest dog, though it be a household pet, have certainly good ground for this dread.

It has also been found that hydrophobia is a disease of the nerves and brain rather than a disease of the blood. This theory being true, many of the remedies heretofore applied are worse than useless. The nerve centers are first affected, then the brain. There is some ground for believing that persons are sometimes victims of hydrophobia who have never been bitten by any dog or by any other animal. There are cases on record which support this view. When some of these cases have resulted in madness it has been referred to an old bite occurring 20 years before. It would seem possible that a madness at least analogous to hydrophobia might result from the imagination, the same symptoms being manifest and the same results following.

The statistics of death from hydrophobia show that 63 deaths occurred in the United States during the last ten years. Of these cases nine occurred in New York, nine in Pennsylvania, and 22 in Louisiana, while no well-authenticated case is recorded in California, although there have been reports from time to time of the destruction of rabid dogs. The theory that this terrible disease prevails to a greater extent in hot weather is partially borne out by the facts. Louisiana has a very hot climate, and a large number of rabid dogs. But it is equally hot in Texas, where only two cases of the rabies were recorded in ten years.

Useful Information.

Restoration of Oil-Paintings.

Oil-paintings are made, we know, with siccative linseed-oil colors, and when dry covered with a thin resinous varnish. Aside from the incurable darkening by age, they are subject in the course of time to two diseases conditioned by the oil employed, and which are capable of improvement. By too hard drying the paint contracts, and covers the picture with numerous cracks, which can be rendered invisible by tediously filling them up with fresh paint. Besides this, it also happens that the film of varnish, which was originally strong and transparent, is transversed by innumerable fine cracks, which render the picture indistinct. Prof. Pettenkofer, of Munich, was the first to devise a simple method to render the varnish transparent again. He placed the picture, painted side down, on a vessel containing absolute alcohol. The ascending vapors condensed on the surface of the picture, and rendered the varnish to a slight degree soluble, so that the parts flowed together and the flaws disappeared. The operation was somewhat inconvenient, since it was impossible to watch the operation directly, and the picture had to be frequently turned over to ascertain the point at which the restoration seems complete.

Eimerling, of Augsburg, conducted warm alcoholic vapors directly upon the picture; this action is frequently too strong, and may injure the paint.

The writer has devised a third method, which does not act so violently as the above, yet, like that, permits its direct observation, and can be conducted just as far as desired.

A vessel filled with alcohol is gently warmed, and air is blown through it with a bellows or other contrivance. The air is impregnated with alcoholic vapor, and is conducted through a tube directly upon the picture. In this way much less alcohol is brought upon the picture than in the preceding method, and the results are excellent.—*Dr. Weigelt.*

Preserving Specimen Insects.—M. Anzoux states, for the benefit of those who are engaged in collecting insects, that he has discovered a new method of rapidly killing and preserving for a considerable period without harm specimens collected in expeditions. He recommended a few drops of essence of bitter almonds to be placed in some sawdust, which should itself be enclosed in a flask hermetically sealed. M. Anzoux has received from the Isle of Ceylon flasks thus prepared containing insects still so flexible as to permit of their being prepared and mounted, though they had been collected at Point-de-Galle some months previously.

To Make Waterproof Paper.—A nice waterproof paper, transparent and impervious to grease, is obtained by soaking good paper in an aqueous solution of shellac in borax. It resembles parchment paper in some respects. If the aqueous solution is colored with aniline colors, very handsome paper for artificial flowers is procured.

Punching Holes in Straps.

The punching of holes through the various straps of harness, for buckle-tongues, and for attaching the buckles, is a matter of considerable importance, and does not, as a rule, receive the attention that it should. The old method, of punching them from the upper or grain side of the leather, has been generally abandoned by the manufacturers of fine work, it being deemed injurious to the wear of the leather. The principal objection arises from the liability of the grain of the latter to crack from the strain of the buckle-tongue, and to be the cause, eventually, of the leather tearing, as it causes such a crease where the tongue catches, that it injures the texture of the leather, and makes it tear the hole more or less. In addition to this, if the leather is very strong, the tongue of the buckle is sure to bend out of shape. All these objections can be obviated by punching from the under or flesh side of the strap, and by using a punch, the long sides being parallel with the length of the strap; the punch should be set at an angle of about 20 degrees, cutting the hole at such an angle that the buckle-tongue will rest in it without throwing any strain on the inside of the leather.

Some object to punching the hole from the under side on account of its forcing the grain out, and thus disfiguring the outside edges of the hole. This can be corrected however by driving the punch through the hole from the outside, which will cut away the slightly turned edge of the grain, and set it down smooth and clean. It is not necessary, however, to repunch any holes except those that will be exposed when the harness is complete. Punches should be as thin as possible, as the extra thickness of the metal strains the leather.—*Harness Journal.*

Improvement in Tanning.

M. B. Picard reports a new system of tanning skins which is carried through without acid and in a much shorter time than is required by the ordinary processes. He first boils the tan down in water, making a complete extract, and then frees the decoction by decantation from all residuss and foreign substances. The strength of the essence thus obtained is regulated according to the quality, thickness, etc., of the hides to be treated, weakening it when necessary with pure water. It is placed in the pits in a cold state, and the skin is immediately thrown in. The latter are lifted and their positions changed three times during both the first and second days, twice during the third, and once a day afterwards. Ordinarily eight days suffices to complete the operation, and the inventor states that the proportion of about 77 pounds of extract to 220 pounds of skins gives excellent results.

The following method is recommended for private use in skin tanning: take equal parts salt, alum, and Glauber's salt, and half a part saltpetre; pulverize and mix. Handle the skins and rub the mixture in well three or four times a day, the oftener the better. If there is not sufficient moisture in the skin to dissolve the salts, put a little water into the latter. We are assured that no moth will attack furs the pelts of which have been thus prepared.

Useful Rules.

To find the circumference of a circle or of a pulley—Multiply the diameter by 3.1416, or as 7 is to 22, so is the diameter to the circumference.

To compute the area of a circle—Multiply the circumference by one-quarter of the diameter; or multiply the square of the diameter by .7854; or multiply the square of the circumference by .07958; or multiply half the circumference by half the diameter; or multiply the square of half the diameter by 3.1416.

To compute the diameter of a toothed wheel—Multiply the number of teeth by the true pitch, and the product by .3184. These results give only the diameter between the pitch line on one side and the same line on the other side, and not the entire diameter from point to point of teeth on opposite sides.

Egyptian Blue.—A remarkable and very beautiful shade of blue is noticeable upon many of the ancient ornaments found in the tombs of Egypt. Analysis some time since proved the color to be formed by a combination of soda, sand and lime, with certain proportions of copper, from which substances the Egyptians managed to produce three different products—first, a peculiar kind of red, green and blue glass; second, a brilliant enamel; and lastly, the color to which reference is made above, and which was used for painting. By synthetical experiments M. Peligot has succeeded in reproducing this peculiar shade of blue, by heating together 73 parts of silica with 16 of oxide of copper, 8 of lime, and 3 of soda. The temperature should not exceed 800 deg. Fahr., as, in such case, a valueless black product is the result.

Sensitive Silk.—Silk thoroughly impregnated with the bichromate of potash presents a very sensitive photographic surface. Thus prepared, any shapes cut out of tin and laid upon it may be beautifully imprinted thereon by the sun, and in tints according to the color of the silk itself. A white or very light silk shows a delicate pale red impression; a red-tint takes a still deeper shade of red in the pattern, etc. Fern leaves arranged to suit the taste and kept flat by a piece of sheet glass, can be imprinted in the same way.

Domestic Economy.

Household Exercise.

The *American Agriculturist* says dishwashing is good for dyspeptics. It is light exercise of the arms and chest soon after meals and it may be done sitting as well as standing. A high office stool is very useful in the kitchen. Feeble women, who do their "own work," often stand upon their feet more than necessary. You can sit down down to dress vegetables, to wash and wipe dishes, to knead bread, to iron, and to do many other things. You may be a little more slow about the work, but you will get through it in better condition. Housekeepers would often like to take an out-door walk, only their "feet are so tired."

Dish-washing would not be half so dissgreeable as it often is, if the dishes were lightly scraped free from crumbs, and neatly piled up for washing. There should be a large dish-pan and plenty of hot water, with which to fill up the pan gradually as its contents cool. I seldom use soap for washing dishes, but to the unskilled, or to those who use much butter and fat in their cooking, it seems a necessity.

Sweeping is good exercise if the floors and carpets are not dusty. Ah! that "if!" Bed-making will serve as gymnastics, if the beds are kept clean and well aired.

And what of washing? I do not think highly of the old-fashioned wash board exercise. It is hard for both lungs and back. With good washers and wringers, and strong arms for lifting, it may be made passable as exercise, and it is always a pleasure to see soiled things clean once more.

A moderate amount of ironing is good for women in health, in cool weather. On hot days endeavor to do it in a cool room or on a shady porch.

Cooking is perhaps the most important part of housework, and its exercise is not heavy in quality, though to some it may be burdensome in quantity. It seems to me more like a high art, or dignified occupation, worthy to be called a profession—far more honorable than—the legal profession, for instance. I should not wonder if really good and scientific cooks could do more to preserve and to restore health than the doctors of mendicine can. As with ironing the hardest kind of cookery is the least necessary—the ornamental part. We should study to make our cooking work as little heating as possible. For instance, bread may be baked in the oven instead of cooking it upon the griddle in the form of "pancakes," and in hot weather we can avoid those forms of food that require constant stirring while cooking.

There is a great deal of necessary work to be done in the world in order that we may all be comfortably fed, clothed and lodged. I should like to see what would be the result if the labor and strength spent upon unnecessary work, usually considered ornamental, should be given cheerfully to doing the necessary work of the world, as a preparation for the advent of real beauty or genuine adornment in all departments of our daily life.

Eggs as Food.

Would it not be wise to substitute more eggs for meat in our daily diet? About one-third the weight of an egg is solid nutriment. This is more than can be said of meat. There are no bones and tough pieces that have to be laid aside. A good egg is made of 10 parts shell, 60 parts white, and 30 parts yolk. The white of an egg contains eighty-six per cent, water; the yolk fifty-two per cent. The average weight of an egg is about two ounces. Practically, an egg is animal food, and yet there is none of the disagreeable work of the butcher necessary to obtain it. The vegetarians of England use eggs freely, and many of these men are eighty and ninety years old, and have been remarkably free from illness. A good egg is alive; the shell is porous, and the oxygen of the air goes through the shell and keeps up a kind of respiration. An egg soon becomes stale in bad air, or in dry air charged with carbonic acid. Eggs may be dried and made to retain their goodness for a long time; or the shell may be varnished, thus excluding the air, when, if kept in a moderate temperature, they may be kept good for years.

The French people produce more eggs than any other, and ship millions to England annually. Fresh eggs are more transparent at the centre, old ones on the top. Very old ones are not transparent in either place. In water in which one-tenth of salt has been dissolved, good eggs sink and indifferent ones swim. Bad eggs float in pure water. The best eggs are laid by young, healthy hens. If they are properly fed the eggs are better than if they are allowed to eat all sorts of food. Eggs are best when cooked four minutes. This takes away the animal taste that is offensive to some, but does not so harden the yolk or white as to make them hard to digest. An egg if cooked very hard, is difficult of digestion, except by those with stout stomachs; such eggs should be eaten with bread and masticated very finely. An excellent sandwich can be made with eggs and brown bread. An egg spread on toast is food fit for a king, if kings deserve any better food than any body else, which is doubtful. Fried eggs are less wholesome than boiled ones. An egg dropped in hot water is not only a clean and handsome but a delicious morsel. Most people spoil the test of their eggs by adding pepper and salt. A little sweet butter is the best dressing. Eggs contain much phosphorus, which is supposed to be useful to those who use their brain much.—*Poultry Review.*

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THERE was considerable excitement at Silver City, Idaho, on the night of October third, over reports of remarkably rich developments in the mines of the South Mountain Consolidated mining company, located at Bullion city, twenty-six miles south of that city. At a late hour the entire populace crowded the streets, gathering in groups to discuss the probable results affecting Idaho as now secured. The average assays from the bullion yields $400 gold and silver per ton, besides the value of lead. The main ledge is five to seven feet wide, with well defined foot and hanging walls, ore eighty per cent. bullion. The mines are owned by Minear, Lent, Boyd and Willis, of San Francisco, and Salt Lake end Silver City parties.

A FOUNDRY and machine shop is to be put up in Monterey. The property has been purchased by Brown Brothers, of San José. The machine shop is to be a two-story building 50 by 30, and the foundry 35 by 50, there being blacksmith shops and other outhouses. The intention is to carry on the business in all its various branches; the construction of straw burning portable engines being made a specialty.

IT is proposed to build a wagon road direct from Los Angeles to the Panamint mines. It has been discovered that water can be had at four points on the Desert, which is seventy miles in width. This will enable teams to cross without difficulty. It is claimed the new road will make the journey four days shorter.

LARGE amounts of wood are piled up on the banks of the Carson river, at Empire. From appearances there is a supply of fuel on hand sufficient to last for years, but yet it will all be gone before spring. The amount of pine wood consumed in the furnaces of the mills and hoisting works is enormous.

INDICATIONS tend to the belief that the 1,500 foot level of the Consolidated Virginia mine on the Comstock, will greatly exceed in richness any portion of the mine yet developed, which is saying a good deal.

THE first shipment of bullion from the Calistoga Silver mine was $12,000. This was from 85 tons of rock, which is a little over $141 per ton.

PROSPECTORS in the interest of Nevada and San Francisco capitalists are visiting the mines in the vicinity of Silver Mountain, Alpine county.

MR. CARR, of Pierce county, Oregon, has just returned from Yakima, and reports the mines paying about $3 50 per day to the hand.

Glycerine for Removing Incrustations in Steam Boilers.

The frequently discussed question of the incrustations in boilers has been taken up quite recently by the Society of Civil Engineers in France. M. Eugene Asselin communicated to that society, at a meeting last January, the result of his researches on this question; that is, in the use of a new element for destroying all adhesive calcareous deposits in boilers. The importance of this subject, and the novelty, simplicity, and economy of the process recommended by M. Asselin, can best be exemplified by publishing his paper. Its importance will be evident to every mechanic. It was published in "*Annales Industrielles*," from which we translate as follows:

In boilers in which are adhering calcareous deposits, the most serious trouble is the increase of the consumption of fuel; to this must be added the depreciation of the metal caused by excessive heating and by the difficulty of removing these adhering deposits, not to mention frequent accidents by explosion.

By studying comparatively the co-efficients of the conductability of the metal on the one hand, and of incrusting deposits on the other, we see how rapidly the consumption of fuel increases as the layers of deposit thicken.

Starting out with given data, we have calculated that a boiler covered with an incrustation of three millemètres (0.1181 of an inch) consumes about 35 per cent. more fuel than one which has no incrustations, all other conditions being equal. On this point it is difficult to give precise figures, and we will only state the fact, which is universally admitted, that the consumption of fuel increases in proportion as we remove from the moment of last cleaning; and also that with bad water it is difficult to maintain the same pressure.

The fact that so many attempts, both chemical and mechanical, have been made to combat these incrustations, prove most abundantly the difficulty and complexity of the problem to be solved. It is useless to inquire into or classify the disincrustants, which are as numerous as imperfect. We shall only say that what we propose belongs to the class of preventives which are applied after feeding. The substance which, from experience, we now recommend is

Glycerine.

Glycerine is the soft principle of neutral fat bodies; or in other words, it is the basic principle which we meet with most frequently in fatty substances. The definition is clearly proven by many recent synthetic scientific discoveries, which show direct combinations of glycerine with fatty acids. By means of the improvements recently introduced into the stearic industry, glycerine occupies now an important place amongst industrial articles. Discovered long ago, it has been extensively used in pharmacy and perfumery; these uses have shown all its hygrometric qualities.

Actual Use of Glycerine.

While maintaining its modest position in the making of plasters, pomades, and as preventatives of chillblains, its sphere of usefulness has constantly increased. We all know the transformation of glycerine into nitro glycerine and finally into dynamite. We shall not recount its application as a preparative of woolen and cotton tissues, but will come at once to its use in boilers, and among the properties of glycerine we shall only mention those which are useful to retain for the said use.

Composition of glycerine: Carbon, 6 volumes; Hydrogen, 8 volumes; Oxygen, 6 volumes.

Glycerine belongs to the family of ethers; it is a liquid, soluble in water in all proportions; it is extracted (in manufacture) most frequently from sulphate of lime (called milk of lime), which results from the saponification of neutral fat bodies.

With the salts of lime its reactions are worthy of special mention as regards the application in question. Not only does glycerine raise the point of solubility of the salts of lime, especially that of sulphate of lime, but also (and that in certain conditions which are exactly realized in boilers) it forms with these salts a soluble compound. Besides (and we limit ourselves to what is actually practical) when the salts of lime are in excess, that is to say in a quantity more than sufficient for it to hold in solution at first, and to enter into combination with afterwards, this excess is precipitated into the body of the liquid containing glycerine in a gelatinous form, which settles and which is eminently suited for preventing further adherence to the metal.

Advantages Due to the Form of the Precipitate.

In addition to the above, this molecular form of the precipitate is of primary importance in opposing the mechanical force of the solid precipitated particles; indeed this is free from the serious defect in all other disincrustante, which, although they may prevent adherance, yet ought to be rejected on account of the mechanical force which they occasion.

Too much importance cannot be attached to the mechanical force. In short, with glycerine there is no double chemical decomposition and no precipitating of pulverent or granular matter. Its three modes of action are:

First—Augmentation of the solubility of the sulphate of lime.

Second—Formation of a soluble composition.

Third—Precipitation under the form already noticed.

Let us add, that glycerine is a fixed body, evaporates at 285°, that is to say at a temperature above that of the fat bodies. It is soluble in water, and has the properly of emulsing or neutralizing the fat bodies, and on account of this quality it would be a preservative in case of an accident where the water contains fat matter.

Quantity to be Used.

We have now arrived at this question, what is the quantity of glycerine to be used in the boiler?

By experiment we have found that it is in proportion to the quantity of fuel consumed. Very often inventors of disincrustante indicate the amount to be used as in proportion to the horse-power of the machine—for so much horse-power they recommend so much of the disincrustant. But in practice the power of a boiler is often used in an irregular manner. It stops at times—the horse-power may or may not be used during a given period.

It is, however, easy to say that the quantity of water employed, and of which we wish to neutralize the bad effects, is sensibly proportioned to the quantity of coal consumed.

From a series of figures we have arrived at the following result: Use one kilogramme of glycerine for every 3,000 or 4,000 kilogrammes of fuel. This is equal to one pound of glycerine to every 3,000 or 4,000 pounds of coal.

We do not pretend that these figures are rigorously correct, the nature of the water is variable, and the combustible also varies both in nature and in quality; we only say that these figures are sufficient for what are commonly called the worst waters.

This is the first figure to adopt, and after two or three cleanings having proven the real power of the product, we can then study the question of economy. Experiment only can prove whether the nature of the water will permit the use of only one part of glycerine to 5,000, 6,000, 7,000 or 8,000 parts of coal; sometimes it reaches the latter point.

We believe this method of calculating the amount of glycerine to be used is eminently practical, for we can always calculate very closely the amount of fuel used within a given period. We consider the worst waters those charged with sulphate of lime, gypsum and the salts of magnesia. Sulphate of lime is had because of the strong deposit which it forms, and the salts of magnesia are injurious because they produce foaming in the boiler.

The following is the simplest and best assay of the water: Take a fragment of the incrustation made by the water which you wish to test, weigh and dissolve it in hydrochloric acid; filter, wash and weigh the remainder, which is sulphate of lime. This assay may not be perfect, but it is sufficiently accurate to test the relative purity of the waters.

Mode of Introducing the Glycerine.

We have said that glycerine was soluble in water in all proportions; it is therefore evident that there can be no difficulty in introducing the glycerine into the boiler. We prefer to put in at one time the quantity wished and calculated—say, one part of glycerine to 3,000 or 4,000 parts of fuel necessary for 15 days, three weeks, or even a month. The length of time between the cleanings is governed by the amount of muddy water accumulated in the boiler, and not by the thickness of the incrustation.

After cleaning, the metal of the boiler will retain its bright, natural color. It is important to have the glycerine as pure as possible, especially free from lime. The less there is of lime in it, the higher will be its power as a solvent.

Although not necessary, it is economical to add to the glycerine three or four per cent. of some other chemical precipitant. This will promote the decomposition of the salts of lime, and decrease the quantity of glycerine necessary. The price of glycerine is about one franc 20 centimes per kilogramme—about two pounds; so that sufficient glycerine to neutralize the worst water would only cost about 25 centimes (four cents) per ton of fuel. We close this rapid review by declaring our conviction, produced by experience and observation of the facts, that glycerine will successfully remove incrustations from boilers, especially from tubular ones. From this, however, we except boilers using sea-water, as we have not been able to extend our experience to them.

The method above described has been in use for the past nine months, at the Mission Soap and Candle works on Sixteenth street, between Folsom and Harrison, where glycerine is manufactured. It is sold in 50 and 100-pound package at 15 cents per pound. The proprietors of these works will furnish further information to those desiring it, at their office, 108 Bush streets. They have been using it in their two boilers, and are well pleased with the results.

THE Jones and Stewart companies now have not less than 800 tons of freight, lumber, machinery and supplies of various kinds, now in course of shipment to Panamint. A gentleman recently from there says that when he left more than three hundred persons had signed a resolution to the effect that Chinamen should not be allowed to operate in that district.

A LARGE force of men, in the employ of the Imperial mining company, are now at work digging away the hill for the purpose of laying a side-track to the new ore dump shortly to be erected by the company.

Eureka District, Nevada.

This district is acknowledged by those familiar with the various mining districts of Nevada, to be superior to any outside of Virginia. The mines now being worked there look better than ever before, and they improve as developments are made. The principal mines are on Ruby hill, a distance of 2½ miles from Eureka. Ores from Secret cañon, Newark, Pinto, Spring Valley, etc., are brought to Eureka to be worked. A correspondent furnishes us with the following items from the district.

The Richmond Mine

Is on Ruby hill, and is one of the first mines in the district. They are now running three furnaces, and working about 300 men. The yield of ore per day is about 120 tons. The yield per ton of bullion is from $350 to $400. They are erecting separating and refining works, which will obviate the necessity of shipping at large expense to England and back, and will furnish employment to a good many men. The superintendent is Edward Probert.

The Eureka Consolidated

Is situated on Ruby hill, and under the superintendence of W. H. Shaw, a skillful operator. The company are running three furnaces, working about 120 tons of ore every 24 hours, which yields about 400 pounds of bullion to the ton. The bullion assays about $400 to the ton. Usually silver predominates, but the past few days gold has been in excess, about $40 per ton.

This mine and mill is under good management. Our correspondent was shown several assays of the slag, which showed no trace of mineral. They have recently constructed an extensive dust arrestor for the purpose of saving the dust and conveying the smoke away from the vicinity of the furnaces. The number of men employed by this company is about 240.

The K K Consolidated

Is situated close to the Eureka Consolidated, and is one of the best in the district. The product of the mine is about 80 tons per day; yields about the same as the Eureka Consolidated per ton. At present the mill is shut down, and the furnace is undergoing a thorough repair. The company employ about 125 men. This mine is under the superintendence of W. S. Keye, and is being very successfully managed.

The Hoosac Mining Co.

Of this mine, little has been said, but it is developing into one of the best mines in the district. It is on Bald Mountain, about six miles from Eureka. The product of this mine is about 40 tons daily; 40 men are employed at the mine and as many more at the furnaces. The ore is composed largely of lead, being about 33 per cent.: it works from $40 to $45 in silver. The body of ore is said to be very large. The furnaces of the company are closed down for repairs but will be running again in a few days. A matting furnace has been constructed for the purpose of cleansing and purifying the ore from arsenic, sulphur and other impurities before roasting, which seems to work well. This is something new in the district and reflects great credit on the superintendent and proprietor, Mr. Henry Strout.

The Dunderberg Mining Property

Is situated on Prospect Mountain about three miles west of the town of Eureka. The mine has been explored some 300 ft. in depth, by means of an incline. There is upon the property, machinery of sufficient capacity to work the mine to a depth of 1,000 ft. and it is understood that the present workings will be extended 300 ft. during the coming winter, thus, making a total depth from the surface of 600 ft. Like Ruby Hill—of which the best mining authorities in the district believe this to be a continuation, though two miles distant—the ore occurs in chambers of greater or less extent; and from workings already made has a uniform assay value of $40 in royal metal with from 15 to 20 per cent lead. There are two furnaces connected with the property, which have been in operation about four months during the present year. They have made a total output of $150,000. There is every reason to believe the work which will be done the present winter will add a value to this mine, and those in the neighborhood, heretofore unworked, although the low grade of the ore leaves but a small margin for profit, except when handled upon a very extensive scale; thus making quantity supply the deficiency in quality.

The Town

Of Eureka and vicinity contain about 5,000 inhabitants, and has a bright future before it, for the mines are considered inexhaustible. And besides the mines it is soon to be a railroad town, and the distributing point of all the other mining camps in Eastern Nevada. A number of towns will get their supplies from Eureka when the railroad is completed, that now get them from other points on the C.P.R.R. Now is the time for any who desire to purchase town property. Property that was sold here two or three years ago has since rented for nearly as much per month, as the first cost. Eureka has not built up as most mining camps have, by excitement, but on its own merits, and is bound to be a permanent town.

THEY are talking about new mines in the Laramie Peak country, Wyoming. Prospectors went there last spring but saw too many Indians. They will try it again.

Machine for Blue-stoning Seed Grain.

John Wilkie, Yuba City, Sutter Co., Cal., haa recently patented through the agency connected with this office an apparatus for bluestoning or saturating seed grain with a solution of sulphate of copper, and by this means destroying any germs of disease, and thus preparing it for sowing. In the illustration of the machine herewith shown, *A* is a horizontal box, of sufficient length, and having the seed-hopper, *B*, upon one end, and the solution-tank, *C*, to it. The bottom of the seed-hopper is made slightly inclined toward the discharge-spout, *D*, and is provided with a regulating-gate, *E*. An opening is made in the box, *A*, in a line with the spout, *D*, and through this the seed passes into the box. The solution-tank has a cock, *F*, which discharges into the same opening along with the seed. Within the box, *A*, is a longitudinal shaft, *G*. Gear wheels, *H I*, at the end of the box, serve to give motion to the shaft, either by means of the crank, *J*, or by other power.

Upon the shaft, *G*, a combined stirrer and carrier is constructed, which is in the form of a screw. The inventor prefers to construct the screw in the form of short projecting arms, *M*, which are set into the shaft at an angle, as shown. These arms serve as stirrers, and each one thoroughly mixes the seed and solution, and, at the same time, forces the mass forward, so that it will be taken up by the next stirrer. The discharge-spout, *K*, is made as shown, and is placed at the end of the box, *A*, farthest from the feed-hopper, *B*. The whole machine is set upon legs, *L*, of suitable hight, and is easily made, and effective in its operation. Further information concerning this machine can be obtained by addressing the inventor, as above.

Grease in Batteries.—We copy the following item from the Colorado *Register*: "The idea has long been current that the presence of grease in stamp mill batteries will prevent the amalgamation of the gold. Last week, after considerable observation, one of our prominent mill men undertook to test the matter. For forty-eight hours he had his men feed lard oil into one battery, while the others were kept scrupulously free from everything greasy. On cleaning up he found the battery which had been fed with lard oil, had saved fully as well as the others, and now he considers oil and grease a benefit rather than otherwise." This is entirely opposed to the notions of most mill men on this subject. Even if of no harm, what possible benefit the grease could be we do not understand. Will the *Register's* "prominent mill man" rise to explain?

San Diego Mines.—Mr. Norway, Deputy United States Surveyor completed his survey of the Cuyamaca grant last week. This survey was made in accordance with the instructions of the Surveyor-General, under the recent decision of the Secretary of the Interior, confirming Commissioner Drummond's rejection of the Pascoe survey. The lines of the Norway survey include the best part of the timber lands within the Cuyamaca diseño. The north line of the survey runs six miles south of Julian, and thus leaves the mines out of the grant. This Mexican grant has been a great drawback to the mining interests of the county.

Croppings of coal recently found near the railroad East of Battle Mountain, Nevada, has created quite an excitement at Battle Mountain, and the general impression is that extensive coal fields exist there, and a new district has been organized, which is called the Rising Sun. It is situated about twenty-six miles east of Battle mountain, and ten miles from Shoshone point, on rock creek.

The Denver Fair.—The bullion display at the late fair in Denver, Colorado, was a great feature. A brick of gold worth $20,000 was exhibited. Silver was represented in a stack of 45 bricks worth $75,000, the result of 18 days' run of the Boston and Colorado Smelting Co. The exhibition of ores was not what was expected.

In Montana, take it as a whole, the year 1874 has not been a prosperous one for miners. Water has been short everywhere, notwithstanding the fact that early in the season the prospects were very bright. The mines have generally paid well, but the season of abundant water was of but a couple of months' duration.

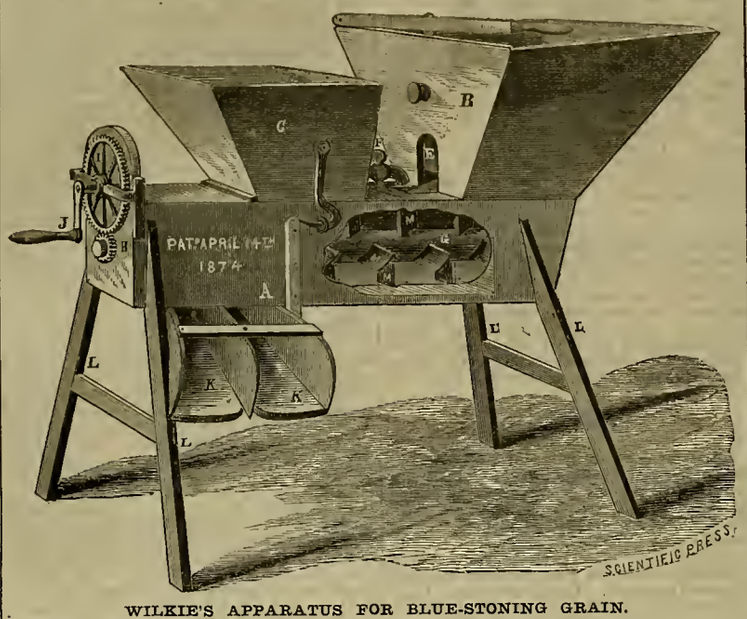
It is estimated that about one-tenth of the product of ores in Gilpin county, Colorado, is obtained from smelting ores, and nine-tenths from those crushed in stamp mills. It also appears that the Gilpin county gold ores thus far smelted, have produced three ounces of silver for every one of gold.

Eureka Bullion.—During September the Richmond furnace, at Eureka, produced $920,000; Eureka Consolidated, $446,000; Ruby Consolidated, $450.380; Hoosac, $200,500; K K Consolidated, $200,000; total, $2,276,880. Of this amount a total of $1,959,425 was shipped.

Eureka.—The number of tons of ore extracted from the mines of Eureka county, Nevada, from June 30th, 1873, to June 30th, 1874, was 70,408 ton. Yielding the sum of $2,707,659.

Improved Brick Hoisting Machine.

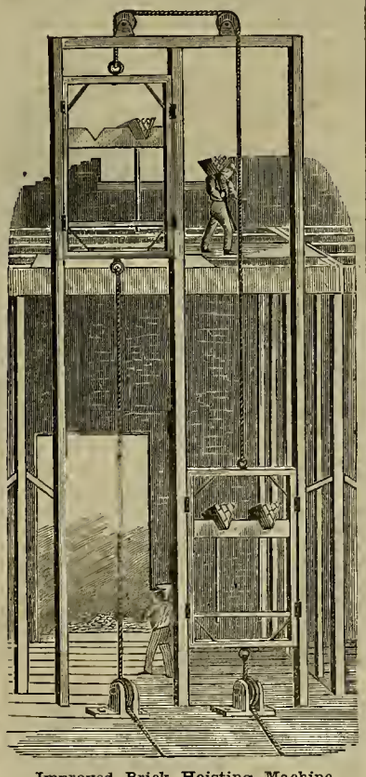
The accompanying illustration shows a machine for hoisting brick, mortar, etc., invented by Thomas Mann, and now in use in this city at Parkinson's building on Geary street above Kearny. Several of these hoists have been used in Portland, Oregon, for the past few years and have given general satisfaction. The method of operation is very simple as may be seen by the cut. Uprights are fixed in position to any desired hight in which frames for holding the hods, etc., slide. The uprights are 2x4 with a 2x4 cross piece bolted



WILKIE'S APPARATUS FOR BLUE-STONING GRAIN.

across the top, forming a support for the pulleys. The hoisting rope is made long enough to be extended to the top of the building as the different stories are completed.

The rope which runs through the ground pulleys is continued around an anchor pulley.



Improved Brick Hoisting Machine.

The horse is attached to this rope, and walks back and forth just as far as it is necessary to hoist; that is, if the hoist is 40 feet, the horse walks 40 feet, to hoist the load. The horse raises a load in going both ways, one of the frames going up as the other comes down, so it is unnecessary to bring the horse back to the starting point to raise a new load.

A carpenter can make the whole apparatus easily and the lumber can be used up in the building after the hoist is done with. Lugs, or small sheets of iron, are fixed on the frames to keep them in position, and a small pulley is placed in a slot on the frame to reduce the friction against the uprights. A piece of timber across the lower parts of the uprights keeps the lower pulleys down and in position.

The advantage claimed for this apparatus over others of similar nature is that the bricks are taken up on the scaffold where they are needed without being broken up. The mortar is carried up in the same manner and delivered on boards, where wanted without further handling, after being once put in the hod. Steam, horse or water power can be used for hoisting. The stuff used in the construction of the hoist can be utilized for partitions, etc., in the building, so there is little expense in putting one up. In buildings in country places, where men are scarce, an apparatus of the kind would be invaluable, and in large buildings in the city, it saves time and labor, beside delivering the brick unbroken and very rapidly.

The Nevada State Fair.

The first fair of the Nevada State Agricultural, Mining and Mechanical Society, will be held on Tuesday, Wednesday and Thursday of next week. The department of mines, minerals and metals is very well laid out and the display is expected to be very large. Money premiums are given to all in this department. Exhibitors to this department are required to accompany specimens with its assay value, name and description of the mine from which it is taken, depth of working below surface, district and location of mine, width of vein at different points, length of claim, etc. No specimen will be received or placed on exhibition unless meritorious. The officers of the society will take especial pains to display to best advantage all articles in this department, and will classify them, so as to compare all specimens similar in character. All specimens exhibited and donated to the society, with the accompanying description of location and character of mine, will go into the society's cabinet, and be open to the public for inspection. In this manner the society will be able to gather a magnificent collection.

The awards are full and generous. For the best collection of gold ores, $25 is given, and individual best specimens of this class of ore receive $10 each. For the best collection of silver ores the society's medal is given, and for ruby, horn, antimonial, bromide, chloride, native silver, etc., $10 each is given. Similar premiums are given for copper ores, ores of tin, platinum, lead, zinc, mercury, iron, coal, borax, salt, bluestone, etc. An entrance fee of ten per cent on the amount of premium will be charged on all articles competing for premium.

This fair is a very important one for the State of Nevada, and the mineral department in particular ought to be magnificent. Here in California we have never had a first class exhibit of ores at any of our fairs, except the exhibition of individual collections. It seems to us as if the society having the above exhibition in charge ought to gather a splendid mineral collection, which will increase from year to year in volume and value. The State of Nevada ought surely to be able to make a far more creditable display of various ores and minerals than has ever before been shown.

The miners of the West Riding of Yorkshire having refused to consent to a reduction of 20 per cent. in their wages, have been locked out to the number of 6,000.

The San Juan miners generally are leaving the mountains and preparing for the coming winter. Many of the prospectors will winter in Animas valley.

From 15 to 20 tons per week of refined borax is produced in this city, which sells at about ten cents per pound, wholesale.

General News Items.

Silk Imports.—The total value of silk imported into New York, during the month of September, was, in round numbers, $3,000,000.

England and the Pope.—It is officially announced that the English Government will withdraw its diplomatic representative from the Vatican.

The India Famine.—It is said that there are still 600,000 natives fed by the Government of India, in consequence of the continued famine in that country.

Another war cloud seems to be hanging ominously over Europe. The President of the Baden Cabinet said in a recent speech that Germany must be prepared for a fresh war. She is accordingly increasing her army.

National Bank at Petaluma.—A Washington dispatch says the Controller of the Currency has authorized the organization of the First National Gold Bank of Petaluma, California, with a capital of $200,000.

Prussian Designs on Porto Rico.—The latest phase of this matter, by telegraph of Wednesday is to the effect that Bismark agrees to guarantee to Spain the interest on the Spanish-German loan, taking as security for its ultimate payment a lien on the Island of Porto Rico.

Resuming Specie Payments.—The Bank of France is making efforts for an early resumption of specie payments. These efforts are exciting much attention in the financial circles of Europe, as a large absorption of bullion will occur, which must lead to a sharp advance in the price thereof.

A Nitro-Glycerine Explosion in a Colorado Mine.—A tremendous nitro-glycerine explosion occurred at the Sherman mine in Caribou at 11 o'clock Sunday night last. The building was totally destroyed. A. Arnold and H. W. Foreman, part owners of the mine were sleeping in the building. Arnold was killed, but Foreman escaped with a slight injury. It is supposed that a spark fell into some loose powder in one corner of the building and exploded it, and the concussion exploded the nitro-glycerine.

Overboard in Mid Ocean.—Paul Boynton left New York on Sunday last by the steamer Queen, with the intention of trying the hazardous experiment of abandoning the vessel about 200 miles from Sandy Hook, for the purpose of testing the merits of Merriman's life saving dress. His intention is to float and swim homeward until picked up by some inward-bound vessel. The suit envelopes all but the face of the wearer, and is capable of sustaining a weight of 200 pounds. Boynton will carry in a water-proof bag a sufficiency of water and provisions to last ten days.

The Whalers out of Luck.—Capt. Ravens, of the *Timandra*, writes from the Arctic ocean that the season has been very mild, and only five whales seen among the whole fleet up to date (August 10th). The winds were very mild and mostly from E. S. E. to S. S. W., with thick fog. On July 25th the current running to the southward, the heavy ice came down, and all the whales went north ahead of the ships. The bark "Onward" got one whale, and the bark "Illinois" fifty barrels of walrus oil. The "Europa," "Arctic," "Josephine," "Joseph Maxwell," "Morongo," and "Camilla" got nothing. The "Jesse Perry" and "Progress" each got one whale. The brig "Timandra" got one whale, 8,000 pounds whalebone, 9,500 pounds ivory, 16 large caese furs, and six large casks of oil.

The Indian War.—General McKenzie, operating near Fort Worth, Texas, says: After repelling two attacks by the Indians on the 26th and 27th of September, marched all the night of the 27th and surprised at sunrise the following morning five camps of Cheyennes and their allies, on Jute creek, near the fork of Red river. The troops destroyed over 100 lodges and the entire outfit, and captured 1,424 horses and mules, of which 1,048 were at once killed. The bodies of four Indians were brought in. Our loss was one soldier slightly wounded. General McKenzie is in pursuit, with thirty days' provisions. It is also stated that twenty-four lodges of Kiowas under Santanta surrendered to General Neill on the 5th of October. Several notable chiefs besides Santanta surrendered.

South Shore Railroad.—The change heretofore noticed in the line of the Southern Pacific Railroad, is likely to be consummated within a short time, as the railroad authorities have secured the right of way along the southern shore of the bay, and are about putting their forces to work cleaning, grading etc. The new line will be from the vicinity of the depot, at Fourth and Townsend streets, skirting the bay shore through the new town of Burlingame, to a point at or near Redwood City, where it joins the old route. The shore route avoids the heavy grades and shortens the distance between the city and the proposed junction three miles. When this plan shall have been carried out it is proposed to bring much of the grain freights from the southern counties to this city; which, by reason of the heavy grades on the San Bruno mountains, has heretofore gone around by way of San José to Oakland. This move will have a good effect on that part of South San Francisco adjacent to the railroad reservation, and along the proposed line of road.

The Raymond & Ely Works.

In describing a visit to the Rsymond & Ely company's hoisting works, the Pioche *Record* says: The approach to tbe works has been mnch improved. A large open space has heen leveled, which answers a most nseful purpose in receiving freight teams, piling lumber, etc. The foreman and time-keeper's offices hsve been removed to another point where convenient accomodstions has been provided for them and tbe chief engineer. As we entered the buildings we fonnd a grest number of men at work, mostly carpenters, who were bnsy preparing the massive timbers to be used in setting up the new machinery and pumping gear. Here we met our friends T. J. Andrews, the foreman, and G. E. Ames, the chief engineer of the mine. Mr. Ames was good enough to interrupt his business and explain the operations then in progress and also the working plans.

The whole of this machinery will be placed on a foundation containing 1,800 perches of massive stone work. For the engine bed three enormous masses of granite will be used. These blocks are seven feet long, 3¼ feet wide and 18 inches thick. Beneath the mortice wheels and their attendant gearing sole plates will be placed, three of them 24x4 inches, and 24 feet long, and one of them the same size, but only 14 feet in length. These will be set on timbers 26x24 iuches square, and they will again be bolted down hy vertical and angle irons, three inches in diameter, and from 12 to 16 feet in length, securely anchored in the masonry. The machinery will drive a series of six plunger pumps and one lift pump, all of 12-inch bore and seven feet stroke. The plunger pumps will be plsced 200 feet above esch other. At intervals of 400 feet in tbe shsft three balance bobs will be placed. The pump rods will be 11x11 inches each, 25 feet long and connected by plates 12 feet long, six inches wide and ¾ inch thick, witb 24 one-inch bolts in esch joint. The pump column will be made of the best quality of iron, one quarter and five-sixteenth of an inch thick. The main pump rod will be straight and continuous, and the lifts for the intermediate pumps will be clamped on the main rod, so tbat the strengtb of the latter will not be in the slighest degree impaired. For the purpose of moving the lower or lift pump, wbich will be necessary as the shaft descends, a peculiar and enormously powerful winze will be used, by which four men will be able to raise a weight of 14 tons.

Mr. Ames has, by an ingenious contrivance of his own, modified this machine so that by the means of a very heavy chain it will be more useful and easily managed.

For the purpose also of moving the machinery of the pump shaft, on the surface there will be a reel containing a sufficient length of the best steel wire cable, 1¼ inch in diameter, which will be used only for the purposes of the pump shaft. For the purpose of hoisting this macbinery, the huge buildings at the works have been enlarged. The excavations for receiving the foundations csnnot be less tban 90 feet in length, and where tbe engine is placed, some 37 feet in width. It is of conrse much narrower as it approaches the shaft, where room is only needed for the foundation of the pump bob.

Beginning with the motive power, on wbich, whether it is money, brains, muscle or steam, everything else depends, Mr. Ames showed and explained to us the drawings of the engine, whicb, for size and power, will have only one equal in the State, and that is the Savage. It is what is known as a Poppet valve engine with a Corliss bed. The cylinder is 26 inches in diameter, with a 72-inch stroke, with its exhaust port on tbe lower side, ensuring complete drainage. The fly wheel is 24 feet in diameter, and weighs the trifling amount of 30 tons. The steam for giving this ponderous monster active power, will be generated in six tubular boilers, 16 feet long by 54 inches in diameter. Four of these are alresdy in place and use, and the other two arrived just at the moment that we were leaving the building. The foundation for tbem has already been prepared, so that they can at once be placed in position and forth with be bricked in. From the engine the main driving sbaft will proceed and carry two pinion wheels which work into two large mortice wbeels. These are 12 feet in diameter with 14 inch face. The cogs on these wheels are formed of extremely hard, tough wood, and are deemed preferable to iron, as they wear better and offer greater resistance to a sudden strain. Witb these is connected a huge pump "bob," a most massive piece of work, calculated to bear almost any strain. The timbers forming this are 30x26 inches. Both bottom snd upright will be ironed, bolted and strengthened in every possible manner. That it needs be of enormous solidity may be imagined when it is remembered that one end will carry the 1,200 feet of pump rod, with its connections, and on the other extremity is placed the balance box, which is capable of holding 50 tons. These together will hring such a strain on tbe timbers that they must necessarily be of huge dimensions.

After we were through inspecting and making notes of the plans, Mr. Ames, accompanied by Mr. Andrews, kindly piloted the way to another large building where a very complete machine and boiler making shop is to be seen. Here we found the old Raymond & Ely engine which has hoisted so many thousand tons of rich ore to the surface, doing good service in running the machinery of the shop. The establishment is well stocked witb excellent tools, including rollers, shears, punching machine, planing machine, a large well-appointed lsthe, and also a lathe for wood work. While we were present one of Bement & Dougherty's patent 20-inch drilling machines wss heing unpscked. Mr. Ames informed us that it is the finest implement of the kind known. He also told ns thst a magnificent lathe wss now on the wsy hitber msnufactured at Fitchhnrg, Mass., costing at the msnufactory $2,000. The bed of the new lsthe will be twenty feet in length, with 36-inch swing. Attsched to the mschine shop is a boiler factory, where seversl men were at work making some elbows of very hesvy boiler plate, snd the portion of tbe work tbat tbey had finished showed that they understood their bnsiness. So soon as opportunity serves a fonndry will be erected close to the machine shop, making the whole a most complete establishment. These shops, etc., will be found to be most nseful to the company in the future. Isolated as this point is, so far from large manufactories, and having so much machinery constantly in use there will daily be fonnd an occasion to employ the facilities which we have just described. In conclusion, we cau bnt congrstulate tbe company on having a staff of such trustworthy and capable officers. Capt. Day, the superintendent, Mr. Andrews, the foreman, and Mr. Ames, the chief engineer, all seem to spare no effort to promote the interests of the company. To Mr. Ames much credit is due for the able and skillful manner in which he has designed, is prepsring for and will erect the massive and costly machinery which, when finished, we are aure, offer a convincing proof of his thorough knowledge of his profession as an engineer. To him and Mr. Andrews we desire to offer our very sincere thsnks for their courteous reception and kind attention.

Yamhill Mines.

The Rock creek ditch is still flowing its full capacity of water, and finding ready sale. Not so many claims are being worked as during previons seasons, but larger heads are used. Steel, Hagan & Co. (Little Giant) are running steadily and profitably. McNamara & Co., northwest from them, pushed their cut until it interferes with the road, and were changing the road lsst week. The ground pays. Upon Granite bsr, Broaddus & Co. have the best claim we have seen, with 60 feet banks to work to. Mr. Broaddns is foreman, and the working of his mine is evidence of his skill as a miner. They have beeu working on the lower bank for some time, but this week returned to the npper bank, which is very rich and will make good pay on the remaiuing ground. Batterton Bros., further on toward Granite, have their Little Giant at work and are cleaning up pretty regularly over 100 ozs. per week. Last week, owing to rnnning through an old crosscut, the product fell off to $1,300. Another like cut comes in this week, but after that they have fresh ground again. Their top dirt is comparatively shallow, and they have all facilities for profitable mining. The mine is good property. The next claim belongs to Capt. Rogers' estate, and is intersected by Granite gulch. Capt. R. had brought a flume up Granite, and was openiug a cut to the south with the purpose of working a Little Giant at that bar, but it developed too many boulders, and work is now being directed, under the foremanship of Mr. Israel Gibbs, on the ground north of the gulch, where a prospect shaft has shown a good deposit of pay gravel. These claims only employ some 35 or 40 men, water having been utilized in a great measure as a substitute for manual labor. Although as statcd, all the water available finds ready sale, it is anticipated that in a year or two an extension of the ditch will be made to cover good paying ground in Squaw gulch, above Pioneer, and, perhaps, by means of high flumes or pipe, around to Independence district east and north of Yamhill on the district extension of the rich Pilgrim bar channel, and where extensive prospecting has demonstrated there is a vast deposit of rich gravel.—*New Northwest.*

Oregon Mining Items.—The quartz mill from Gem City hss been moved to Connor creek.

Mr. Carr, has just returned from Yakima, and reports the mines paying about $3 50 per day to the man.

It is reported that new diggings have been struck on Snake creek, about 30 miles north of Pierce City, which promise well. There is considerable excitement at the latter place.

Last week, Johnny Roy, from the Caoell ledge, left at Virtue's bank, Baker city, over 300 ounces of bullion. Water has increased in the Elk creek district, and eight stsmps are now running at the mill.

Capt. Blynn, of Olympia, received from bis new mines in Lewis county, last Thursday, ten tons of coal.

The Olympia *Transcript* is informed by Mr. George Boyce, of Fall City, King County, that a silver lode was discovered on the Skokomish, about 20 miles from Snobomis City, some ten days ago.

Land is rapidly increasing in value in Santa Barbara county. A few days ago Spencer L. Skeels sold twenty-one acres lying in Montecito, for $100 an acre. This land could have been purchased from Col. Dismore one year ago for $35 an acre.

This year's wheat crop in New Mexico was threshed in tbe old Egyptian style—with goats, sheep and horses.

Leather Belting and Hose.

H. N. Cook exhibited at the lste Mechanics' Fair, samples of lesther belting, hose, mail and money bags. As representing a home industry the display wss one of the most interesting at the fair. The two largest belts exhibited is for the Pacific Rolling mills, snd are the longest used in sny factory on tbe coast. They are made iu the best msnner, and will besr the closest inspection. The hose is msde very strong snd substsntial. For a time after the introduction of rnbber hose, the trsde in leather hose declined materisily, but is now reviving, on account of the durability of leather and the facility witb which the hose can be mended. The fire pails, mail bags, etc., exhibited, are thoroughly made, and tbe whole display reflects great credit on the exterprising exhibitor, who has carried off a number of diplomas from different Fairs on this coast. He has been in business in this city 12 years, buil up an important trade. In connection with his factory, at 415 market street, he hss an extensive steam tannery on the Potrero, and one of the largest and best arranged on the coast. Mr. Cook fonnd the establishment of this tannery a necessity. It was started expressly for the purpose of tanning whole hides for large belts, as such hides could not be pnrcbased in the market. The business at its inception was an experiment, snd many thought it impossible to make the enterprise profitable. But it has grown rapidly into one of the most important industries on the coast, giving steady employment to about 30 men.

Massachusetts Hill Mining Claims.—The fame of Massachusetts bill mining claims is almost world wide. There are several "properties" on that hill which have been idle for years, and which are estimated by owners, and by outsiders also, as being of great value. There have been, from time to time, talks and rumors about the consolidation of the various claims and tbe organization of a large company to work the various ledges of the hill. Such talks and rumors have generally arisen from those who want to see tbe work done, more than from the owners in the various claims. Within a few days, however, the owners of the hill have been in long and serious cousultation over matters pertaining to the claims there, and it is possible that a consolidation of interests may follow in consequence of these consultations. The main object just now seems to be not consolidation, but the obtaining of United States patents for the mines, claims and mining ground on Massachusetts hill. Yesterday representatives of companies met on the ground in order to settle tbe boundaries of the claims, preliminary to applications for patent. There is no dissgreement on the subject of boundaries, and present harmony leads to the hope that the future will soon cause the wished-for consolidation and the working of one of the best gold-bearing hills in the State of California, if not in the world. The following are the owners of the Massachusetts hill ground: Scadden Flat Co.; Stockbridge Co.; Boston Ravine Co.; Riley & Ford; Watt & Co.; Rocky Bar Co.; and Gold Hill Co.—*Grass Valley Union.*

Economy in Furnaces.—Furnaces witb large area and suitable feed-heaters are the most economical in all respects. But in order to obtain the best results much care is needed in stoking. A little at a time, and often, should the coal be spread over the front of the fire, and the bright coal pusbed back to the bridge. At the same time, the least possible quantity of cold air should be admitted. It is difficult to ensure from any stoker sufficient attention to obtsin good results as a regular thing. We must, no doubt, therefore soon fall back upon the best mechanical stokers which can be obtained, if we wish to reslize the full value of good stoking.

Fordyce Dam.—The work on tbe dam being erected by the South Yuba Canal Co., at Fordyce valley, is progressing as rapidly as a large force of men can make it. We learn that it will be so far completed that by next spring it will be able to hold a body of water 38 feet deep, one mile wide and two miles long. The valley is so situated that it will catch the water falling on the hills for miles around. It will sdd greatly to the capacity of the company to furnish water to the mining companies adjacent to their ditches, and will be not only a source of increased revenue to tbe owners of the ditches, but will afford increased facilities for obtaining the precious metal from many mines of the county.—*Transcript.*

New Casing for Steam Pipes.—The following composition has been patented in England for cssing steam pipes: Potter's clay, 150 lbs; sawdust, 24 lbs; fine shavings, 12; cow's hair, 2½; tar, 18; water-glass (sp. gr. 1.7), 18 lbs; creosote, 5 pints. Another formula consists of clay, 150 lbs; cork dust, 24; cow's hair, 4; tar, 18; water-glass, 25; chalk, 10; coarse soap, 5 lbs; creosote, 7 pints.

Goon Arranoements.—The American Flat Mining company have bought one-half of the hoisting works and shaft of the Baltimore Mining company. This is a very good arrangement, as both mines adjoin, and will be prospected and worked through this shaft to the very best advantage possible.

The Consolidated Tobacco company, of Gilroy, is holding on to its prodncts for a raise in the price, which is likely to follow in consequence of the partial failure of the crops in Virginia and other Eastern States.

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American & Foreign Patent Agents,

OFFICE, 224 SANSOME STREET, S. F.

PATENTS obtained promptly; Caveats filed expeditiously; Patent reissues taken out; Assignments msde and recorded in legal form; Copies of Patents and Assignments procured; Examinations of Patents made here and at Washington; Examinations made of Assignments recorded in Washington; Examinations ordered and reported by Telegraph; Rejected cases taken up and Patents obtained; Interferences Prosecuted; Opinions rendered regarding the validity of Patents and Assignments; every legitimate branch of Patent Agency Business promptly and thoroughly conducted.

Our intimate knowledge of the various inventions of this coast, and long practice in patent business, enable us to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most steadfast friends and patrons, who fully appreciate our advantages in bringing valuable inventions to the notice of the public through the columns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity.

Foreign Patents.

In addition to American Patents, we secures with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, British Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales. Queensland, Tasmania, Brazil, New Grenada, Chile, Argentiue Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainable.

No models are required in European countries, but the drawings and specifications should be prepared with thoroughness, by able persons who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

Our schedule prices for obtaining foreign patents, in all cases, will always be as low, and in some instances lower, than those of any other responsible agency.

We *can and do* get foreign patents for inventors in the Pacific States from two to six months (according to the location of the country SOONER than any other agents.

Home Counsel.

Our long experience in obtainiug patents for Inventors on this Coast has familiarized us with the character of most of the inventions already patented; hence we are frequently able to save our patrons the cost of a fruitless applicatiou by pointing them to the eame thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applications which will interfere with their obtaiuing a patent.

We invite tbe acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to tbe Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

Situated so remote from the seat of government, delays are even more dangerous to the inventors of the Pacific Coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor.

Confidential.

We take great pains to preserve secrecy in all confidential matters, and applicants for patents can rest assured that their communications and business transactions will be held strictly confidential by us. Circulars free.

Engravings.

We have superior artists in our own office, and all facilities for producing fine and satisfactory illustrations of inventions and machinery, for newspaper, book, circular and other printed illustrations, and are always ready to assist patrons in bringing their valuable discoveries into practical and profitable use.

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Hints to be Remembered.

A note dated on Sunday is void.
A note obtained by fraud, or even from one intoxicated, can not be collected.
If a note be stolen it does not release the maker—he must pay it.
An indorser of a note is exempt from liability, if not served with notice of its dishonor within twenty-four hours of its non-payment.
A note by a minor is void.
Notes bear interest only when so stated.
Principals are responsible for their agents.
Each individual in a partnership is responsible for the whole amount of the debts of the firm.
Ignorance of the law excuses no one.
It is a fraud to conceal a fraud.
The law compels no one to do impossibilities.
An agreement without consideration is void.
Signatures in lead pencil are good in law.
A receipt for money is not legally conclusive.
The acts of one partner bind all the others.
Contracts made on Sunday can not be enforced.
A contract made with a minor is void.

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A COMPLIMENT.

PLAINSBURG, MERCED CO., CAL., June 22, 1874.

DEWEY & Co.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which you have displayed in procuring my patent.

Although you were entire strangers to me when I first communicated with you, I soon felt satisfied you were gentlemen of integrity, and shall always be happy to represent you as such. Very truly yours,

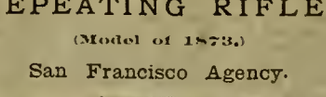
H. W. RUCKER, M. D.

The MINING AND SCIENTIFIC PRESS, San Francisco, Cal., Dewey & Co., is a rich *placer*, wherein golden information may be found, valuable to any searcher after knowledge.—*Newark Manufacturer.*

THE NEW WINCHESTER REPEATING RIFLE,

(Model of 1873.)

San Francisco Agency.



The Winchester Repeating Arms Company, of New Haven, Conn., have recently made still further valuable improvements on the celebrated Henry Rifle, which now make it, beyond doubt, the most magnificent weapon in the world. They have just introduced this beautiful arm upon the market, and their San Francisco Agency is fully supplied with all the various styles, together with cartridges for the same.

In the manufacture of the new gun, iron mountings (blued or case-hardened) have been substituted for gun metal or brass, thus increasing the strength of the arm and decreasing its weight. It is also now so constructed as to carry a Central Fire Cartridge holding one-third more powder than used in the cartridge of the model of 1866, thereby greatly augmenting the power and accuracy of the weapon.

THE SPORTING RIFLE

Has a Set or Hair Trigger which can be used at will—set or not set, as preferred. All the arms have a sliding lid which covers the opening in which the Carrier Block moves up and down. This lid, by the action of the Carrier Lever, is always open when the gun is fired, and closed by hand when the firing ceases, thus protecting the lock and inner works of the gun from dust and rain.

Various other improvements, which it is not necessary to mention in detail, by which the strength of the several parts is increased and the general appearance of the gun improved, have also been made.

There is now a greater variety of the Sporting Rifle than heretofore. They can be had with a length of barrel (round or octagonal) ranging from 24 to 30 inches, fitted with Globe and Peep Sights, or any other kind in use.

The Carbine is now made with all the improvements above referred to, except the set trigger.

The Sporting Rifle and Carbine will also be made as Extra Arms, Gold, Silver or Nickel Plated, plain or beautifully engraved.

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Still further improvements have been accomplished which overcome all objections heretofore raised against the Repeating Rifle as an army gun. It is safe, certain and effective in fire, whether used with deliberation or during excitement in action, and no more motions are required than in operating the old model gun.

More extended and minute particulars concerning the new gun can be had by writing or applying to the San Francisco Agency for circular.

CARTRIDGES.

The trade is notified that the Shells of the Central Fire Cartridge for the new gun can be reloaded, and that the Winchester Repeating Arms Company are manufacturers of every description of Cartridge used for Carbine, Rifle and Pistol of any make, and that the Company have a full stock constantly on hand at their San Francisco Agency

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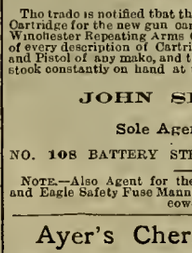

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13v29-tf

TO MILLMEN AND MINERS.

ASSIGNEES' SALE. IN BANKRUPTCY.

NOTICE IS HEREBY GIVEN THAT THE UNDERsigned, under and by virtue of the power and authority vested in them, and by virtue of an order of the District Court of the United States for the District of California, made and entered on the 16th day of September, A. D. 1874, in the matter of the MENDHA SILVER MINING COMPANY, Bankrupt, will sell at public auction, in the city and county of San Francisco, at the auction salesroom of John Middleton & Son, No. 310 Montgomery street, on

Friday, the 23d day of October, A. D. 1874
At 12 o'clock, M.,

All that certain mining and mill property and premises situate in Highland Mining District, near Pioche, State of Nevada, described as follows, to-wit:

One twenty-stamp mill and machinery, together with the appurtenances belonging to the same and necessary for the proper working thereof;

Also, the mill site and the spring known as Mendha Spring, and the tract of land surrounding the same to the extent of twenty (20) acres;

Also, all the water-pipe connecting the springs with said mill;

Also, the buildings, office, stable, boarding-house, etc., upon said land and adjacent to said mill;

Also, the "Stetefeldt" furnace in said mill;

Also, the following named mines, to-wit:

Mendha Mine;
Mendha West Extension Mine;
Regent Mine;
Arizona No. 2 Mine;
Chief Mine;
Crown Prince Mine;
Sadowa Mine;
Alaska Mine, and
Mendha East Extension Mine;

Also, the hoisting works, machinery and all other appurtenances connected with said mines, mill and premises.

Said property is known as the Mendha Mill and Mines.

Terms of Sale—Cash in U. S. gold coin; ten per cent. on fall of hammer, balance on confirmation by U. S. District Court.

For particulars respecting this property apply to the undersigned, at their respective places of business, and to J. M. SEIBERT, Agent of Wells, Fargo & Co., at Pioche, Nevada

Dated San Francisco, September 17, 1874.

WILLIAM A. SCOTT, JR.,
At Wells Fargo & Co.'s, San Francisco.

And HENRY C. HYDE,
Room 21, No. 411½ California street, San Francisco.
Assignees of Mendha Silver Mining Company, Bankrupt.
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Showing the boundaries of the principal mining districts, some 30 in number, adjacent to Salt Lake City. Price, pocket form, $2.50.

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Showing the location of some 400 mines and tunnel sites, together with the mines surveyed for U. S. Patent. Price $3. For sale and mailed to any part of the globe, on receipt of price, by A. L. BANCROFT & CO., A. ROMAN & CO., and LECOUNT BROS. & MANSUR, San Francisco. 10v25-tf

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Standard sizes of railroad Car Wheels, with special patterns for Mining Cars. These small wheels are made of the best Car Wheel Iron, properly chilled, and can be fitted up with the improved axle and box—introduced by this company, and guaranteed to outlast any other wheels made in this State.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

[Continued from Page 245.]

works well and does not require timhering. Daily rate of advance, 12 feet, the header beiug 10 by 14 feet in size.

UNION CONSOLINATED.—Cross-cutting to the eastward from the msin north drift, on the 1,300-ft. level of the Ophir is heing pushed with all tbe vigor possible.

OVERMAN.—The ore in the north drift on the 1,200-ft, level continues of a fine character and gives great promise of rich and permanent developments.

DANEY.—The quartz and ore in the face of the main west drift on the 400-ft. level shows nndouhted indications of soon reaching the ore vein.

BUCKEYE.—The ores are holding out finely, and continue to furnish the mill with a steady supply of good milling ore.

DARDANELLES.—The timbering at the bottom of the new shaft is completed and sinking actively resomed.

IOWA.—The north drift from the west tunnel is heing repaired, preparatory to a further development of tbe streak of ore struck in it several years ago.

KNICKERBOCKER.—The shaft is down 28 feet below the 700-ft. station which is now opeoed ready to commence drifting for the ledge.

NEW YORK.—The main east drift at the 550-foot station, strnck, during the week, a fine streak of quartz ahout three feet in width. This streak of quartz gives average assays as high as $40 per ton.

CALEDONIA.—The south winze from the 800-foot level has made connection with the west drift from the 900-foot station, furnishing a much-needed ventilation and greatly facilitatiog the work on these levels.

LEO.—The streak of ore in the east cross-cut from the north drift is not quite so wide as it was last week, but is of a fine qnality.

GLOBE CONSIOLNATED.—A large amonnt of ore has been developed io the upper levels and is now ready for extraction.

JUSTICE.—The fatal affray of last Saturday evening, growing out of a change in the Superintendency, temporarily arrested the working of the mioe, hut on Sunday work was resumed in the old Justice works, or north portion of the mine, under the direction of G. F. Kellogg, the new Superintendent.

FLORIDA.—The new shaft is being sunk to tbe east of the ledge and has attained a depth of 335 feet.

NEVADA.—The south tunnel is in 190 feet, the last 8 feet is solid quartz and ore, a considerahle portion of which is fair grade.

Arizona.

ITEMS.—Arizona *Citizen*, Oct. 3: Mining activity continues noticeahle. D. C. Thompson is in full chsrge of the Oro Blanco, with his family at the works.

C. O. Brown, lately returned from the Oro Blsnco, and on Thursday he and E. M. Pearce started for the Quacharty and other mines out that way. David Shultes was here early in tbe week. He says the great drawhack to his work on the Quacharty, is the want of water, but that he is determined to remedy hy finding it.

Judge McCarty and D. A. Bennett returned, since our last paper was printed, from the Ostrich gold mioe near the Oio Blanco. Work is going on there, but the Judge thinks more development ought to have been shown for the labor bestowed. It is nothing new to hear of much hard labor heing practically thrown away hy had judgment in the manner of its application.

L. J. F. Iaeger, of Yuma, and Hill de Armitt, of Florence, arrived here on Wednesday, and left for their mines to which they are gettiog patents. The mines lie southwest of Tucson and their locality has been fully described in advertisements in the *Citizen*.

The new and costly smeltiog furnaces of the Coronado company at Clifton, have been completed and fires put under them. That district is the scene of the largest mining operation in Arizona.

Idaho.

MINING NOTES — IDA ELLMORE. — Owyhee *Avalanche*, Oct. 10: The shaft is down 26 feet helow the 12th station. When the 13th station is reached it will be 1,146 feet deep. The ledge will then be cut at the 11th, 12th and 13th stations, which will open up 350 feet of ground all at once.

MOHOGANY.—The maiu shaft is down 70 feet helow the 9th level station, and it is expected to reach the 10th by the first of next month. The 8th aud 9th level drifts south still continne to be pushed ahead in good ore.

SILVER CORD.—The 2d aud 3d level atopes are still running on splendid ore, some of which ia extraordinarily rich. The winze being sunk to open up the 4th level, is now 110 feet, carrying good ore all the way and getting richer as depth is attained.

SOUTH EMPIRE.—Jas. Munroe & Co. have just had 44 tons of ore from this mine milled, and we understand it paid handsomely. This ore was taken out hy four men in six weeks. The average width of the ore is about 20 inches. The South Empire hids fair to make a splendid mine.

Oregon.

MINING ITEMS.—*Oregonian*, Oct. 10: Aoother silver mioe discovery at Hope is reported. A party of three men have started to prospect for gold on the Marshall creek, a tributary to the Nesquatly. This creek is situated about 40 miles from Olympia, and it is reported that gold has been found there in paying quantities.

A LETTER from Rye valley, Baker coonty, says: Bnsy times at present in this valley; everyhody preparing for winter; clesning out ditches and repairing races for the spring campaign of mining; considerable excitement on tne quartz qnestion. Len Adams is still running his arrastras with rock from the Mormon hasin; Gilchrist & Davidson are still ponnding away with their mill, with good results; Porter & Son have finished huilding their arrastras, and are grinding some rock, but water is very scarce with them. Green & Co. are at work huilding their mill; Scott is at work on his new discovery; Davis & Durkee have sunk a shaft 40 feet in depth on their ledge, and it prospects hetter the deeper they go. New discoveries are heing made every week.

Late News.

THE Union Pacific and Kansas Pacific Railroads have entered into an agreement to prorate on all passenger and freight business.

VANDERBILT AND THE RAILROADS.—Commodore Vanderhilt does not take a cheerful view of the railroad ioterests. He recently said to a reporter: "If I was only clear of railroad interests I would never put another dollar io them, and I hope to live sometime yet."

POLITICAL.—The estimated Republican majority at the late election in Iowa, is 40,000; in Nehraska, 1,000. The Democratio majority in Ohio is set down at 15,000; in Indiana, from 1,000 to 1,500. Arkansas has ratified the new Constitution.

THE POST OFFICE DEPARTMENT.—The expenses of the post-office departmeot for the present yesr over those of last year were $3,041,468. The increase of revenue during the same period has heen $3,474,330. The total receipts for the year were $26,471,071.

THE STRANDED "ALASKA."—Advices received by the officers of the Pacific Mail Steamship Company represents that the steamship *Alaska* stranded, io the late typhoon on the China coast, had not heen released from her perilous position up to latest reports.

THE ROSS LIBEL SUIT.—The libel suit of Christian Ross (father of the kidnapped boy), against the Reading *Eagle* has resulted in a verdict against the defendants, the jury beiog out only a few moments. A motion for a new trial was made, and the defendsnts admitted to bail.

TROUBLE BETWEEN CHINA AND JAPAN.—Telegraphic advices from Japan received at the Navy Department and dated September 4th, state that the difficulties between that country and China were still unsettled, and hoth parties were concentrating their forces on the Island of Formosa at strategic points on their respective coasts. A settlement of the difficulty is thought to depend on the result of the negotiations of the Japanese Emhassadors at Pekin.

THE AUSTRALIAN MAILS.—Postmaster Coey is officially informed that at the reqnest of the Government of New Zealand, the use of the San Francisco ronte for the transmission of mails from Great Britain to New Zealand has been temporarily discontinued, and that all mails for that Colony will, uotil further notice, be forwarded by the Suez and Melhouroe ronte. The mails for New South Wales and the other Anstralian Colonies will continue to be forwarded from the United Kingdom for dispatch via San Francisco.

CONDITION OF THE CROPS THROUGHOUT THE COUNTRY.—The Octoher returns of the Department of Agriculture indicate an average condition of the crop to be 86 per cent. in Septemher. All the New England States show an improved condition, exeept Main and Connecticut, aod the Middle States show a decline. The South Atlantic, Coast and Gulf Statea will ahout hold their owo, except Louisiana, where the average decreasea from 76 to 69. Of the Southern inland States Tennessee and Weat Virginia show considerahle improvement. Arkanaas and Kentucky are almost stationary. North of Ohio the condition of the crops was more favorahle in Michigan, Indiana and Illinois, which show rising averages. Wisconsin declined four per cent. Weat of the Mississippi and on the Pacific Coast all the States show an improved condition, except Oregon, which remains the same. In the States afflicted with the grass-hopper plague, a considerable improvement upon the low averages of last month is manifest.

GRANGERS IN THE UNITED STATES.—The publication of 25,000 additional volumes of Agricultural Reports for 1872 is now in progress and will be completed in ahout two weeks. From authentio sources it is ascertained that the number of snbordinate Grangea of the Order of Patrons of Husbandry, on the 1st inst., was 20,800. The increase of new Granges during the month of September was 409, which is several hundred less than for the corresponding period last year. In fact, for several months past, the number of subordioate Granges established has fallen off considerably since last year, owing to the fact that Grangers have been eatahlished in nearly every county in the United States. The number of Grangers in the United States is eatimated at 1,500,000. The States haviog more than 1,000 subordinate Granges are as follows: Iowa, 1,513; Kentucky, 1,425; Kansas, 1,350; Ohio, 1,031; Tennessee, 1,003. The next session of the National Grange will be held at Charleston, Sonth Carolina, on the first Wednesday in February.

FIRES.—Several destructive fires have occurred in different parts of the Eastern States dnriog the past week, among which may be mentioned the destruction of the Baltimore Opera House on Monday night, with a loss of $80,000, and the salt mill and packing house of Barkns & Co., at Syracuse, New York. Loss, $100,000.

THE ballooning folly in tbis city has finally come to a tragic termination in the desth of young Buislay. It is fortunate that hut one life has been sacrificed. It is to he hoped that we have seen the last of it, for the present at least, in this city. As prosecuted here it has served no useful purpose whatever, either practical or scientific.

From an Inventor.

The following letter, which was recently received from an old client of Dewey & Co., now residing in one of the Eastern States, speaks for itself, and will do more, perhaps, to convince inventors of our capacity for business than any nnmher of locsl oompliments. We extract as follows:

GENTLEMEN: It was through your house that I secured my first patent, and although I have since done business here in the Atlantic States with the ableat patent solicitors—gentlemen who have done me justioe—yet I have often regretted that you were too far off to advise with me in my cases. It has taken a longer time with every patent I have taken out since I left California and came East, than in the cases you prepared for me in San Fraocisco, which is certainly very creditahle to yon.

By the way, one of my patents has passed the ordeal which is the essential test of a patent's value. I mean that of a trial in the courts, and it atood the hattling of one of the best lawyers in the couotry. Tbe specifications and claims were completely made out and there was a perfect comprehension of its principle dnring the trial. Since giving it this test we thought that we would make it even stronger, if possihle, and submitted it to one of the hest patent solicitors for advice. After a careful examination of the case he advised us to let it alone as it stood, saying that whoever made up those papers understood their business. I then informed him that they were drawn np by Dewey & Co., of San Francisco, and he replied that he koew you well hy reputation. * * * * * Very truly yours,

L. L. SAWYER.

Meriden, Conn., May 16, 1874.

STARTED UP.—Work has heen resumed on the main shaft of the North Utah mine, on the Comstock.

WELLS, Fargo & Co. shipped $112,695.59 in hullion from Austin during September.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIO PRESS, DEWEY & OO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Oct. 13th, 1874.

FOR WEEK ENDING SEPT. 29th, 1874.*

CARTRIDGE FOA EXTERMINATING BURROWING ANIMALS.—Lysander Collins, Alma, Cal.

———*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

NOTE.—Copies of U. S. and Foreign Patents furnished hy DEWEY & Co., in the shortest time possihle (by telegraph or otherwise) at the lowest rates. All patent business for Pacifio coast inventors transacted with perfect security and in the shortest time possihle.

Our Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, hy assisting Agents in their labors of canvassing, hy lending their influence and encouraging favors. We intend to send none but worthy men.

L. P. MoCARTY—General Agent.
W. H. RATTENBERRY—Californla.
CHAS. W. OTIS—Contra Costa County.
CHAS. T. BELL—Alameda, Santa Clara and Santa Cruz Counties.
J. W. ANDERSON—Orange and Santa Ana, in Los Angeles Connty, Cal.
HOON ALSTON—San Luis Ohispo, San Bernardino and San Diego Counties.
JAS. KEARNEY—Amador, Calaveras, Tuolumne and Mariposa Counties.
B. GOONWIN—Sacramento County.
S. G. CRAWFORD—Nevada, Sierra and Plumas Counties.
J. G. KELLEY—For Washington Territory.
B. W. CROWELL—California.
F. B. ALDERSON—Nevada.

ANAHEIM, July 30, 1874.

MESSRS. DEWEY & Co.—*Gentlemen:* Owing to temporary absence I have heen unable to acknowledge the receipt of Letters Patent for my "Transplanter," up to this time. I take this opportunity to hear witness to the efficient manner in which everything connected with your Patent Agency is conducted, and also the uniform courtesy and kindness I experienced at your hands. I mean to advertise the "Transplanter" in the PAOIFIO RURAL PRESS. Yours respectfully,

TIMOTHY CARROLL.

CAMPO, SAN DIEGO Co., CAL., July 3d, 1874.

MESSRS. DEWEY & Co.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my hest wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. GASS.

Fourth Year of the Pacific Rural Press.

The puhlishers of this journal design making its weekly issnes during its fourth year (1874) still more acceptahle and valuahle than those of the past.

A Farmer's Paper Always.

The RURAL PRESS—established Jan., 1870, has been thoroughly a farmer's paper—"first, last, and always." Its success in popularity and rapidly increasing circulation has exceeded that of any other weekly on the coast.

Neither Politice or Creede.

We refer with satisfaction to the independent, chaste and useful character of our reading matter and the absence from our columns of questionable and demoralizing advertisements.

We shall strive to make it an ever welcome visitor to those who desire to constantly

Improve the Heart and Mind,

And shall give a larger space to our HOME CIRCLE department, which from the first has heen a popular feature of the RURAL.

Our aim is to gather information from all reliable sources, in the varied forms in which it is to he obtained. Our work is to divest our gleanings of all superfluities; condense such information as is of most importance to our special class of readers—give it to these in the plainest and fewest words possihle,—saving *heir time* hy *our labor*.

Our Leading Departments

Will be continued under the following heads:

The Home Circle,	The Horse,
Young Folk's Column,	The Swine Yard,
Short Stories,	Sericulture,
Home and Farm,	The Vegetable Garden,
Useful Information,	The Flower Garden,
Domestic Economy,	The Vineyard,
Good Health,	The Orchard,
The Dairy,	Tropical Fruits,
The Apiary,	Small Fruits,
Poultry Notes,	The Cereals,
Horned Stock,	Pasturage, etc.,
Sheep and Wool,	Fertilizers,
Goats,	Miscellaneous.

Practical Farmers

Know how important it is that the above subjects should he treated from a local standpoint—that generally the farming tactics of the East will not do for this coast; that agriculture, in its infancy here, can derive greater henefits from an exchange of experience through the columns of the press than in older fields. Constantly observing and studying developments in the special field we represent, we can he expected to give truer information on agricultural subjects, than more general writers at home or abroad.

Our Traveling Correspondents

Will do much service hy gathering a largo amount of interesting information from various parts of the Coast, which, hut for their research and practiced observation, might never he placed on record or reach the eye of the reading public. Of our many

Local Correepondents

We have particular reason to he proud. No paper on this Coast—old or new—has ever heen so highly favored with volunteer contributions. They are talented, reliable, independent and generous representatives of an intelligent and enterprising people, noble types of good humor, unselfishness and true progress.

Short Stories,

Original and selected, will hereafter appear in each number. Their selection, we trust, will he such as to render them popular and unobjectionable to all. In addition to a large number of

Fine Engravings,

Representing Choice Stock, Farm Products, Scenery, Remarkable Productions, Improvements in Farming Implements and Machinery, Works of Art and the Beautiful in Nature, we shall from timo to time present the modest

Faces of Prominent Farmers

Who, as pioneers in the development of agricultnre on this Coast, or as active laborers in the "Farmers' Cause," are worthy of the distinction they enjoy, and the favor with which they are looked upon hy our many readers at home and ahroad.

Engravings (costing thousands of dollars originally) are inserted in our columns during a single year. They afford instant and perpetual impressiona often more derfect and real than words can convey.

Patrons of Husbandry.

We shall continue to give our weekly summary of matters connected with the interest and progress of this growing and important movement. We shall aim to give information as fresh as possihle in this department. Its readers are aware that the RURAL has heen in the lead in calling farmers to organize. We shall continue to work zealously with the Granges for the nohle objects of the Order.

The present is an

Important Period

In the history of our Coast. The coming 12 months promise greater developments in its agricultural progress than have heen experienced in any previous year. Agriculturists are alive to improvements in every direction, and those who would keep up with the spirit of the times should certainly read the RURAL PRESS.

The S. F. Market Reporte

Will receive greater attention in the department of DOMESTIO PRONUCE than that of any other weekly journal. We shall spare no pains to render the reports as reliahle and complete as possihle. By the employment of our special reporter we hope to make this very important part of our paper one of its hest and most satisfactory features.

Kind Words and Acts

Have done much to huild up in this isolated and sparsely settled coast so large and complete an agricultural journal as the PAOIFIO RURAL PRESS. We commence the new year with a regular circulation of

Over 5,000 Copies,

A far greater issue than that of any weekly on this Coast, independent of a daily publication. If our friends will continue to "help us help ourselves," we hope to reach a circulation of 8,000 this year, and do a correspondingly greater service of good. While we have the greatest advantages and can make hy far the hest weekly for

Agriculturists on This Side of the Continent,

We cannot expect one-half so large a circulation as jonrnals in older and more populous districts. Consequently readers cannot rightly expect such a paper here at Eastern rates.

No Premiums But a Good Paper

Do we offer. A flashy chromo (or cheap map), with an ill suited paper, will hardly satisfy the farmers of this Coast, whose time is too precious for trifling. To many of you the henefit of a reliable and valuable paper should reach a hundred fold its cost, while to all a poor journal would he dear at any price.

Sample Copies Furnished Free

On receipt of stamp for postage.

Agents are Wanted

Who will do more or less active canvassing. To such we will furnish free samples and pay liherally for their services.

Terms of Subscription:

One year (payable in advance) $4.00
Six months 2.25
To Granges and Farmers' Clubs, furnishing club lists, $3 per annum.

DEWEY& CO., Publiahers,
Office, No. 224 Sansome street, San Francisco.

GENERAL MERCHANDISE.

WEDNESDAY M., Oct. 14, 1874.

There have been few changes during the week. Coffee will doubtless be shakenby the result of to-day's sale. Sugar is dull. Tea is dull, and will be rendered still more so by the next great sale. Rice is dull; so are Candles, at least Eastern. Iron manufactured has dropped ¾c ₱ lb, as also Pig Iron, which is now selling to arrive at $39@40, a reduction. English Chemicals are ½ to ¾c less than the previous week. Clak Claret has declined and is now as low as $46. Absinthe has advanced to $15.25@16, and Medium Cal. Bacon, ¾c. Table Fruits sustain the advance of 25c noted last week. Hardware is dull; Nails have declined to $4.25 jobbing: Domestics are unsatisfactory; Foreign Dry Goods have been very satisfactory; Boots and Shoes sell well; Clothing is dull; Drugs are dull.

BAGS.		Downer Karose'e	— @ 37½
Eng. Stand Wht...12¼@12½		Gas Light Oil....	— @ 26
Detrick's Machine		**PAINTS.**	
Sewed, 21x36 E...	—@13	Atlan. W. Lead.	6 @ 10¾
do 22x36, do E W —	@13¾	Whiting.....	— @ 2
do 20x40, do A....	—@13¾	Putty	4 @ 5
Flour Sacks ¼s..	9¾—@11½	Chalk.....	— @ 2½
½s..	6 —@ 7	Paris White.....	2¼@ —
Stand. Gunnies,		Ochre.....	2 @ 5
double seam...	15 @15¾	Venetian Red..	3½@ 5
single seam....	13¾ @14	Red Lead.....	7 @ 11
" Wool Sacks.	60 @67½	Litharge.....	10 @ 11
Barley Bags 24x35 —	@14	Eng. Vermillion	2 00@2 10
do 22x40 —	@15	**RICE.**	
do 24x40 —	@15	China No. 1, ₱ lb	6¾@ 6¾
do 28x36 —	@16	do 2, do.	5¾@ 5¾
Oat Bags, 24x40....	16 @16½	Japan.....	— @ 6¾
do 28x36....	18 @20	Siam Cleaned...	5¾@ —
Hessian 40-in.gds	9¼ @10	Patna.....	5 ¾@ 5¾
do 45	10¾ @11	Hawaiian.....	— 7¾@ 8
do 60	— @15	Carolina.....	10 @ 10½
CANNED GOODS.		**SALT.**	
Asst'd Fie Fruits		Cal. Bay, per ton	10 00@14 00
in 2¾ ₱ cans.	2 75 @— —	do Common..	5 00@ 7 00
do Table do...	3 50 @ 4 00	Carmen Island...	11 00@13 00
Jams & Jellies	3 75 @ 4 00	Liverpool fine...	—@22 00
Pienics ¾ gl..	— @ 2 50	do coarse	18 00@— —
Sardines, qr box	8½ @— —	**SOAP.**	
do hf boxes.	3 25 @— —	Castile ₱ lb....	10 @ 11
COAL—Jobbing.		Local brands....	5 @ 8
Australian, ₱ ton	10 25 @10 50	**SPICES.**	
Coos Bay.....	— —@10 00	Cloves.....	— @ 50
Bellingham Bay.—	— @ 8 50	Cassia.....	26 @ 27
Seattle.....	— —@11—	Citron.....	— @ 30
Cumberl'd, cks..	— —@18 00	Nutmeg.....	1 20 @1 25
do bnlk...	15 00 @17 00	Whole Pepper...	18 @ 19
Pictou.....	— 25 @28 50	Pimento.....	— @ 13½
Lehigh.....	— —@17 00	Gr'nd Allep pr dz	—@1 12½
Liverpool.....	10 50 @11—	do Cassia do..	—@1 50
West Hartley....	11 00@— —	do Cloves do..	—@1 50
Scotch.....	9 50 @10 00	do Mustard do	—@1 20
Scranton.....	— —@11 00	do Ginger do..	—@1 00
Vancouver's Isl..	11 00 @11 50	do Pepper do..	—@2 00
Charcoal, ₱ sk...	75 @— —	do Mace do..	—@2 00
Coke, ₱ bbl.....	— @ 60	**SUGAR, ETC.**	
COFFEE.		Cal. Cube per lb.	11½@—
Sandwich Island	— @ 22	Paris' Pro. Cube	
Central Americ'n	19 @ 20	bbl or 100 ₱ bxs	— @ 11¾
Costa Rica per ₱	19 @ 21½	do in 50 ₱ bxs..	— @ 12
Guatemala.....	18 @ 20½	do in 25 ₱ bxs.	— @ 12¼
Java.....	— @ —	Circle Ground	— @ 11½
Manilla.....	19 @ 20	Powdered.....	— @ 11¾
Oronnd in oe....	— @ 27	Granulated.....	— @ 11
Chicory.....	9 @ 10	Dry granniated	— @ 11½
CORDAGE.		Hawaiian.....	8 @ 10½
Pac. Dry Cod. new	5 @ —	California Beet.	@ 1
cases.....	— @ —	Golden C.....	— @ —
do boneless....	11 @ 12	do Rey'g grade	— @ 6¾
Eastern Cod.....	— @ —	Cal. Syrup in bls.	@ 7½
Salmon in bbls..8 00	@8 25	do in ½ bls.	@ 7¾
do ½ bblst 50	@4 75	do in kegs..	— @ 75
do 2¼ ₱ cane —	@3 00	Hawaiian Molasses.	25 @ 27½
do 2 ₱ cane..2 65	@2 75	**TEA.**	
do 1 ₱ cans..1 75	@— —	Oolong, Canton, ₱ lb	19 @ 25
Do Col. ½ ₱ bx..	— @1 00	do Amoy....	28 @ 50
Pick. Cod, bbls.22 00	@— —	do Formosa	40 @ 80
do ½ bblsl 00	@— —	Imperial, Canton	25 @ 40
Bos. Sm'k'd Her'g	@4 50	do Pingsney	45 @ 80
Mack'l, New, ½ bbls	8 00 @8 50	do Moyune..	50 @1 00
" Extra.....	—@9 00	Gunpo'der, Cant.	30 @ 42½
" in kite....	2 00 @2 50	do Pinganey	50 @ 90
" Ex mess..	3 00 @3 50	do Moyune.	55 @1 25
" Ex mess, ½ bbls	—@12 00	Ynng Hy., Canton	28 @ 40
Sm'k Herr'g, bx	56 @ 60	do Pingsuey	40 @ 70
NAILS.		do Moyune..	55 @ 85
Assorted size, ₱ 4	37½@7 50	Japan, ½ chests, bulk	30 @ 75
OILS.		Japan, lacquered bxs, 4½ and 5 lbs	45 @ 67
Pacific Glue Co.		Japan do, 3 lb bxs	45 @ 90
Neat F't No. 1.	— @ 90	do pl'n bx, 4½ lb	35 @ 65
Pure.....	— @— —	do ½ paper	30 @ 55
Castor Oil, No. 1..	— @1 75	**TOBACCO—Jobbing.**	
do do No. 2..	— @1 60	Bright Navys....	50 @ 55
Cocoanut.....	60 @65	Dark do	50 @ 55
Olive Plagniol..5	00 @— —	Dwarf Twist....	55 @ 70
do Poseel....4	75 @— —	12 inch do	60 @ 70
Palm lb.....	9 @— —	Light Pressed...	65 @ 75
Linseed, raw....	— @1 05	Hard do ..	50 @ 60
do boiled.....	— @1 10	Conn. Wrap'r....	35 @ 40
China nnt in oe..	82½@ 85	Penn. Wrapper..	20 @ 45
Sperm, crude....	— @1 40	Ohio do do	15 @ 20
do bleached..	— @2 20	Virgi'a Smok'g..	45 @ 75
Coast Whalee...	60 @— —	Fine ot ohe'g, gr..	8 60 @9 25
Polar, refined...	50 @ 55	Fine ont ohew-ing, bno'ts.	75 @ 90
Lard.....	1 15 @1 30	Banner fine cnt..	9 00@ 9 25
Coal, refined Pet	37½@— —	Eureka Cals....	— @9 00
Oleophine.....	20 @ 23	**TURPENTINE.**	
Devoe's Brill's...	25 @ 27	Eastern.....	65 @ 70
Long Island....	20 @ 23		
Eureka.....	— @— —		
Devoe'a Petro'm	20 @ 23		
Barrel kerosene	20 @ 23		
Olive.....	4 00 @9 50		

METALS.

WEDNESDAY M., Oct. 14, 1874.

American Pig Iron, ₱ ton	— —	@	42 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig, ₱ ton	— —	@	42 00
Oregon Pig, ₱ ton	— —	@	46 00
Refined Bar, bad assortment, ₱ lb	— —	@	3½
Refined Bar, good assortment, ₱ lb	— —	@	4
Boiler, No. 1 to 4	— —	@	5½
Plate, No. 5 to 9	— —	@	5½
Sheat, No. 10 to 13	— —	@	5½
Sheet, No. 14 to 20	— —	@	5¾
Sheet, No. 24 to 27	— 08	@	09
Horse Shoes, per keg	7 50	@	6 00
Nail Rod	— 9¾	@	— —
Norway Iron	— 8	@	— —
Rolled Iron	— 5	@	— —
Other Irons for Blacksmiths, Miners, etc.	— —	@	4½
COPPER.—			
Brazier's	— 31	@	32
Copper Tin'd	— 45	@	— —
O. Nie's Pat	— 50	@	— —
Sheathing, ₱ lb	— —	@	24
Sheathing, Yellow	— —	@	28
Sheathing, Gold Yellow	— —	@	12½
Composition Nails	— 24	@	— —
Composition Bolts	— 24	@	— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	13 00	@	14 50
Plates, I C Charcoal	12 75	@	14 50
Roofing Plates	11 50	@	14 00
Banca Tin, Slabs, ₱ lb	— 31	@	— 33
STEEL.—English Cast, ₱ lb	— 20	@	— 25
Anderson & Woode' American Cast	— 18	@	— 20
Drill	— 18	@	— 22
Flat Bar	— 18	@	— 22
Plough Points	— 16	@	— 17
ZINC.	— —	@	— 11
Camo, Sheet	— —	@	— 11½
NAILS—Assorted size	— 5¾	@	— 8
QUICKSILVER, per lb	— —	@	1 45

LEATHER.

WEDNESDAY M., Oct. 14, 1874.

Leather is now held quite firmly. The fall trade is fully as fair as was anticipated. French has an upward tendency and Domestic stock is quite firm.

City Tanned Leather, ₱ lb	28@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	24@28
Stockton Leather, ₱ lb	25@29
Jodot, 8 Kil., per doz	$50 00@ 54 00
Jodot, 11 to 19 Kil., per doz	66 00@ 80 00
Jodot, second choice. 11 to 15 Kil. ₱ doz	55 00@ 72 00
Cornellian, 12 to 18 Ko	57 00@ 67 00
Cornellian Females, 12 to 13	60 00@ 64 00
Cornellian Females, 14 to 15 Kil	66 00@ 74 00
Beaumerville, 15 Kil	60 00@— —
Simon, 18 Kil., ₱ doz	51 00@ 63 00
Simon, 20 Kil., ₱ doz	65 00@ 67 00
Simon. 24 Kil, ₱ doz	72 00@ 74 00
Robert Calf, 7 and 9 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 15
California Kip, ₱ doz	40 00@ 8 00
French Sheep, all colors, ₱ doz	8 00@ 15 00
Eastern Calf for Backs, ₱ lb	1 00@ 1 25
Sheep Roane for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roane for Linings, ₱ doz	5 50@ 10 50
California Rough Linings	1 75@ 4 50
Best Jodot Calf Boot Legs, ₱ pair	5 00@ 5 25
Good French Calf Boot Legs, ₱ pair	4 00@ 4 75
French Calf Boot Legs, ₱ pair	4 00@— —
Harness Leather, ₱ lb	30@ 37½
Pair Bend Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	33@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	17@ 23
Wax Side Leather, ₱ foot	17@ 23
Eastern Wax Leather	—@— —

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Black Mountain Coal Mining Company—

Location of works, Santa Cruz County, State of California. Location of principal place of business, City and County of San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bankhead, H	30	100	$5 00
Burroughs, C B	25	25	1 25
Burroughs, C B	31	25	1 25
Forrester, J	35	50	2 50
Parshley, W H	32	25	1 25
Parshley, W H	33	25	1 25
Ramsey, Peter	52	10	50
Smith, Geo H	26	25	1 25
Smith, Geo H	34	75	3 75
Strader, W	3	1000	50 00
Strader, W	37	14	70
Strader, W	43	150	7 50
Strader, W	44	10	50
Strader, W	45	10	50
Strader, W	46	10	50
Washburn, C A	19	3000	150 00
Washburn, C A	20	1000	50 00
Wuch, Valentine	55	10	50

And in accordance with law, and an order of the Board of Directors, made on the 28th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said Company, No. 402 Montgomery street, Room No. 23, San Francisco, on the second day of November, 1874, at the hour of 12 o'clock M., of said day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

F. H. WELLS, Secretary,

Office—No. 402 Montgomery street, Room No. 23, San Francisco, Cal.

Cincinnati Gold and Silver Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Kelsey Mining District, El Dorado County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 25th day of September, 1874, an assessment of two and one-half cents per share was levied upon the capital stock of the corporation, payable immediately, in United States Gold and Silver coin, to the secretary, at the office of the Company, No. 531 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the second day of November, 1874, will be delinquent, and advertised for sale at public anction, and unless payment is made before, will be sold on Tuesday the 24th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. SMALL, Secretary.

Office—Room 1, No. 531 California street, San Francisco, Cal.

Confidence Mining Company---Location of

Principal place of business, San Francisco, Cal. Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the nineteenth (19th) day of September, 1874, an assessment of thirty (30) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 217 Sansome street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the twenty-sixth (26th) day of October, A D. 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the sixteenth (16th) day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale

W. S. ANDERSON, Secretary.

Office—No. 217 Sansome street, San Francisco, Cal.

s-p2-4t

Electric Mining Company—Location of

principal place of business, San Francisco, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the third day of September, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
C J Rader	302	150	$ 7 50
Geo Hasen	301	300	15 00
John D Connick	200	88	4 40
Joseph Taylor	289	58	2 90
Wilford Calkins	288	58	2 90
Peter McEntire	287	58	2 90
Geo W Mullen, Trustee	104	500	25 00
Geo W Mullen, Trustee	125	1000	50 00
Geo W Mullen, Trustee	292	1530	75 00
Geo W Mullen, Trustee	129	500	25 00
Walter G Holmes, Trustee	190	100	5 00
Walter G Holmes, Trustee	185	100	5 00
Walter G Holmes, Trustee	186	100	5 00
Walter G Holmes, Trustee	187	100	5 00
Walter G Holmes, Trustee	188	100	5 00
Walter G Holmes, Trustee	189	100	5 00
Walter G Holmes, Trustee	191	100	5 00
Walter G Holmes, Trustee	192	100	5 00
Walter G Holmes, Trustee	193	100	5 00
Walter G Holmes, Trustee	245	135	6 75
M G Rader	182	200	10 00
M G Rader	244	30	1 50
M G Rader	249	157	7 85
M G Rader	250	23	1 15
M G Rader	289	50	2 50
M G Rader	279	100	5 00
Wm H Sharp	241	15	75
Wm H Sharp	163	100	5 00
Henrietta Grsnt	162	400	20 00
Henrietta Grant	240	50	3 00
Louise Thompson	161	400	20 00
Louise Thompson	239	50	3 00
G S Eaton	132	25	1 25
G S Eaton	133	50	2 50
G S Eaton	134	25	2 50
G S Eaton	135	60	3 00
G S Eaton	232	24	1 20
J S Hongbton	141	50	2 50
J S Honghton	142	50	2 50
J S Honghton	144	40	2 00
J S Hougbton	173	200	10 00
J S Houghton	174	68	3 40
J S Houghton	230	51	2 55
J R Logan, Trustee	103	50	2 50
J R Logan, Trustee	225	7	35
Miss Anna Woods	75	100	5 00
Miss Anna Woods	131	500	25 00
Miss Anna Woods	280	550	27 50
Miss Anna Woods	303	147	7 35
H W Shsw	72	100	5 00
H W Shaw	237	15	75
H W Shaw	260	58	2 90
H W Shsw	274	50	2 50
H W Sbaw	275	8	40
Alfred Briggs	56	1334	66 70
Alfred Briggs	220	200	10 00
M Ellsworth	178	50	2 50
M Ellsworth	282	200	10 00
G W Terrill	47	500	30 00
G W Terrill	61	500	25 00
G W Terrill	266	5	25
G W Terrill	212	380	19 50
M A Paris	35	1000	50 00
M A Paris	35	1000	50 00
M A Paris	37	250	12 50
M A Paris	38	250	12 50
M A Paris	40	500	25 00
M A Paris	41	500	25 00
M A Paris	42	200	10 00
M A Paris	43	200	10 00
M A Paris	70	180	9 00
M A Paris	209	512	30 60
G W Hsskell	29	500	25 00
G W Haskell	30	500	25 00
G W Haskell	31	500	25 00
G W Hsskell	32	500	25 00
G W Haskell	33	500	25 00
G W Haskell	208	375	18 75
W S Thompson	273	75	3 75
Geo W Malone	55	50	2 50
Geo W Malone	57	50	2 50
Geo W Malone	58	50	2 50
Geo W Malone	59	50	2 50
Geo W Malone	50	50	2 50
Geo W Malone	177	1000	50 00
Geo W Malone	205	187	9 35

And in accordance with law, and an order of the Board of Directors, made on the third day of September, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the salesroom of Maurice Dore & Co., No. 325 Pine street San Francisco, California, on the fourth day of November, 1874, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—Room No. 13, No. 318 California street, San Francisco, California. oct10,2t.

Manhattan Marble Company of California.

Principal place of business, San Francisco, California. Location of works, Oakland, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 25th day of August, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A P Brayton	22	50	$120 00
A P Brayton	23	59	118 00
E P Flint	24	50	120 00
E P Flint	25	59	118 00
E P Flint	257	57	114 00
E Tripp	266	40	80 00
E Tripp	294	15	30 00
Geo S Ladd	83	50	100 00
Geo S Ladd	84	50	100 00
Geo S Ladd	85	19	38 00
J P Dyer	47	60	120 00
John Curry	49	20	40 00
John Curry	50	20	40 00
John Curry	51	20	40 00
John Curry	52	10	20 00
John Curry	53	10	20 00
John Curry	54	10	20 00
John Curry	55	10	20 00
John Curry	55	10	20 00
John Curry	57	9	18 00
B & J S Doe	58	50	100 00
B & J S Doe	59	50	100 00
B & J S Doe	60	19	38 00
Josiah Belden	61	119	238 00
Warren Dutton	127	30	60 00
Warren Dutton	205	50	100 00
Warren Dutton	206	50	100 00
Warren Dutton	207	18	36 00
Charles Barlow	94	60	120 00
Charles Barlow	85	59	118 00
A L Warner	96	20	40 00
A L Warner	98	20	40 00
A L Warner	100	20	40 00
A L Warner	101	19	38 00
A L Warner	282	10	20 00
A J Monnier	285	3	6 00
W H Raymond	105	100	200 00
W H Raymond	106	19	38 00
L G Sylvester	107	59	118 00
C C Warner	116	20	40 00
C C Warner	117	20	40 00
C C Warner	118	20	40 00
C C Warner	119	20	40 00
C C Warner	120	20	40 00
C C Warner	121	18	38 00
Charles Webb Howard	126	119	238 00
James L Barker	120	119	238 00
E H Dyer	280	59	118 00
D M Bokee, Trustee	183	100	200 00
D M Bokee, Trustee	281	5	10 00
C C Tripp, Trustee	148½	5	10 00
C C Tripp, Trustee	149¾	5	10 00
C C Tripp, Trustee	150	10	20 00
C C Tripp, Trustee	291	108	216 00
C C Tripp, Trustee	147	5	10 00
T M Antisell	169	50	100 00
Charles Griffith	163	119	238 00
R Wegner, Trustee	164	50	100 00
R Wegner, Trustee	165	50	100 00
R Wegner, Trustee	166	19	38 00
Wm. Holden, Trustee	168	119	238 00
G W Blake	159	7	14 00
L E Dam	186	10	20 00
L E Dam	188	10	20 00
L E Dam	189	10	20 00
L E Dam	190	10	20 00
L E Dam	197	10	20 00
L E Dam	199	10	20 00
Louisa R White	181	50	100 00
Louisa R White	192	50	100 00
Mrs Matilda Dam	211	20	40 00
Marshall Curtis	214	10	20 00
Marshall Curtis	215	10	20 00
Marshall Curtis	216	10	20 00
Msrshall Curtis	218	10	20 00
Marsball Curtis	219	10	20 00
Lswrence Lans	225	10	20 00
Lawrence Lane	229	2	4 00
Murray Curtis	230	10	20 00
Lewis Starkweather	231	30	60 00
Geo D Gregory	232	30	60 00
Mrs A E Edwards	233	10	20 00
Mrs A E Edwards	234	9	18 00
Elihn Avery	242	1	2 00
Elihu Avery	243	10	20 00
Elihu Avery	244	10	20 00
Elihu Avery	245	10	20 00
Elihn Avery	246	10	20 00
Elihu Avery	247	10	20 00
Elihu Avery	248	10	20 00
Elihu Avery	249	10	20 00
Elihu Avery	250	10	20 00
Elihu Avery	251	10	20 00
Elihu Avery	252	10	20 00
Elihu Avery	253	5	10 00
Elihu Avery	254	5	10 00
N P Cole, Trustee	262	119	238 00
A J Morrell	265	22	44 00
A J Morrell	269	50	100 00
A J Morrell	271	30	50 00
Theron R Hopkins	272	119	238 00
J D Fry	276	19	38 00
James Swan, Trustee	277	119	238 00
E A Richsrdson, Trustee	283	100	200 00
E A Richardson, Trustee	284	100	200 00
E A Richsrdson, Trustee	286	35	70 00
James A Johnson	287	19	38 00
James A Johnson	288	20	40 00
James A Johnson	289	100	200 00
James A Johnson	290	100	200 00
W P Phelps	292	112	224 00
W H Phelps	293	30	50 00
C H Leavitt	295	35	70 00
Irad Cochran	125	119	238 00
Wm Holden	280	5	10 00

And in accordance with law, and an order of the Board of Directors, made on the 24th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public suction, at No. 212 Sansome street, San Francisco, on Tuesday, the 20th day of October, 1874, at 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. B. CLASON, Secretary.

Office, 212 Sansome street, San Francisco, Cal.

Oceanic Quicksilver Mining Company—

Location of principal place of business, San Francisco, California. Location of works, San Simeon Mining District, San Luis Obispo County, California.

Notice is hereby given, that at a meeting of the Directors, held on the 12th day of September, 1874, an assessment (No. 1) of forty cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the company, 438 California street, up stairs, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 15th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 10th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. F. CRONISE, Secretary.

Office—No. 438 California street, San Francisco, Cal.

Stanislaus River Mining Company—

Location of principal place of business, San Francisco, California. Location of property and works, Stanislaus River, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees held on the 23d day of September, 1874, an assessment (No. 9) of twenty cents per share, was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 113 Leidesdorff street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Tuesday, the 27th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 13th day of November, 1874, to pay the delinquent assessment together with costs of advertising and expenses of sale. By order of the Board of Directors.

WILLIAM STUART, Secretary.

Office, 113 Leidesdorff street, San Francisco, California.

sep25

Taylor Mill and Mining Company--Location

of principal place of business, City and County of San Francisco. Location of works, Garden Valley Mining District, El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 21st day of September, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 607 Montgomery street, in the City and County of San Francisco.

Any stock upon which this assessment shall remain unpaid on the 28th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 23d day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

SAMUEL S. MURFEY, Secretary.

Office, No. 607 Montgomery street, City and County of San Francisco, California. sep25

The Mining & Scientific Press,

Started in 1860, is one of the oldest weekly journals now published in San Francisco. It has been conducted by its present proprietors for ten years, during which period it has been repeatedly enlarged and constantly improved. The active and steadfast efforts of its publishers have gained for its conduct an amount of practical experience greater than any other publishers have accumulated on this coast, of a weekly journal.

The sum paid by us for the best editorial talent obtainable for our special class journal; for engravings, for interesting news and correspondence, and for printing a large-sized, handsome sheet, is unequalled by that of any other American weekly west of the Mississippi.

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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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RAILROAD AND OTHER IRON
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Embracing ALL SIZES of
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HAMMERED IRON
Of every description and size

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☞ The highest price paid for Scrap Iron.

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And all kinds of Mining Machinery.
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N. D. ARNOT, Manager,
15v28-3m 135 and 137 Fremont Street.

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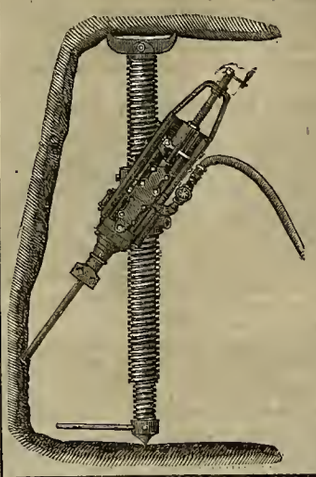

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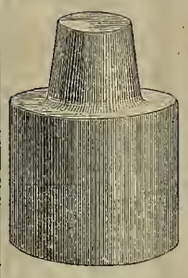

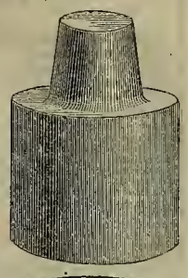

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[PATENTED MAY 26TH, 1874.]

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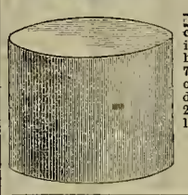

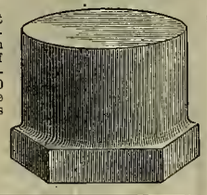

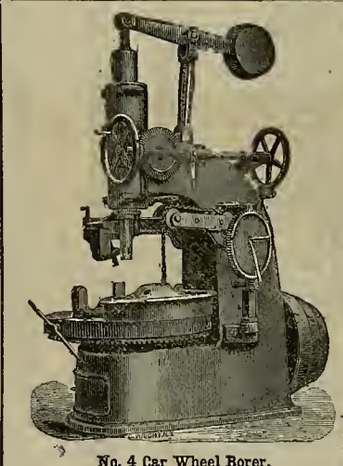

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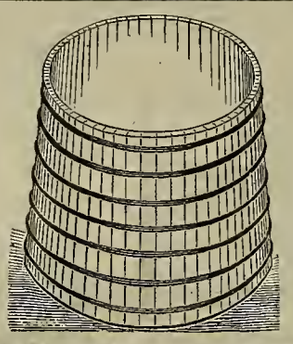

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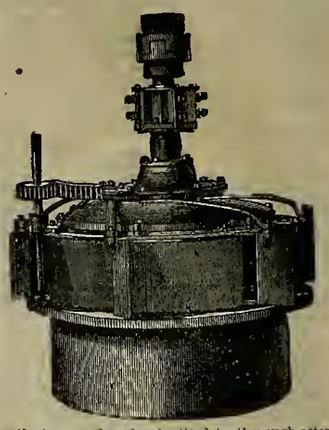

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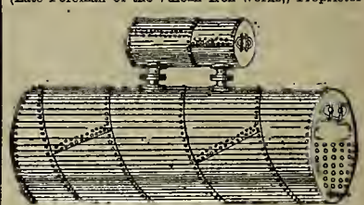

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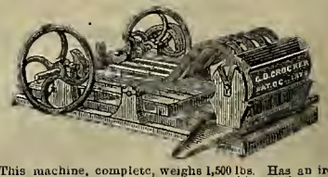

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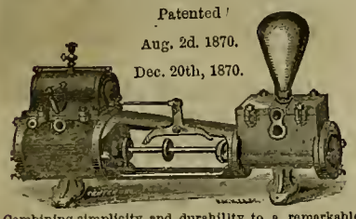

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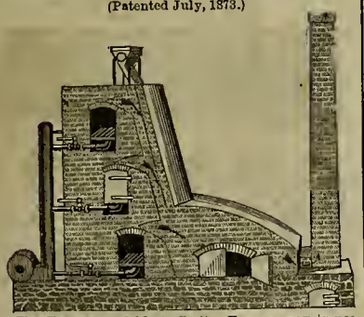

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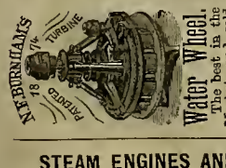

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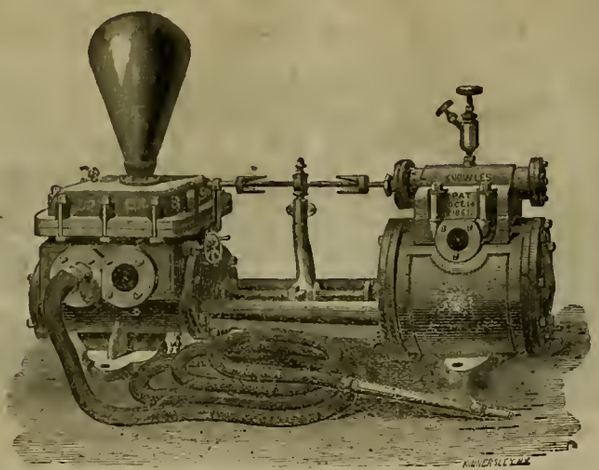

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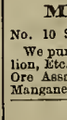

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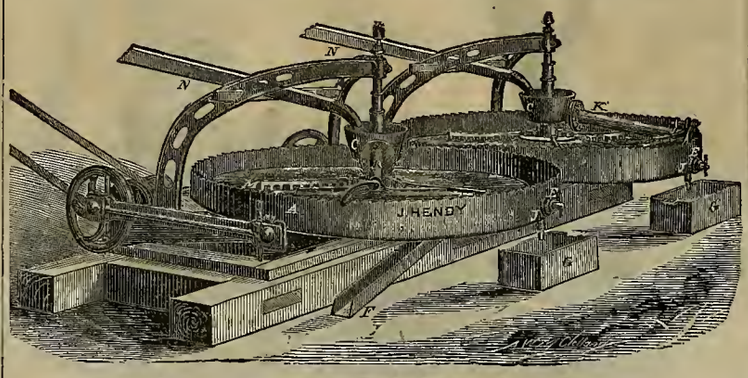

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3d. They are good amalgamators, light (feathery) particles of amalgam and particles of coated gold by attrition are brightened, and from their specific gravity and the action of the pan, fall to the bottom and adhere.

4th. They require but little power and attention to run them, and with ordinary care will last for years.

I have been familiar with the workings of your Concentrators for four years past; have run them myself in the North Star Mine, Grass Valley; am familiar with their practical workings on the Empire Mine, Grass Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this testimonial. For further information you are at liberty to refer to,

Yours respectfully,
JAS. H. CROSSMAN, M. E.

409 California street, or Cosmopolitan Hotel.

SAN FRANCISCO, February 10, 1874.

OFFICE SUPERINTENDENT OF KEYSTONE CON. M. CO., AMADOR, AMADOR COUNTY.

MR. J. HENDY—*Dear Sir:*—In answer to your inquiries as to your Concentrators furnished our company last July, I would say that I am more than pleased with them; and the saving to the company has been over $3,500 per month more than with the blankets and huddles formerly in use. C. O. HEWITT, Supt.

OFFICE SUMNER MINE, KERNVILLE, April 27, 1874.

J. HENDY, Esq.—*Dear Sir:* Having four of your Concentrators in use at our Mills for four or five months, which for saving Amalgam and for concentrating Sulphurets, are a success, beyond a doubt, I feel it a duty due you and those interested in Quartz Mills, to recommend them.

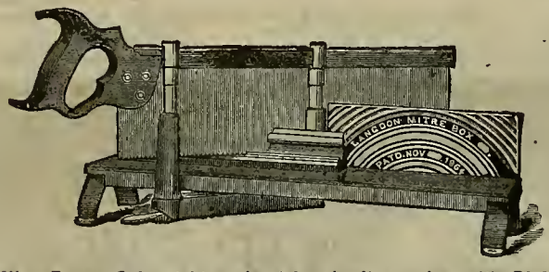
As further evidence of their worth, I now order TWELVE more of your Machines for our new Mill, now in course of erection. E. R. BURKE, Superintendent.

For description send for Circular.

JOSHUA HENDY, San Francisco.

Office and Works, 32 Fremont street. 9v28-1m-tf

LANGDON'S ADJUSTABLE MITRE BOXES.



Common Mitre Boxes, 6 in. right angle, 4 in. at mitre; price, with Diston's Saws, ready for use, 18 in., $9.00; 20 in., $9.50.

Mitre Boxes with Extension Lever and Dado Stop, 9 1-2 in. right angle, 6 1-4 in. mitre, with Diston's Saws, 22 in., $11.00; 24 in., $11.50. For Metal Moulding, 20 in., $9.50. Sent by Express C. O. D.

CONROY, O'CONNOR & CO., Agents,

19v28-eow-6m-16p SAN FRANCISCO

GIANT POWDER.

Patented May 26, 1868.

THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,

For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.

GIANT POWDER, NO. 2,

For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.

Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.

☞ The only Blasting Powder used in Europe and the Eastern States.

BANDMANN, NIELSEN & CO.,
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THE PACIFIC REDUCTION WORKS.

GUIDO KUSTEL, - - - Superintendent.

WILL PURCHASE GOLD AND SILVER BEARING ORES, CUPERIFEROUS SILVER ORES, GOLD SULPHURETS, ETC., AT THE HIGHEST RATES, OR WORK THE SAME FOR ACCOUNT OF OWNERS.

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Have always on hand a large Stock of Bar and Bundle Iron, Sheet and Plate Iron Boiler Flues, Gasand Water Pipe, Cast Steel, Plow and Shear Steel, Anvils, Cumberland Coal, Etc.

WM. McCRINDLE, Manager, 22 & 24 Fremont St., S. F.
m8-m2

FOR STATE OF NEVADA.—We have appointed Mr. F. B. Alderson our special agent and correspondent for the State of Nevada. He will visit our friends and patrons there soon.

Buy Real Estate while at Low Rates.

NINE WATER-FRONT LOTS, CHEAP,
On Gift Map 4,

Forming about half of a block fronting on the broad ship channel of Islais Creek; will be sold so low as to make it an inducement to the buyer. Inquire for the owner, Room ——, No. 224 Sansome st., S. F. bptf

Thursday Noon our last forms go to press. Communications should be received a week in advance and advertisements as early in the week as possible.

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Saw Smithing and Repairing ESTABLISHMENT.

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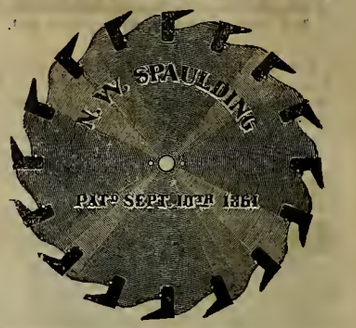

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Patent Tooth Circular Saws.

They have proved to be the most durable and economical Saws in the World.

Each Saw is Warranted in every respect;

Particular attention paid to construction of

Portable & Stationary Saw Mills.

MILLS FURNISHED AT SHORT NOTICE
At the lowest Market Prices.

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Brass and Bell Founder,

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CASTINGS,

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TAVERN AND LAND BELLS, GONGS, FIRE ENGINES, FORCE AND LIFT PUMPS.

Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

Cazin's Combination Ore-Sizer and Concentrator—One Plunger System.

[Covered by Letters Patent of July 2d, 1872, and recent applications.]

Containing a sizing apparatus, (revolving screen) delivering two or four sizes of ore to two or four rows of sieves, each row independent of the other, and each having 5 sieves, each row concentrating according to specific gravity the special size automatically fed unto it, resulting in the simultaneous continual delivery of separated materials, working 2d and 3d-class ores into 1st-class ores of perfect cleanness. It thoroughly separates native gold or copper from quartz or any other lode matter;—galena and silver sulphurets from pyrites, baryta and quartz; and pyrites from quartz.

Added to a battery of stamps these machines constitute a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 15 or 20 tons per 24 hours.

For particulars apply to,

F. CAZIN, M. & C. E.

Supt. Denver Concentration and Smelting Co.,

At Denver, Colorado, Lock-Box 2225, or corner of Blake and 32d Streets. ags-16p

HULLED RAWHIDE

BELTING, LACING, ROPES & CHORDS.

Made by H. ROYER,

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One 20 and one 10-Stamp Quartz Mill with Hoisting and Pumping Engines, Pumps, Columns, Tubs, Cars, &c., good as new.

A. L. FISH,
tf 9 nd 11 First St., S. F.

HACKNEYED DOCTOR-TALK.—"All has been done that can be done," says the physician when he gives up a consumptive patient and retires from the field. Not so good friend—not so. Nothing, comparatively, has been done, if *Hale's Honey of Horehound and Tar* has not been prescribed and perseveringly administered. Let the patient take the case into his own hands, and use the remedy that Nature and Science have furnished. It never fails.

Pike's Tooth-Ache Drops—Cure in one minute.

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MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, OCTOBER 24, 1874.

VOLUME XXIX Number 17.

Mill Building.

A large flour mill is shortly to be built by the Astoria Milling Co. in Oregon, on the plan patented by Mr. D. Bsquette some time aince. Mr. Bequette'a method of mill building ie somewhat novel, and the general idea may be seen by the accompanying cut. It is necessary of course in building a flour mill, to gain altitude, as the machinery can be placed to better advantage and the expenae of the same reduced.

In Mr. Bequette's plan the building ia 110 feet aquare at tbe baee, towering to a hight of 82 feet, ia seven storiee, each atory being lesa in size than the preceding one, as followe: First floor, 110 feet sqnare; second floor, 90 feet sqnare; third floor, 70 feet square; fourth floor, 50 feet equare; fifth floor, 30 feet sqnare; sixth floor, 30 feet equare; eeventh floor, 10 feet aquare. Upon the top is placed a water tank. The roofing makes the fonr walle equal, leaving an offeet at each story aufficient to afford light enough for each one of the rooms. Beginning with the foundation, on the first floor there are twelve rows of poete, twelve poets in each row, ten feet from centers. The outside row ie placed aa bracee, toward the center, on top of which a plate ie framed to receive the bottom of the first rafters. On the ten inside poet are placed ten beame in two equal pieces—upon the firet half of which heam is placed an equal number of ties, let into the lower and upper halvee locking each beam on top of each poet, making a rack, hraced by the roof from the outside toward the center. The joiets are apiked in the bottom of each post, and so each etory is continned, in the eame manner, with the exception of the size of the timber, which is reduced as each atory is carried upwards.

To what advantage machinery can be placed in a building of thie kind ie apparent. It takes less room, and each part can he placed in proper position—that is to say, very near the first moving power, thus producing a constant tendency to eqnilibrium, an important matter in all machinery requiring great velocity, as the greater the dietance from the first moving power, the greater the resistance to motion. For steam power it ia necessary to have the first moving power—that ie to say, the wheel that is hnng on the fly wheel shaft—made large and heavy, as it will partly act aa a fly-wheel and tend to keep the ehaft steady. This is placed on the center line of the first floor, and the fly wheel runs parallel with the heama in Mr. Bequette'e plans; its mate, or the leading wheel, being heavy, with an upright shaft to the firet bearing, from which shaft the hurre are belted and also the npright ahaft runs to the bolting reels, from which the lighter machinery above is geared and belted, inclnding the elevator, conveyor and hopper boy, which performs nearly every necessary movement of the grain and flour from one part of the mill to another, or from one machine to another, through all ita varione operations, from the time the wheat is emptied from the wagoners' or cars' sack, or from the hold of barge or eteamer, nntil it is manufactnred into flonr.

The wheat is received and elevated to the top floor. From thence through the varioue cleaning machines it is conveyed to the stock-hopner on the third floor, above the mill stones. The holting ohest ia alao placed on third, running parallel with the beams. The hurra are placed on the second floor, and upon this floor the packing ia done, and the flour finds its way through shntes to the vessel, ready for any part of the world, as has been tested by Oregon flour now on the Middlesex, which was taken from Oregon thirteen monthe ago on that veseel, has passed aeveral timee through the topics in eacks, heen to Liverpool, hack to Australia, and is still as aweet aud pnre as when it left Astoria in 1873.

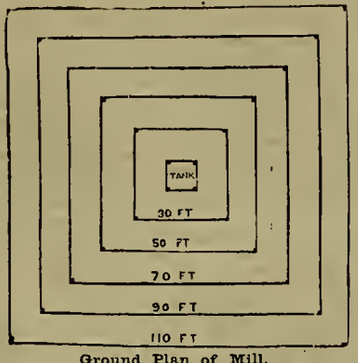
The company that ie to build thia mill at Aatoria have 2000 feet water frontage and will carry on the flour and timber business both They will commence the building on the 1st of next April.

The Consolidated Virginia mine shipped 38 bars of bullion worth about $125,000 on Saturday evening to the Carson Mint for coinage.

Academy of Sciences.

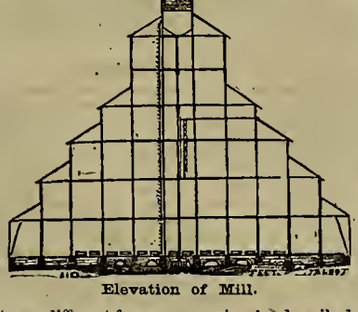
The regular eemi-monthly meeting of the California Academy of Science was held on Monday evening last. Vice President Hewston in the chair. Messrs. F. Grnber and Geo. T. Bromley were elected reeident members.

The donations to the museum were ae follows: Fifteen specimens of coal, including all



Ground Plan of Mill.

varieties found on this coast, and also Australian and other foreign specimens, presented by James P. Dameron; section of a geode, containing oryetala of carbonate of lime, presented by D. D. Colton; epecimens of wood and fruit of the oeage orange, presented by R. K. Reid; also from the same gontleman, specimen of walnut wood, a native of the lower Calaveras; two skates' eggs, found near Point Loboe, by W. G. Blunt; ores from the different quickeilver mines in Napa county, by J. W. Lynch; materiale showing the dye from the wood of the osage orange, by Charles D. Gibbes; one specimen of silver ore from Arizona, three specimens of silver ore from the Rocky Mountains, and cryetals of zinc blende, by Governor Samuel Purdy; skull, euppoeed to be that of an Indian female, found nnder fifteen feet of clay in the bed of the San Francisquito creek, San Mateo county, presented hy Hunter & Shackelford; small handed enake, species unknown, from Northern California, preeented hy Paymaeter Stanton, United Statee Navy; two specimene of crustacea, genue *squilla*, from Shanghai, presented by Henry Edwarde; a parasite from the California orange



Elevation of Mill.

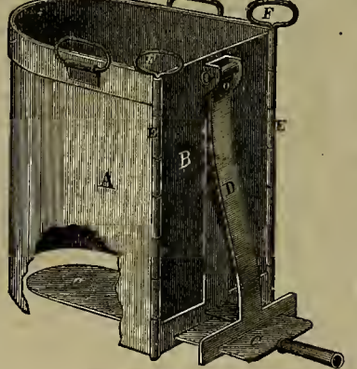
trees, different from any previously described, presented by Dr. Behr.

Dr. Cooper made some verbal remarks on California in the miocene epoch, which we give in another column of thia ieeue.

J. P. Dameron read a paper on "coal."

Dr. Blake deecribed a remarkable electrical phenomenon witnessed by him, at Placerville, during the prevalence of a severe thnnderetorm, on the 13th of September. A brilliant corruscation, resembling the aurora, arose from the ridge of the mountains, six miles distant, and continned steadily for fifteen to twenty minutes, when it gradually faded away. The storm was raging in the valley at the time, but on the mountain the weather wae clear, and the appearance wae probably prodnced hy a silent discharge of electricity from the ridge. The phenomenon snrpaseed any electrical disturbance he had ever witnessed before; but it is reported that a eimilar pbenomena are not unfreqnently noticed in tho rainless regions of South America.

Dr. Dall, of the U. S. Coast Snrvey, who returned last week from a eix months' expedition on the coast of Alaska, gave a brief acconnt of a few general reeulta: The seaeon in the Arctic regione has beeu an open one and exceedingly auepicious for observations. The expedition haa passed a greater portion of the time in the vicinity of Mount St. Eliae. The scenery of that region wae euhlime beyoud description, and the greateat glacicre were found there existing outside of the Polar seas. Much attention has been given to measuring the altitude of Mount St. Elias and the neighboring peaks by careful triangulations, and it was determined beyond douht that St. Elias is the most lofty point of land on the North American continent. Ite altitude is calculated at 19,000 feet, and that of Mount Fairweather at 15,000. It ie imposeible, however, to fix tbe preciee hight of the lofty peaks until their aecent can he accomplished. Monnt St. Ebas haa been commonly designated in tbe geographies as a volcanic cone, but an examination of its formation as far as practicahle determined that this supposition ie erroneous. Small volcanic vente are diecovered, however, toward the sea. While sailing close in to the ehore, a few milcs north of Cape Fairweather, an immenee glacier was inspected, having a flow



Device for Moving Plants.

from three to six milee in width, and extending inland beyond the reach of vision, which wae at leaet thirty miles. The country wae of a rolling formation and no material deviations appeared withiu the horizon in the direction of the glacier. The ice wae clear and blne and glistening in the light, aud presented a magnificent spectacle.

A paper by Prof. Geo. Davidson was submitted by title, "On the Meeh-knot of the Tchin-cha-an Indians, Port Simpeon, B. C. The knot is used for making nets, and is quite ing enious.

Dr. Harkneee described a microscopic examination of the fungns preeented at the last meeting by Dr. Cooper. He ahowed that the theory of spontaneoua generation wae incorrect.

Mr. Lockington described eome cnrione specimens of crustacea from the Pacific islands and Japan.

C. D. Gibbes made some remarks on the osage orange, which are referred to more at length in another column.

Dr. Dall read a paper on "Aleut Mummies," which will be found eleewhere in this issue.

The big crevice which to the east separates Gold Hill from the mainland ia eteadily widening and lengthening. The openiug is now half a mile long. Gold Hill ia hnilt at the weetern haee of a hill, and the crevice extends around the eaetern base of the same hill. If it could, this hill would like to tnmhle over to the weet.

Senator J. P. Jones, F. M. Pixley, Mark Sheldon, Phil. Weaver and Frank McCoppin have gone on a tour of inepection to the Panamint mines.

Device for Removing and Transplanting Trees.

Timothy Carrol, of Anabeim, Los Angeles county, California, patented last month through the agency connected with tbis office, a device for removing and transplanting treea, which is an improvement on one patented by him last June. The invention conaists in a novel conetrnction of the encloeing case, by wbich it can be employed in removing plants with large or spreading tops or branchee, without disturbing them. The enclosing caee is provided with a strengtbening band at the top, and the arm, througb which the slide passes, is hinged so as to stand at any distance from the side of the caee, or swing up entirely ont of the way.

The accompanying cngraving shows the apparatne. *A* ie the encloeing caee, which enirounds the treo or shruh, and is driven into the ground eo ae to enclose tbe roots and a portion of their surrounding earth. Tbis case is made in an arched form, aa shown. The two sides of this arch are united by a stout armor gate, *B*, which extende acrose between theee sides, and may be hinged in any suitable manner. In the preeent caee, sections are formed to interlock, and the rods, *F*, are paesed through like the pintles of a hinge. Either one or both of these rods may be removed, and the case can be passed aronnd the hody or etalk of the ehrub, when the portion, *B*, can he replaced and the rode, *F*, put back eo that the ehrnh will be encloeed. The ehell, *A*, can then he forced down, and the slide, *C*, at the bottom, pushed in beneath the roote and enclosed earth, and the whole can he lifted hy the bandles and carried to any deeired point.

The top of the ahell, *A*, is streugthened by a etout metallic rim. A plate extends dowu the middle of the gate, *B*, and two lugs are formed near the top, betweeu which the arm, *D*, is hinged. This arm, *D*, has a T-shaped extenaion at the lower end, and through a slot in thie extension the elide, *C*, pasaee, as well ae through a similar extension at the bottom of the plate. Theee two plates gnide the slide, *C*, and a projection, *O*, from the hinged arm, *J*, preveuts it from ehutting too closely againat the aide of the gate, which is thus adjustable, out or in, ae may be required. By taking out the pintle at the top, the arm, *J*, can be entirely removed, after witbdrawing the slide, *C*, eo that the case will take up hut little room. Further iuformation may be derived from the inventor, by addressing as above.

Improved Method of Hanging Windowe.—We saw thia week an improved method of arranging the pulleys in window frames, deeigned by Mr. J. Curle at No. 513 Montgomery street in this city. The arrangement is quite simple and is such that the cords usually in eight are now ont of the way and placed in such a manner that they cannot be eeen. Moreover, ehould the corde get off the pulleys or break, repairs can eaaily he made without the necesaity of tearing down any part of the frame, or even removing the saehes, so that the wood work and paint remain uninjured. Mr. Curle proposea to use galvanized wire rope inetead of cord, as it will last much longer and there will he less danger of hreakage. The cord ie fastened in a groove inside the aaeh at the lower part of the aaeh and passea tbere under a pulley and up over another one. These pulleya are out of sight bnt are so arranged that they can he removed hy means of a ecrew driver and any repairs uecesaary, easily effected. The additional coet of hanging window eaehea on the improved plan is very elight compared with ita advantages. A full aized sash has been made and can he eeen by thoee who desire it at the above address. Builders and contractors who know tbe difficulty met with in repairing the old style saah, will easily appreciate the advantage of this.

The Blue Tent Ditch company, Placer Co., are closing up their operations for the seaeon. About twenty men are employed, putting the work in ahape for the winter. It is expected they will open out next apring with renewed vigor.

CORRESPONDENCE.

Chrome Ore.

EDITORS PRESS:—Perhaps there are but few people better acquainted with the characteristics of chrome ore than myself, having worked in it for several years in Pennsylvania and Maryland, which was then thought to have been the only chrome bearing region of the Union; but the exhaustion of the principal mines there forced the monopolizers to search elsewhere to keep up to their agreements. This induced prospecting in neighboring localities, but their search and labors, however, have been comparatively furtile. Having no other alternative left but California, Tysons of Baltimore came here, and located one and one-fourth mile of chrome land near Crescent City, where they operated for some time, sending some of the ore to Baltimore and some to England. They are now at work again in their old abandoned mines in Pennsylvania and Maryland, which to the outsider is good evidence of a great demand, so they proceed on sand and rock chrome, taking it out wherever found, and sell to those monopolizers for $20 per ton, which proved, when plentiful, a good revenue to the buyer. In a recent issue of the PRESS, I noticed that a company has been formed in California to mine and manufacture chrome ore. Such is the only manner of proceeding successfully in your State, because of the high freight to market.

The rock in which chrome is generally found is serpentine. I have seen it in many places in California. I expected to have met with the ore in Lone Mountain, San Francisco, but have failed in doing so, although the rock there looks favorable for chrome ore. That in proximity to the New Idria mine is very similar to the famous Wood Pit mine in Lancaster county, Pa., where it extended to the depth of 600 feet in a continuous deposit sometimes 50 and 60 feet wide. The ores were generally associated with magnesia, bricite and asbestos. I have found chrome in veins, but always in deposits inclosed by the serpentine rock, gradually at times, and sometimes suddenly leaving no guide whatever for its prosecution. T. S.

Down in a Silver Mine.

A day or two since we took a "run" through some of the upper levels of the Belcher mine. Our particular business on this occasion did not take us below the 1,100-ft. level. We might have gone 400 feet deeper—might have visited the 1,200, 1,300, 1,400 and 1,500-ft. levels—but we didn't. Hank Donnelly, foreman of the mine, who was our guide on the trip, offered to escort us through the steaming regions below, but, as we have said, our business lay above. We do not propose in this article to speak of the ore breasts, rich stopes and chambers, and all that sort of thing; we mean merely to mention some of the sights met with while we were rambling about in the vast cavernous recesses of the upper portions of the mine.

It is not dark and dismal below, as many suppose. The long drifts are lighted up by candles placed at regular intervals. These drifts, and the broader galleries, running in all directions, somewhat resemble the streets and alleys of some old-fashioned, overcrowded village—some village seated in a confined place, where it is crushed out of shape. Our underground streets are not wanting in life. As we pass along the highways and byways of the underground regions we meet with the people of the place at every turn.

There are employed in this one mine between 750 and 800 men, a sufficient number to populate a town of considerable size. Men meet and pass us, all going about their business as on the surface, and frequently a turn brings us in sight of whole groups of them. We seem to have suddenly been brought face to face with a new and strange race of men. All are naked to the waist, and many from the middle of their thighs to their feet. Superb, muscular forms are seen on all sides and in all attitudes, gleaming white as marble in the light of the many candles. We everywhere see men who would delight the eye of the sculptor. These men seem of a different race from those we see above, the clothes wearers. Before us we have the troglodytes—the cave dwellers. Our mind runs back to the time when the human race housed in caverns; nor alone far up the Nile, as the ancients supposed, but in every land, at a certain stage of their advancement in the arts of life. Not unfrequently, while traveling along some lonely passage, we were confronted by a man of large stature, huge beard, and breast covered with shaggy hair, who came sliding down out of some narrow side drift and for a moment stood and gazed curiously upon us as though half inclined to consider us intruders upon his own peculiar domain. On such occasions we would not have been much surprised to see the man before us cut a caper in the air, brandish a huge stone axe and advance upon us with a wild whoop.

Way stations are frequently encountered during our underground travels. These are large rooms fitted up off at one side of the principal drift and usually not far from the main shaft. Here are barrels of ice water, tin dippers and cups hanging about on nails, and probably boxes of candles and other stores. We are always glad to come to one of these stations and go for the dipper without any one telling us that it is a good thing to do. About these stations we always find a number of the Troglodytes. They come for water and stop a short time to hear the news of the mine; for the station is near the main incline, up and down which regularly run trains of cars and which is the Central Pacific of the region and connects the lower regions with the surface. These men gaze contemptuously upon us, as being men, wearing shirts, and then betake themselves to their own peculiar regions along the several streets and alleys leading thereto. On the 1100-foot level we took a "near cut" through the wilderness. This is a place to make the hair stand upon the head of any clothes-wearing man who has not been scalped by nature or art. It covers about ten acres of worked out ground. One sees here something of the great pressure of the superincumbent earth. The large timbers are crushed down, splintered and twisted; chambers originally square are squeezed into a diamond shape and their roofs touch the floor in the center; solid piles of square timbers are pressed into pancakes; winzes and chutes are telescoped; ladder-ways once spacious are crushed out of all shape and now can hardly accommodate a cat—all is confusion confounded—yes, that is just it, confounded confusion! Yet through all this we must find our way. It not a little resembles the track of a tornado in a timber country—What is called a "windfall." When we have a windfall we do not want one of this kind. In places are immense caverns where all the timbers are gone, and great flakes of clay and rock lean out from the walls and composedly look down upon the trembling passer-by. One is afraid to sneeze lest he may bring these down upon his head.

Sociable rats dwell in this fearful region. Sitting down upon some fallen timbers to rest, several of these quadrupedal inhabitants came about. Hearing our voices as we for a time remained stationary, these fellows naturally concluded that we had something to eat, and came to look out for their share. They got up on the ends of the timbers, cocked their heads this way and that, as they gazed inquiringly about. Evidently they did not understand it at all. Why we should be sitting there talking with no dinner pails in sight puzzled them not a little. They always flock about the miners when they sit down to eat, and always get their share of what is going.

A ride on the giraffe was a new experience to us. This "giraffe" of the miners, is merely a large car made to run on an incline track. The wheels in front are low, and those behind high. Thus the body of the car stands as level as that of a car on an ordinary track. This incline stands at an angle of thirty-six degrees, and the track laid in it is of ordinary railroad iron. The car plying to and fro carries about eight tons of ore. At the front is a seat, much the same as the driver's seat on an omnibus. Here is seated the conductor of the train. There is room for three on the seat, and mounted upon it we took our first ride upon a giraffe. The car is drawn up by a heavy wire cable, and it goes up like the—well, like the devil, if we must say it. The timbers on the sides resemble a fine-toothed comb. To look ahead and see before one a hundred yards of steep steel rails, up which you are rushing at whirlwind speed, is the reverse of natural. Up this queer railroad you are thundered through the caverns of the gazing Troglodytes till you reach the bottom of the vertical shaft, when they transfer you to a cage, rush you up a shaft, and shoot you out at the top, as the "Red Gnome" in the play is shot up through the star trap in the stage floor.—*Virginia Enterprise.*

The New York Mine.

This mine is situated on the east side of Gold cañon, to the southeast of, and adjoining the Overman. The title is a U. S. patent. The ledge is what is termed a blind one, although the ridge on which the mine is located is covered with fragments of quartz boulders rich in both gold and silver. Some Spaniards have located in an adjoining ravine, and for a long time have been gathering, breaking and working successfully, in an arrastra, this surface or float ore. The ledge runs in a north and south direction, and is supposed to be the front ledge of the Comstock. The location is certainly a very favorable one, and is on a direct line between the Overman and Woodville mines.

The Hoisting Works

And shaft are situated near the center of the claim, in a very favorable location for working the mine to the very best advantage. The main building is 60x90 feet in size, with a boiler-room 40x60 feet, and carpenter and blacksmith shops adjoining. Several out-buildings have been erected, among which is a bandsome residence and office for the superintendent. Everything is arranged in and about the works with a view to the greatest convenience and economy in working. A large supply of wood and other necessaries for use during the winter months have been purchased and are already at the mine.

The Shaft

Is 700 feet in depth, has three compartments, 5x5 in the clear, and is timbered in the most substantial manner throughout. At the depth of 650 feet a station has been opened and two main drifts run—one in an easterly direction 80 feet, and the other in a westerly course 64 feet, at which point a ledge of solid quartz, two feet thick, was struck. A drift was then started northwest along the ledge, which is now in 23 feet, the vein gradually widening to four feet, the most of which is ore of a fine character. A drift south on the same vein has been run a distance of 20 feet, the ore strsak continuing about two feet in width, and the vein mattsr gradually widening to seven feet, with handsome, well-defined walls. The quartz and ore strongly resemble that found in the Woodville mine, and the appearances are that the top of a fine ore body is being cut by this drift. At the depth of 700 feet, another station has been opened and a drift started to cut the ledge. This drift is in 18 feet, and is expected to reach the ledge in a week or 10 days more.

The Hoisting Engine

And other machinery are all in the finest possible working condition and are calculated to work the mine to the depth of 1,000 feet. The water is drained by three steam pumps, the first being stationed at the depth of 350 feet below the surface, hoists the water to the drain tunnel, which is 50 feet below the surface. The second is placed at the 700-foot station, and the third is kept lowered to the bottom of the shaft as fast as the sinking progresses. The mine is under the able superintendence of Colonel Robert Apple, a gentleman thoroughly versed in all the details of mining operations, who resides at the mine, gives it a close and careful supervision, and will soon make it a paying mine, if good judgment and indomitable perseverance can procure so desirable a result.—*Gold Hill News.*

Eureka County, Nevada.

From the annual report of the County Assessor of Eureka Co., Nevada, published in the Eureka *Sentinel*, we extract as follows:

The daily shipping receipts of bullion, the force employed in mining, the extensive mining improvements, the large number of men employed in producing charcoal, teaming required, and regular quotations of our stocks, not only speak "business," but conclusively show the advantage of investments in this district.

While we admit no great excitements in the advancement of our mining stocks have transpired, no losses have driven the honest speculator to poverty. As staples are quoted, as invoices are bulletined at custom-houses, so are Eureka mining stocks proclaimed to the world.

The Richmond Company,

Under the mangement of Edward Probert, commands no attention at my hand. From the yield of the Richmond mine, the extensive and complete smelting works, the refining or separating works, the improvements at the mine and graded roads, speak for themselves. The word "assessment" is unknown to the stockholder, the word "dividend" he understands, and the punctuality with which his exchequer is replenished from the product of this celebrated property creates no speculative turn to resort to stock hoards, but he rests satisfied with the remittances that accompany the statements of each and every month. The construction of the fume arrester inaugurated the experimental era. The concentrating and gathering of dusts impregnated with precious metals not only pays handsomely to the owners, but noticeably add to the health and comfort of the town.

The Eureka Consolidated

Mining company loses none of its reputation as a bullion producing property. The status of this mining property cannot be assailed. Owing to the flood, heretofore alluded to, the furnaces were rendered unfit for use for some time. Work at the mine, however, was vigorously pushed forward by the superintendent, W. H. Shaw. At the same time the furnaces were rebuilt, new roads were prepared and every convenience necessary to the more thorough and perfect management of the property was looked after. An examination of the works convinces the stockholder and visitor of the good judgment and foresight of the superintendent. The fume arrester lately constructed places the manager at the head of economical and practical men.

The K K Consolidated

It is known to every one, and has the reputation among its friends, the producers and manufacturers of every article requisite in the conduction of a property of this magnitude. The powerful machinery at the mine, required in raising ore from the deep workings, the outside facilities for handling the same, speak well of the management. The Silver West furnace is under lease to this company, and is constantly turning out bullion of high grade. Too much praise cannot be accorded to Professor Keyes, the superintendent of this property, who, by ceaseless exertion, now finds himself in charge of as fine a mine as there is in our district. The quarterly assessment from

Cortez Mining District

Shows a constant increase. The Garrison and St. Louis, is owned by S. Wenhan; the Ironsides and Berlin, owned by James Laraway, are producing ores of high grade, which are easily reduced. Geologists pronounce the mines of this district more permanent than in many of the surrounding districts, giving Cortez a reputation that ought to draw within her limits large capital and the most thorough and scientific management.

Other Mines.

Secret Cañon mining district maintains here reputation in the production of bullion. The Geddes & Bertrand mine is furnishing "hard currency" in sums only to be equaled by other mines of same richness, and managed in the same business-like manner. More work is being carried on at present in Secret cañon mining district than at any other period since the mineral discoveries in this portion of our county. The repairing and starting up of the Pinto mill has infused a new life into the resident miners, and is inviting examinations and investments from abroad.

The British Mill and Mining company, under the supervision of Thomas W. Taylor, is a recognized and important acquisition to the heretofore reducing capacity of the district. Over 25 tons per day of ore are taken from the company's mines, to wit: From the Industry, Emmett, and Connolly, which are being worked and with results highly gratifying to the stockholders. Any success attending the milling of ores will measurably favor the opening of mines producing ores unsuited to smelting. The large developments of ore in

The Hoosac Mine,

And the regularity of the vein as exposed by the application of a most thorough system of mining, warrants the belief that another year will witness mining operations on Bald Mountain equal in results with our now prosperous, wide-spread and farfamed Ruby Hill. The proprietor of the mine, Harry Strout, by giving his personal supervision to the working of the mine and furnace bearing the same name, has developed a property that better recommends itself by revenue returns than any written report could possibly give.

The Dunderberg mine deserves a passing notice. It was located among the first of the mines of the district, but until the ownership changed hands remained in obscurity. The developments are of an encouraging and substantial character. Powerful hoisting works have been placed over the mine and the company are now in a fair way to be reimbursed for their heavy outlay. The management of the property is in the hands of Captain John E. Plater.

Work on the Excelsior mine is being prosecuted by Joseph Ringot, manager. The yield of ore is encouraging.

John Driesbach is still driving the tunnel on the Fourth of July. From the survey the ledge will be reached in about twenty feet, when, all hope the owners will be amply repaid for their outlay.

O. Ball, of the Essex mine continues to extract ore of a paying grade.

Superintendent A. P. Copp, of the New York mine, loses none of his confidence in Adams' Hill, but regularly answers to a revenue tax.

The West Point mine, owned by E. H. Rose, promises a fortune to the owner, good ore being easily extracted. The location, geologically speaking, warrants a good mine.

Thomas Gilmer, owner of the Lady Dublin mine, Secret Cañon district, is working a number of men to great advantage.

The Williams mine, situated on Prospect mountain, Ben. Taylor, manager, has been worked for a number of years by the owners—men without capital—who, by persistent enterprise and individual industry, have succeeded in developing a property that will amply compensate them for their laborious efforts.

Among the most noticeable enterprises in the county, since my last report can be classed

The Ruby Hill Water-Works.

The proposition to conduct water by pipes to Ruby Hill was first conceived by Messrs. Clark & Seaton. Under the management of the present proprietor, Walter B. Harrah, the experiment has developed into a success. The amount of money necessarily expended in perfecting the arrangements whereby the town might be afforded a never failing supply of pure water has been considerable, and had it not been for the energy displayed by Mr. Harrub the residents of Ruby Hill would still suffer from an insdequate supply of water. The amount of water now controlled exceeds the demand, and if necessary could be doubled. The water for the use of the town is contained in six large tanks, with a united capacity of 152,000 gallons, which are always kept full. In addition to this the K K and Eureka Consolidated company's tanks are supplied with 16,000 gallons, and the Richmond company 20,000 gallons of water, aggregating in full 204,000 gallons constantly on hand, enough to furnish both Ruby Hill and Eureka with a full supply of water. Mr. Harrub has in addition to the springs at the head of New York cañon, the Way springs, in Secret cañon, which are connected by pipes with the main reservoir, and which alone afford sufficient water to supply a demand much in excess of present consumption.

Timber of any great amount is not found within 20 miles of Eureka. The devastation caused by the coal-burner give the hills near town a barren appearance. The cost of delivering coal to our furnaces is so great that already coke is being laid down from Pittsburg, Pennsylvania, where large orders are being filled for this market. When the supply can be procured from the

Pancake Coal Mines,

Tested to be equally as good as coke, then we can expect double the mining in our district, besides the opening of mines carrying low grade ores, now awaiting the inauguration of some cheaper mode of reduction.

Timbers for mining purposes are equally distant, and prices range correspondingly high.

MECHANICAL PROGRESS.

The Chemistry of Building Stone.

As in the construction of furnaces for their various nses, the metallnrgist and ths glass makera consider ths rsfractory power of the material to be subjected to intenae hsats, so tha architect of thie psriod of groat conflagrations should consider, among the other requisitea uf building atone, its behavior when snbjected to fire; it is not well enough to know that the chemical charactsr of a rock is an index to its fusibility. The manufactnrsr of fire-brick carefully selects qnartz as pnre as may be, and fire-clay as free from lime and iron as possibls, knowing, witbnut bsing able to give a reason, in moat cases, that theso slements vitiats ths product. They unite chemically to prodnce fnaible compounds, with as mucb certainty as potash or soda nnits with greass to produce soap, wbich is widely differsnt from either of these snbstances. Ths fate of limestones in our great firss is well remembsred, and ws havs but to consider ths composition to readily explain tbeir crumbling tendency at that tims. They consist mainly of carbonats of lims and magnssia; whon much magnssia is present they ars known as "dolomites"—it is of this that tho large cathedrul in Nsw York is bsing constructsd. It is as whits as any marble, and mads np of shining tabular crystals; when this or ordinary limestono is highly heated, its carbonic acid, amonnting to about forty-four per cent. of ths mass, is axpslled; thus, ordinary quick lims is prodncsd, and ths operation of a common lime kiln is repeated. As ths carbonate of magnssia is decomposed at a much lowsr temperature (600 deg. F.) than the carbonats of lime, stones containing it are less refractory than thoss of pure lime—it is present in all our Illinois limestone. Sandstone is cstainly among our best building material; it containa about ninety per cent. of silica or qnartz, among the most infusibls of substances, and small qnsntitiss of iron and alumina which gives it coherence. The orperience in Chicago with the Cleveland variety sesms to confirm this; one bouse in psrticular on the sonth sids, was mentioned by Mr. Wright, of ths American Institnte of Architecture, as a striking examplo.

Granite, like all primary rocks, is almost indestructible to ordinary atmospheric influonces, and yet sxplosions of blocks of it wers common in ths Boston firs; this may bs rsferrsd to inclosed water and the generation of steam, for, when freshly qnarried, a cubic yard contains abont thres and a half gallons of water, which, it is safe to assnme, is nsvsr all evaporatsd at tha ordinary tempsrature. Brick, a product of firs itself, absorb and rstain much moisture, which, when evaporated, prodnces a certain amount of porosity, and increases the tendency to vitrification in grsat fires; yet, like artificialstone, all ths water they contain after bsing baked, is chemicelly and not mechanically combined, and like ths latter material has cstainly a good record, and its value could no doubt be improved for structures by applying a coat of paint to exclnds water.

MACHINE WANTED.—A correspondent of ths Nsw York *Tribune* says: Farmers generally rsquire a machine, I think, snch as I have nsver seen or heard of, but of which I have especislly fslt the nesd, as it will save labor and utilize forage. It is this: Say a machine that will pulverize, or crush, ur grind, with unce handling, our corn crop; that will reduce ths entirs growth, cob, shuck and stalk, as fine as ordinary meal. After the corn is cut and put in stooks (twelve hills sqnare is the habit gensrally prevailing in the west); then as soon as the stooks are dry enongh, feed them entire into the machine, which might be similar to a grain thresher, and propsllsd by steam or horse power. My object is to place the corn stalks, as well as ths corn, in condition for the cattle to properly masticate, digest and assimilate.

NEW RIG FOR THREE-MASTED SCHOONERS.—Captain Robert B. Forbss, of Boston, has rscsntly invented a new rig for three-masted schooners, which it is claimsd, can also be nssd for propellers rsquiring considsrable sail, but which ia particnlarly designed for the first-namsd class of vessels. With respect to the economy of ths rig, Captain Forbes estimates a saving of several hundred dollars in the size of the masts, the absnnce of large hoops and blocks, heevy gaffe, and in the canvas, inasmuch as only the two lower stay saile and the jib nsed be of the heaviest. The booms being unincumbered by the sails when furled, can be nssd as cargo derricks. The eails all furling to the masts are more out of the way in port; more easily drisd and kept clean and mors durable.

REMOVING TREES BY STEAM.—A method of removing treea by dragging them out by the roote by a steam-engine, has been eqcccesfully introduced on the Duke of Sutherland's estate in Scotland. The engine, (a 4twelve-horse power, being one gsnerally need for plowing,) was placed in a field about 150 yarde distant from the trees; a chain was passed round each at eome distance from the ground, and the engine being then eet on, the tree was tumbled over and dragged out with a lerge ball of earth adhering to the roots. In this way 300 tress, of from six to 12 inches diamstsr were removed in a few houre; but trees of three feet diameter have bsen dragged out by the same means.

Improving Brittle Iron.

No doubt many observing persons must havo noticed in soms railways long in nse, that the iron scales and is shivered liks a wood track or rail. These scales fritter away ths strength and aubstance uf the rail, and render tbs movement of the cars irregular and subject to accidents, eomstimes endangering lifa and limb. We ars reminded of this by ths lats frightful accident on ons of our railways. Bnt a short time since an iron trausom or support in a building in Lonisville, Kentucky, broks and the bnilding gave way, endaugering tho lives of several persons engaged on the building. Though this was of cast iron, still ths same admonitiun follows to havo our works and railways of tougher and more durable matorial.

In the Bessemer process many impurities whicb, with an sxcess of carbon, ars the causes of the brittleness of muny kinds of cast-iron, ars burned out by means of the air-blsst pssssing foroibly through ths melted iron. Qaery: Can not cast-iron in general be greatly improvsd when, while in the mslted condition, air is blown through it? Without going to the extent of decarbonization and purification, as is done in the Bessemsr process, it is certain that evsry canldron with melted iron, before being poured into the moulds, may easily bs submitted tu a certain limitsd amount of air-blast, snd this by simpler means than are used in the Bessemsr works, requiring a highly expensivs plant.

Snch a proceeding would bs sspscially nssful in ths production of a snpsrior mallsable oast-iron in such localities as Indisna and Missouri, whsre the necssary materials, coal and iron ore, are in such excsptional states of purity.—*Am. Manufacturer.*

NEW APPLICATION OF ELECTRICITY ON RAILROADS.—The Frenoh have lately introduced a system by which a stationary electric battery is made subsarvisnt to blow ths whistle of an approaobing locomotive, in case the road is not clsar, without the engineer having to give any attention to it. Such an srrangement is, of courss, sxcesdingly valuabls at night, and espeoially during a fog, when signals can not be seen at a distance. It is the reverse of the system introduced on our Hudson river railroad, by which 'svery approaching locomotive sets a stationary slectro-magnetic alarm bell at the depot in motion. In ths French system referred to, the obstruction at the depot starts ths stsam whistle on every approaching locomotive when ths train is still far enough away to slacken speed and stop. It has now been in successful operation for a ysar on the line of the Northsrn company of France, informing the engineer whether the way is clear or not. The signel tendsr turns a disk and ssnds an electric current in the direction of the coming train to a bar placed between ths rails; when the engins rsaches the spot, a metel brush, placed betwesn ths wheels, sweeps the bar; the current passes to ths engins, and, by means of an electro-magnet, presses upon a lever which opens the steam whistls, thus making it blow automstically.

MEASURING THE STARS.—A method of determining the apparent diameter of ths stars, devissd by M. Stephan of Marseillss, appears to bs very ingenious, to say the lesst. If, through an excellent telescope, a star, whose angular diameter is really nothing, be viewed with a sufficient high magnifying power, the image is seen to be a bright spot surronnded by the concentric rings of light and shade which ere called diffraction rings. Now, it has been shown by M. Fizeau that these rings, if, of extreme faintnsss and distance from the central spot, can only bs formsd when the angular diameter of the source of light is nsarly insensible; and, following out this very unique suggsstion, M. Fizeau has applied to the Msrseilles telescope a diaphragm having two apertures for the observation of the fringes produced by the intsrference. If the star has a certsin diameter, the fringss will disappear altogether; and if its diameter is zsro, the distance of the fringes will vary with the distsnces of the two apertures in the diaphragm. Among the results of M. Stephan's investigation in this direction, is the interesting fact that Sirius appears to have a measureable diamster.

IMPROVEMENTS IN PUDDLING.—M. Masien, Louvroil, near Maubeuge, Nord, France, hss patented in Francs and Bslgium a new furnace. The form is nearly conicel, the air bsing freely admitted through apsrtures made sll along the fsce of the furnace at the hight of the bars. The heat is made to concentrate itself in the sole of the frnace, accslerating the puddling. The puddler is exposed to much lsss heat than in the caee of the square frnaces; and it is seid to be able to make from eight to nine charges of good raw iron, No, 2, in 12 hours, with a consumption of 1,400 to 1,500 kilogs., an economy set down at 300 to 400 kilogs., of ooal per ton of raw iron. The following are given as results of experience: With the Mesian furnace, a ton of good No. 2 raw meterial was produced with 1,050 kilogs. of coal, the ordinary furnace requiring 1,300 kilogs. A ton of extra strong iron was produced in the new furnace with 1,252 kilogs. of coal, ths old furnaces consuming 1,502 kiloge.

TELLURIUM.—The salte of tsllurium have the propsrty of imparting to the perspiratiou a most offensive odor. It is eaid that Professor Bunsen, who expsrimented on his own person, was compelled to absent himeelf from eociety for four weeks on this account; it is supposed that tellurinm will never be nssd extensively as a medicine.

MECHANICAL VIBRATION RETARDING RUST.—At the recent meeting of tha American Assoiation for ths advancsment of Science, Prof. S. S. Haldeman, of Harrisburg, read a paper with the abovo title, of which the following is a brief nbstract: When railroad bars ars piled beside a read they soon become rusted, while thoss forming the track are but little subject to oxidation; and whon a rsin of some hours' duration falls upon rails when in a state of rest, as upon Sundays, when trains do not run, thsy soon exhibit rnst. This would seem to indicate that in chemical combination mechanical vibrations may interfsre witb the molecular arrangement of tbe elements. The accuracy of thess ensual observation sbould, however, be subjected to the test of sxperimsnt. In tbe discussion which followed this brisf communication it was suggested tbst possibly the oil smployed upon locomotives might bs more or less spread in a thin film over rails in use, and thus prevent their oxidation. This view was earnestly combatted by other speakers. Prof. Van der Weyds was quite certain that the suggestion of Prof. Haldeman bore reference to a fact in physics. Molecnlar vibrations tended to prevent rust. A saw hung np, unused, would soon becoms rusty; if nsed, would keep bright. This was a gensral experisnce with tools.

A NEW and intensely white light has lately been invented and exhibited by Mr. Wm. Dsy, of Ohio. A thin ribbon of carbon is snspended betwesn two platinum poles, and covered by a globe contaiuing dry carbonic acid gas. The ribbon receives an electric cnrrsnt from a battery, and while in the atmosphsre of the gas becomes brilliantly incandescent. Ths carbon is not consumed, and the light is said to be perfectly constant. Ths msthod was invented by Professor Osborn, of Miami University, who at first thought it necessary to use very thin strips of carbon, but the light is now produced with much larger ribbons and with little combustion. The heat generated has nsver, as yet, broksn the small glass globs containing the ribbon. This light being constant, and not requiring the combustion of carbon, may provs much mors useful to scientific lectnrers than ths ordinsry electric or oxyhydrogen lights, both of which are troublesome to handle.

MECHANICAL TREATMENT OF METAL. — It sometimes happens that by centering, etc., tbe interior diameter of a tirs becomes so much too large that it will not fit the wheel. This defect may be corrected, acoording to a German plan, by heating the tire red hot, and holding it in that condition half immersed in cold water until cold, then heating again red hot, and immersing the other half in ths sams way. In the first opsration, the unimmsrsed hot portion must coutract with ths portion rapidly cooled, with a corrssponding condensation of material, and consequent permanent diminution of diameter, and, in ths second operation, a similar effect is produced on the other half. This rssort is not confinsd to tires alone—an instance being recorded where a ring of Bessemer steel, to be used as a flange ring, had bsen entirely missbaped by an inexperienced workmau, and was drawn into shape by heating fifteen times, and cooling different portions.

SCIENTIFIC PROGRESS.

Prizes Offered by the Dutch Society of Science.

Ths Dutch Society of Science, which held its one hundred and twsnty-secoud general meeting at Harlem on the 16th of Mey, offered prizes for the following questions, all papers to be handed in by January 1st, 1876:

1. Exact researches on the solvent power of water, and of watsr charged with carbonic acid, upon gypsum, limsstone and dolomite, at different pressures and temperatures, and in case of the simultaneous presence of common salt, and of other salts extensively distributed in nature.

2. Similar rsssarches on ths solvent power of water, and water charged with carbonic acid upon silica, and the common naturel silicates, under the same circnmstances.

3. Nsw researches on the structure of ths kidneys of mammifarous animals.

It appears to result from recent researches that the psptonss of the different albuminoid matters are mixtures of subetences partially known and partially unknown. Required, a critical examination of these researches, supplemented by personal investigations on the same question.

5. Exact determination, in Weber's unities, of the resistance of a colnmn of mercury of a meter in hight, and of a squere millimeter in section.

6. Improved experimsntal determination of the relations hstween the two kinde of experimental unities, the slectro-magnetic and electro-statio.

7. Nsw experiments on the influencs of preesure upon chemical action.

SCIENTIFIC AND MECHANICAL PRIZES.—The Academy of Sciences of Berlin offers a prize of $200, payable in July, 1876, for the best easy recording experimente as to whether changes in the hardness and friability of steel are dus to chemical or physical causes, or to both.

Passenger Transit.

The American Society of Civil Engineers bas appointed a committee of fivs to investigate the necessary conditions of success, and to recommend plans for—*First:* Ths best means of rapid transit for passengers, and *Second:* Ths best and cheapest methods of delivering, storing and distributing goods and freight in and about the city of New York; with instructions to examine plans, and to receive such suggestions as parties interested in the matter may chooso to offer, and to report on or before the first day of December, 1874.

The committos and the Society solicit contributions and suggestions of valus on the above subjects. Dus credit will be given for all aid rendsred to ths committes. In referring to plans proposed to accomplish these objects, it is particularly desired to ascertain accurately—

1st. The ronte and location proposed, and tbs rssaons therefor.

2d. The character of structure proposed in various parts of the city.

3d A closs sstimate of ths cost in detail.

Ths committe consists of the following gentlemsn: O. Chanute, M. N. Forney, Issac C. Buckhout, Charles K. Graham and Francis Collingwood.

We heartily recommend the subject to such of onr readers as fsol an interest in these very important subjects. Communications should be addressed to G. Leverich, 63 William street, Nsw York.

In connection with this latter proposition, we would give the following as the result of the prizs offered some two years ago for improvement in the navigation of canals: The Baxter line bave now six steam caual boats running bstween New York city and Buffalo. They have a carrying capscity of about 200 tons each, and make the trip each way in about six days. Allowing for one day at each terminus, tbe round trip is msds in fourteen days or two trips a month. This is double tbe spsed of the horse boats, tbey averaging hnt ons trip a month. During the winter these boats will run on some of the southern canals. They are already playing a very important part in solving the problem of cheap transportatiou.

CONSTANTS OF NATURE.—Ths Smithsonian Institution has in view the publication of a sries of tables of "Constants of Nature," such as the atomic weight of bodies, specific gravity, expansion, elasticity, spccific and latsnt heat, conducting power, melting and boiling point, weight of different gases, liquids, and solids, crystalline form, strength of different materials index of refraction and dispersion, polarizing angle, velocity of sound, of projectiles, of winds, of electricity, of light, of flight of birds, spsed of animals, etc.

The value of such a work in aiding original investigation, as well as in the application of science to the useful arts, can scarcely be overestimated. To cerry out the idea fully, however, will require much labor and ths united efforts of different institutions, and individuals dsvoted to special lines of research.

Hence that Society, through its Secretary, Prof. Henry, has issued a circular soliciting ths co-operatiou in this work of scientific individuals and societies generally.

Since the different constants are to he carefully tabulated, evcn a single determination of any one constant for sny onc body may prove to be of great value by supplying some important omission in a series.

Every contributor will bs credited with his determinations, when published. No more important contribution to the sum of knowledge and to the advancement of science, both practical and theoretical, can well be imagined than ths determiuation of some of these constants.

CRYSTALLIZED BISMUTH.—It is well known thst bismuth, when pure, forms beautiful groups of very perfect crystals, which exhibit a splendid play of colors, and resemble somewhat a huge fortification. In order, says, Bœttger, to obtain perfect crystals, the impure bismuth of commerce should be fused for half an hour with the twentieth part of its weight of nitrate of potash in a small porcelain crucible over a simple gas-burner, the mass being stirred occssionally with a clay pips-stem. The slag must then be carefully rsmoved, and the metal ponrsd into a small wooden box which is perfsctly dry. It is left theu uutil the greater part of the mctal which touches ths sides of the box becomes solid—only the center of the mass rsmaining fluid. By carefully turning the box, the fluid portion can be ponred into an iron dish. By sawing through the mass wbich has cooled in the box, a group of silver-white crystals will be found, some of which will be perfect octehedra.

A RAILWAY LAMP WANTED.—The London Society of Arts offers its gold medal or $105 to the inventor of an improved lamp or means of illumination suitable for railway passengcr carriages that shall produce a good, clear, steady, durable and safe light. It must be simple in construction, and capable of being readily cleaned and repeired. In judging the merits, cost will be taken into consideration.

CAT TAIL PAPER.—To the list of waste products that are now are now becoming utilized is to be added the common "cat tail," a plant that abounds in many marshy districts to a very great extent. M. Dupont prepares the fibre by boiling the cut and dried leaves for several houre in an alkaline solution, and then pressing between rollers and washing. Thus prepared it is valued at from $7 to $8 per hnndred weight.

The Eureka Mine.

The annual report of William Wett, superintendent of the Eureka (Grass Valley) mine is not an encouraging one. He ststes that the futnre prospect of the mine is one of great douht, although the dead work and exploration have heen immense, they have made no favorahle developments up to the present time. He says: The twelfth level cross cnt not heing in far enongh to strike the ledge, we have reason to hope that we may find pey ore yet. I am prospecting a front ledge, and have a shaft sunk on it 107 feet deep. The ledge is small and shows gold, but I am afraid the cross ledge will cut it off and disorder it, as it has done to the Eureka on the west. I have stopped work on the Mohile, Roannaise and Great Western, the indication in my opinion not warranting the company expending any more money. The mill, hoisting and pumping machinery are in fair working order.

In the Eureka mine proper during the year ending Sept. 30th 1874, they have driven 735 feet of drifts, 42 feet of rise, 191 feet of crosscuts, and sunk 207 feet of shaft; also, sunk 53 feet of No. 3 shaft on the Roannaise, and 107 feet on Eureka Ledge No. 2. They have hoisted 8,207½ tons of quartz, and crushed 8.130 tons in 303¼ running days as follows: 87¾ days with 15 stamps, and 216 days with 10 stamps, averaging a little over 2¼ tons per day to each stamp.

They concentrated 73¼ tons of sulphurets and worked 89 tons, and have now on hand 16¾ tons, which is valued at $700 net.

There are 325 tons of quartz on the snrface, and 350 hroke in the mine ready for hoisting There are upwards of 1,000 tons of ore in sight which will pay a profit.

The Secretary's report reads as follows:

RECEIPTS.

By book accts, Oct. 1, 1873	$113,656.25
By bullion acct	205,050.60
By mins acct	21.00
By mill acct	723.50
By wood ranch	1,751.03
By wood acct	14,282.84
By premiums	679.82
By McDougal works	729 36
By intsrest	4,884.66
	$341,779,06

DISBURSEMENTS.

To dividends	$80,000.00
To mine acct	83,254.93
To mins acct, prospecting	14,939.25
To mill acct	22,451.22
To sulphuret concentrat'n	1,495.00
To sulpburet reduction	480.00
To construction	16,539.00
To Great Western mins	4,600.06
To Roannaiss mine	1,115.00
To Eureka No. 2 mine	1,203.50
To wood acct	8,304.27
To wood ranch	889.78
To McDougal works	925.00
To bnilion xpenses	804.78
To gensral expenses	6,712.48
To discount acct	21.03
To book accts, Sept. 30, 1874	98,140.96
	$341,799,06

The heaviest items in the mine accounts are $7,823 for wood, $70,765 for lahor, $7,706 for lahor hy contract, and $6,000 for snperintendent's selary. The assets and liahilities are as follows:

ASSETS—AVAILABLE.

On hand September 30, 1874.	
Cash balancs	$08,140.96
16¾ tons of sulphurets, sstimated valus	700.00
350 tons of ore, broke in mine, cost $9	9,150.00
325 tons of ore, on surfacs, cost $10	3,250.00
134¾ cords of wood	606.37
Supplies at mill	1,000.00
Supplies at mins	1,200.00
	$108.046.73

REAL ESTATE.

Mill, estimated value	$30,000.00
Mine improvemsnts and buildings, estimated.	20,000.00
McDongal works, estimated	2,000.00
Wood ranch, 160 acres	800.00
	$52,800.00
	$160,846.79
Liabilities	None

Dnring the year ending Sept. 3d they mined 8,307¼ tons of ore and milled 8,130 tons. They also concentrated 103¼ tons of sulphurets, of which they worked 12 tons and sold 77 tons. It cost to concentrete these sulphurets, an average of $20 32 per ton. Worked hy chlorination these 12 tons yielded $1,884 42, and the 77 tons sold for $6,326 50.

The ore statement shows that they worked 8,130 tons of ore by mill process which yielded $196,839 62. Inclnding the sulphnrets, ore on hand, etc., the total yield was $202,979 96 or an average yield of $24 97 cents per ton. The averse yield of sulphurets was $101 37 per ton. The average fineness of the hullion was 794—equal to $16 41 33-100 per ounce.

The cost of mining 8,307¼ tons was $83,-533 33, or an avernge of $10 06 per ton. The cost of milling 8,130 tons was $21,237 72, or an average of $2 61 per ton.

The net profits of the mine for the year were $72,748 23. The eum of $80,000 was peid out in dividends.

The compeny commenced operations Oct. 1st, 1865. The receipts from that time up to Sept. 25th, 1874, were $4,308,538 87, of which $4,273,148 49 was from hullion. They have paid out for sundry bills, $301,906 50; for constrnction, $158,383 71; for dividends $2,054,-000; to mining, milling and other expensee, $1,692,601 93; having on hand in surplus and cash, $101,646 73. The net profits since Oct. 1st, 1865, amount to the very respectable sum of $2,615,936 84. The total dividends paid amonnted to $2,514,000, or $102 70 per share, so if the mine never pays another cent it has contrihuted more then the majority of qnartz minee do.

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
American Flag M & M Co	Ely District	5	50	Aug 26	Sept 29	Oct 27	G R Spinney	320 California st
Arizona & Utah M Co	Washoe	10	50	Sept 12	Oct16	Nov 4	J Maguire	419 California st
Belmont M Co	Nevada	4	1 00	Oct 9	Nov 10	Nov 30	O H Bogart	402 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	R W-gener	414 California st
Empire M Co	Idaho	7		Aug 26	Sept 30	Oct 24	Wm Willia	419 California st
Globe M Co	Washoe	8	50	Sept 12	Oct 16	Nov 4	J Maguire	419 California st
Globe Con-s M Co	Washoe	3	50	Sept 12	Oct 18	Nov 4	J Maguire	419 California st
Golden Cbarriot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaplan	Merchants' Ex
Gould & Curry S M Co	Washoe	23	2 00	Sept 1	Oct 6	Oct 21	A K Durbrow	438 California st
Hale & Norcross G & S M Co	Washoe	44	5 00	Sept 8	Oct 13	Nov 3	J F Lanker	438 California st
Hutch & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball	409 California st
Ida Ellmore M Co	Idaho	14	1 00	Sept 21	Oct 27	Nov 14	W Willia	419 California st
Independent G M Co	Butte Co Cal	7	50	Oct 5	Nov 5	Nov 26	G T Grimea	249 Montgomery st
Justice M Co	Washoe	11	2 50	Sept 4	Oct 7	Oct 29	F Swift	419 California st
Lady Bryan M Co	Washoe	3	50	Sept 18	Oct 20	Nov 9	F Swift	419 California st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
Mint G & S M Co	Washoe		10	Aug 23	Oct 2	Oct 28	D A Jennings	401 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 28	Thomas Derby	320 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	F H Gager	507 Montgomery st
Original Hidden Treasure	White Pine		1 00	Oct 12	Nov 14	Dec 9	D A Jennings	401 California st
Page & Panaca S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	H P Bush	Merchants' Ex
Sanderson G M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Liedeedorff st
Segregated Caledonia M Co	Washoe	2	10	June 22	Oct 14	Nov 2	A C Ryce	306 California st
Silver Peak M Co	Ely District	5	50	Sept 3	Oct 10	Nov 2	G T Grimea	249 Montgomery st
South Chariot M Co	Idaho	10	1 00	Sept 2	Oct 3	Oct 26	Frank Swift	419 California st
Utah S M Co	Washoe	6	1 00	Sept 21	Oct 26	Nov 16	W E Dean	419 California st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Buena Vista Petroleum Co	Cal	23	75	Oct 5	Nov 16	Dec 14	L Hermann	330 Pine et
Obance S M Co	Cherry creek	1	50	Oct 7	Nov 18	Dec 14	J Marke	414 California st
Cons Obannel M Co	Nevada Co Cal		20 00	Sept 7	Oct 12	Nov 2	J Cordes	44 Stewart et
Consolidated Reforma	Lower Cal	1	50	Sept 1	Oct 5	Oct 23	A D Carpenter	605 Clay st
Edith Quicksilver M Co	Cal	1	12½	July 29	Sept 26	Oct 26	W Stuart	113 Liedeedorff et
El Dorado W & D G Co	Cal		10 00	Sept 15	Oct 15	Oct 31	H Elias	416 Montgomery et
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 27	Obas S Healy	Merchants' Ex
Excelsior G M Co	Tbolumne Co Cal	14	15	Oct 20	Nov 25	Dec 19	C Chatkin	442 California st
Gold Mountain G M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Cavallier	513 California st
Great Blue Gravel Range Co	Cal	6	10	Sept 23	Oct 28	Nov 20	W H Watson	302 Montgomery at
Gold Run M Co	Nevada Co Cal	8	15	Oct 14	Nov 16	Dec 3	C O Palmer	41 Market st
Green M Co	Placer Co Cal	1	50	Oct 7	Nov 9	Nov 30	W C Townsend	330 Pine st
Gnalala M Co	Sonoma Co Cal		5	Sept 29	Nov 5	Nov 25	James R Martin	Larue's Wharf
Hayes G & S M Co	Nevada	5	20	Sept 4	Oct 6	Nov 3	G R Sninney	320 California st
Independence Cona M Co	Cal		15	Sept 4	Oct 10	Oct 29	F J Hermann	418 Kearny at
Lca Prietos M Co	Santa Barbara Co	1	25	Sept 29	Nov 2	Nov 20	S H Smith	6 Montgomery Av
Mount Savage M Co		1	10	Oct 16	Nov 18	Dec 10	D F Verdenal	409 California et
North Belmont M Co	Nevada	2	10	Sept 30	Nov 2	Nov 18	D L Thomas	414 California st
Omega Table Mt M Co	Cal	4	2½	Oct 15	Nov 23	Dec 14	D Wilder	Merchants' Ex
Oneida M Co	Amador Co Cal	9	75	Oct 8	Nov 11	Nov 30	L Kaplan	Merchants' Ex
Phœnix Tunnel & M Co	Utah	6	25	Sept 6	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Prussian G & S M Co	Nevada	2	50	Sept 1	Oct 5	Oct 26	H C Brown	402 Montgomery st
Quintero M Co	Nye Co Nev	3	10	Sept 30	Nov 2	Nov 18	H C Kibbe	419 California st
Red Jacket M Co	Idaho	4	1 00	Sept 2	Oct 9	Oct 31	W Willis	419 California st
Silver Cord M Co	Idaho	5	1 00	Sept 11	Oct 12	Nov 2	Frank Swift	419 California st
Silver West Cons M Co	Eureka Nev	2	10	Aug 19	Oct 6	Oct 31	F Schlanker	606 Montgomery st
"Sixty-three" G & S M Co	Cal		25	Sept 2	Oct 5	Nov 2	J R Heim	411½ California st
Starr King S M Co	Nevada	8	25	Oct 3	Nov 6	Nov 25	L Kaplan	Merchants' Ex
State of Maine M & M Co	Cal	7	5	Sept 17	Oct 24	Nov 10	J M Buffington	Merchants' Ex
St John G M Co	Kern Co Cal	2	5 00	Oct 2	Nov 5	Nov 23	W R Townsend	330 Pine at
Tecumseh S & C Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Tolman & Miller M & M Co	Cal		30	Oct 9	Nov 12	Nov 28	J L Trask	306 Montgomery at
Victoria & Imperial T & M Co	Utah	3	10	Oct 7	Nov 11	Dec 5	W H Watson	302 Montgomery et
Wm Shakspeare G M Co	Butte Co Cal	1	10	Sept 23	Oct 26	Nov 12	W R Townsend	330 Pine at
Wyoming G M Co	Nevada Co Cal	4	40	Sept 30	Nov 2	Nov 23	W J Gunn	410 Montgomery et

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Cosmopolitan M Co	Nevada	D L Thomas	419 California st	Special	Nov 28
Lady Washington M Co		Called by Trustees	419 California at	Special	Nov 17
Mount Savage M Co		Called by Trustees	404 California et	Specie	Nov 17
Mount Savage M Co	Utah	Called by Trustees	409 California et	Special	Oct 14
San Marcial S M Co	Mexico	Called by Trustees	409 California et	Special	Nov 17
Silver Lick Cons M Co		A K Durbrow	438 California et	Annual	Oct 26
St Patrick M Co	Placer Co Cal	D F Verdenal	409 California et	Annual	Oct 30

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California et.	30	July 17
Belcher M. Co.	Wasboe.	H. O. Kibbe,	419 California st.	3 00	Oct 7
Chariot M & M Co	Cal	Frank Swift	419 California at	50	Oct 15
Consolidated Virginia M Co	Waeboe	D T Bagley	401 California et	3 00	Oct 12
Crown Point M Co	Wasboe	C E Elliott	414 California et	3 00	Oct 12
Diana M. Co.		N. C. Faveet.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California at	1 00	July 6
Eureka M. Co.	Grase Valley, Cal.	R. Wegener,	414 California et	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

Mining stocks this week have not heen very strong and the hear movement has predominated. Prices heve fluctnated considerahly, hut no break has as yet occurred. Affairs on the Comstock are particularly lively from one end to the other. The *Enterprise* says: "At the north end of the lode the outlook is particularly cheering. [Here we have the Consolidated Virginie, which is already yielding immense quantities of ore of astonishing richness, and in the lower levels of which developments are heing mede from week to week which prove that the real value of the mine is only heginning to he made apparent. North of this we have the new and very valuable developments in the Ophir, on the 1,300 and 1,465-foot levels of which mine hreasts have heen opened from which sufficient ore is already being extracted to run two mills, not to speak of the soon to he explored 1,700-foot level, on which will nndouhtedly he found the same ore hodies that are now heing worked on the levels ahove; hetween the Ophir and Consolidated Virginia lies the California, soon to he opened, and which is douhtless one solid chunk of ore equsl in richness to thet in either of the mines hy which it is honnded; north of the Ophir we have the Union Consolidated, in which promising streaks of ore are already heing encountered, and north of this again comes in the Sierra Nevada, in which of late a very important and nnlooked for development of ore has heen made in the old workings. To the southward we also have several develop mente of velue that are well known, and others that we exspect. Between the mines that are just now opening out new hodies of ore we have here and there other mines that are for the present in a had streak—out of luck. But let us remember for how long a time the Ophir was ont of lnck and for how long a time the Consolidated Virginia and the California gronnd was knocking about in the market (oftener out of it) ae worthless."

We give on this page the stock salee for today (Thursday), which will ehow the ruling prices.

San Francisco Stock Market.

THURSDAY MORNING SALES.

70 Alpha Con.....18¼@18½ | 155 Imperial.....10⅜@10¾
50 Alta.....1½ | 150....do.....b 30...1¼
20 American Flat.....9½ | 945 Julia.....5½@5¾
575 Best & Belcher...33½@34 | 25....do.....b 5...5½
85 Baltimore Con.....9@9½ | 405 Kentuck.....20@21
100....do.....b 5...9¾ | 50....do.....b 30...21
10 Bacon M. & M.....b 40...6½ | do.....b 5...20½
475 Bullion.....12½@13 | 130 Knickerhocker.....57⅛@6
200....do.....h 60...13⅛ | 100....do.....b 5...6½
340 Belcher.....64⅜@65½ | 200 Lady Bryan.....1
140....do.....b 30...65½ | 450 New York Con.....4½@4¾
20....do.....b 5...65 | 1185 Opbir.....57@58
275 Chollar-Potosi..66⅝@67½ | 100....do.....b 5...57
405 Crown Point.....68¾@69½ | 50....do.....b 30...58
50....do.....b 5...59 | 1155 Overman.....77½@81
115....do.....h 30...59¾ | 60....do.....b 5...80
110 Confidence.....24@24½ | 70....do.....b 10...78½@80
200....do.....b 30...25¾ | 200....do.....b 30...25¾
255 Con. Virginia.....100@100 | 1225 . Phil. Sberdan..50@62½
230 Con. Gold Hill Quartz..4¾ | 200 Rock Island.....4⅞@5
330 Caledonia.....25@26½ | 1150 Senator.....13½@14⅝
25....do.....b 30...26½ | 245 Savage.....77½@80
658 California.....62@61 | 1547 Sierra Nevada.....90@94
50....do.....b 30...63¾ | 200....do.....b 5...9¾
100 Daney.....2 | 40 Sag. Belcher.....150@155
100 Dardanelles.....15½ | 125 Succor M. & M.....3½
50....do.....b 5...15⅝ | 570 Silver Hill.....9½@9⅝
650 Dayton.....67½@70 | 250 Tyler.....62½
635 Empire M. & M.....10 | 375 Union Con.....21⅞@22½
10 Exchequer.....170 | 50....do.....h 10...22
20 Eclipse.....82½ | 90 Utah.....4½@4¾
390 Gould & Curry.....26¾@27¼ | 1243 Woodville.....3¼@3½
1140 Globe.....2 | 310 Yellow Jacket.....103@104
215 Hale & Norcros..52@51¾ | 50....do.....e 30...103⅝
70....do.....b 30...52⅝ | 10....do.....b 10...104
625 Jnatice.....33@34 | 50....do.....e 90...103½

AFTERNOON SALES.

90 Andes.....1¾ | 690 Imperial.....10⅜@11
1185 Belmont.....7⅝@8 | 210 Justice.....35@35½
295 Belcher.....65@65¼ | 2905 Kosentb.....2⅞@2¾
45....do.....b 30...65⅝ | 150 Leo.....1½
70....do.....b 5...65¾ | 100 M Valley.....6¼@6⅝
100....do.....b 10...65¾ | 220 M Belmont.....3¼
180 B & Belcher.....35@34½ | 100 Mahogany.....3¼
20 Bullion.....10½ | 100 Mint.....20⅝
510 C Mill.....13@12½ | 150 Medes.....13¾
100....do.....b 30.....14 | 125 Newark.....1¾
200....do.....b 60...13½@14 | 100 N Belmont.....10⅝
100....do.....e 30...13 | 250 N Utah.....1½
100 Calistoga.....10½ | 290 Overman.....83@82
200....do.....b 30...11 | 20....do.....e 30...81½
495 Cone Virginia.....103@105 | 20....do.....83
30....do.....b 5...105 | 125 Union.....84
190....do.....h 30...106½ | 1160 O G Hill.....3@2¾
350 Crown Point.....60@59½ | 1230 Ophir.....58@57
100....do.....b 10...60 | 60 Pioche.....6
25 Dollar.....69 | 200 Prussian.....3½
300 California.....63½ | 400 Poorman.....50@
30 Confidence.....25.@25½ | 150 Pacific.....1
375 Eu Con.....13⅝@13¾ | 325 Raymond & Ely.17½@18½
20 Eu Grass Valley.....8½ | 100....do.....h 10...19@18½
310 El Dorado S.....2 | 250 Rye Patch.....2¼
50....do.....b 30...2 | 100 S R Island.....1¾
200 Empire I.....1.0⅝ | 45 S Belcher.....178@160
295 Golden Chariot...2¾@2¾ | 90 Savag.....80@81½
127 Hale & Norcross..52@52½ | 125 Union.....2½
100....do.....h 30...53½ | 125 W & Crocke.....1⅝
100 Ida Ellmore.....2 | 100 Y Jacket.....106
500 Indus.....2½@2¾ | 25....do.....h 30.....105

MINING SUMMARY.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

AMADOR COUNTY.

The Water In.—*Dispatch*, Oct. 17: The water has at last got through the great Amador canal, and was turned into the commodions distributing reservoir on the ridge between this piece and Sutter creek, last Wednesday. Miners who have taken np claims along the line of the canal can now commence preparing for work as soon as they feel so disposed, with a full assurance that they can hereafter he supplied with all the water they need both winter and summer.

ALPINE COUNTY.

The Rippon Mine.—Alpine *Chronicle*, Oct. 10: We are glad to learn that work on this valnable mining property will prohably he resnmed at an early day—after a rest of six years—hy ite San Francisco owners, who are now said to he psrfecting arrangements to thoronghly develop the mine. This claim ie on the dest side of Silver creek, and has a good reputation, prospecting well from the etart, and will nndouhtedly prove a valuable investment when properly opened.

CALAVERAS COUNTY.

Everlasting Mine.—*Citizen*, Oct. 10: We are informed that work will he commenced on the Everlasting mine, the former superintendent, J. C. Dyas, helieving that it can he made to pay.

Sheep Ranch Mine.—Work at this mine progresses as nsual, the rock paying an averge of $50 per ton. One hnndred tons of this sort of rock are now on the dnmp.

Murphys.—This camp does not present near as desolate an aspect as we supposed it wonld—the vacant lots not heing any worse looking than the empty houses which were hurned.

Gravel Mining.—*Chronicle*, Oct. 17: Gravel mining, notwithstanding the temporary scarcity of water, is progressing favorahly. The hydranlic claims are especially lively. Duryea, Veith & Co., Cook & Co., and others are pushing things vigoronsly.

West Point Distaict.—The old Butte dam on the North Fork of the Mokelnmne river, which formerly constitnted the head of the now Amador canal, is heing turned "upside down" hy I. H. Reed, Esq. The mine is worked systematically, and is well worth visiting. The ore in the lower sonth level of the Zacatero, shows plenty of free gold. Mina Rica follows suit in the 100-ft. sonth level. The Champion (Haskins & Co.) is now yielding very rich epecimens snitable for handsome jewelry. Henry & Son, owners of the Valentine, are extracting fine milling ore through a shaft. A portion of the mine is opened hy a tunnel hnt the owners are not ahle at present to extend it. A tunnel is heing started at the Good Faith. The tunnel, 300 feet in length, will tap the main shaft of the mine at the depth of 100 ft.

COLUSA COUNTY.

Quicksilver.—Colusa *Sun*, Oct. 17: The furnace on the Ahhott has been completed, and they have heen rnnning for ahout a week on first class ore. The company will have a clean up abont Monday. By some mistake their tanks did not reaoh them and they have had to plng the condensers np. The furnace of the Buckeye is fast approaching completion. The Elgin, with two little retorts, ie running out qnicksilver very fast—taking out ahont a flask a day. They have very rich ore in sight. Amos Roherts, is snperintending the castings for a furnace for the Wild Goose, and will heve it in rnnning order in a month or so. This furnace will he on the plan of thet at the Vallejo mine, which is said hy some to he an improvement on any other. It is a great deel cheaper. By next spring there will he a very large quantity of qnicksilver shipped from this point.

INYO COUNTY.

Getting Ready for Work.—Inyo, *Independent*, Oct. 17: John Simpson is in Cerro Gordo getting ready for active work on his 3,000 foot tunnel, the Potosi and Alpha.

Sale of Mining Property.—*Independent*, Oct. 17: There were two deeds recorded in the Clerk's office here, this week, one from James Brady to John Simpson conveying five twelfths of the Potosi and Alpha tnnnel rights to Simpson for $30,000 cesh, the other from same, one sixth of same property, to Thos. Hardy of San Francisco.

LAKE.

Quicksilver.—The Lake Co. *Bee*, of the 15th in an artio le on "quicksilver" titlee to mines etc. saye: In our own immediete neighhorhood, however, titles are hetter aesured and capitaliets invest freely. Only a few monthe ago Cross & Co. sold the Americen mine, (which had heen so hadly handled that it had acquired the expressive but nnenviehle neme of "The Dead Broke") for $150,000, and the purchasere would not sell to-day for three times the money. The American is a fine cinnahar mine, is on what experte deolere to he the grand helt. This runs eontheast and northwest and the hearinge of the Redington and Great Western leads are the eame. Lese than a mile down the canyon, in a northeaeterly direction from the American, are the Wall Street and Kearserge mines. Here free quicksilver is found. Work ie heing carried on energetically, and we notice that the proprietors

of the mine have just acquired 1500 feet in the Robert Lee claim, which adjoins their present property,

We understand too, that Mr. Wm. Stuart, of Knights Valley, has purchased a mine at Bradford's for $20,000. It is with the utmost satisfaction that we note investments of such a nature.

MARIN COUNTY.

Quicksilver.—Marin County *Journal*, Oct. 15: We learn that a party of gentlemen from some of the Sonoma mines have been prospecting some weeks in Point Reyes and along Tomales Bay for quicksilver, and think they have found valuable deposits on the lands of Mr. J. Miller, adjoining Tomales Bay. They have brought in a good quantity of what they consider rich specimens of cinnabar, and have made overtures to Mr. Miller for a fair interest in their discovery. They have taken the ore to San Francisco for assay, and as soon as its value is determined will take steps to work the mine. It is directly on the line of the railroad. If this proves as rich as it is believed to be, it will open a new industry and stimulate prospecting.

MARIPOSA.

Mining on the North Side.—*Gazette*, Oct. 15: Mining operations are being carried on extensively on the Coultorville side of the Merced—a new impetus having been given this branch of industry by the success attending the reopening of old abandoned shafts in the vicinity of Gentry's gulch. Besides the Hasloe and Banderita, there are other mines being opened up with flattering prospects. New hoisting works will shortly be erected at the old Martin & Walling mine—the machinery being now on the way. At the Teresa, situated a short distance below the Hasloe, they have a shaft down 160 feet, and are preparing the foundation for hoisting works. Prospecting is going on in all directions, and new discoveries may be expected all along the line.

The Mariposa Estate.—Bear Valley and Princeton are waiting in anxious expectation for the commencement of mining operations by the Mariposa land and mining company. There has been various rumors of what is about to be done, and whenever anything practical comes to the surface we will take pleasure in making a note of it. The grant has many valuable mines within its boundaries, and it will be a matter of general rejoicing in the county when the property is made available. It has lain idle now for several years, with the exception of a little dead work done under the direction of an old humbug "professor" at Bear Valley, which was worse than useless. The Princeton, Bear Valley, and Mariposa mines, are known to be productive, if well managed.

NAPA COUNTY.

The American Mine.—Napa *Reporter*, Oct. 17th: Workmen are employed on the road to this mine above the Kearsage. The American is now receiving the castings, etc., for the new furnaces now in course of erection.

The new town which is building up in the neighborhood of the Calistoga mine, and which has heretofore been known as Borlandville, has acquired a new name—Silverado.

Calistoga Silver Mine.—The mill is now completed and has been in operation about two weeks. The structure is a substantial frame of three stories, having ten stamps running, although it has steam capacity to drive twenty. Several tunnels have been run into the hill, and from these rock is being taken that assays from $30 to $1,000 to the ton, while the dirt dislodged in some of the tunnels assays $70. Below tunnel No. 2 some 200 feet, at which point a dump receives the rock that is shot thence down a chute into the wagons, another tunnel has been run in 50 ft. It will strike the ledge 400 ft. below where it is now being worked.

NEVADA COUNTY.

Magnta Mine.—The Magenta mine and works have been leased for a term of two years by a party of ten miners. The miners are to pay the Magenta company ten per cent. of the gross proceeds of the mine, for the use of the property. The lessees are Messrs. Best & Co., who are among the most experienced and energetic working men of the district.

Gold Run Mine.—*Transcript*, Oct. 15: Work has been continued on this mine uninterruptedly, and the incline is now down about 122 feet; the first 90 feet was through very soft running ground which required consummate skill to avoid accidents. The shaft is now being sunk in hard blasting ground. There are six inches of water, measured under a six-inch head, being pumped by two pumps, one nine inch, and one six inch. The ledge at the depth reached is six inches thick, shows some free gold, is fairly sulphuretted and contains some galena.

Dutch Flat.—Correspondent of Truckee *Republican*, Oct. 17: The Cedar creek company have been engaged the past year in running a deep bed-rock tunnel, for the purpose of washing the ancient gravel channel to its lowest depressions. It is now successfully washing through the first shaft, opening through it the Yankee claims, which, in days gone by, paid enormously for drifting. One clean up, the result of a partial run, has been made, which was very satisfactory, giving promise that this will prove here, as elsewhere, a very remunerative class of mining. The shaft above mentioned is perpendicular, 146 feet in depth. The gravel falling this distance and striking on boulders in the bottom becomes thoroughly pulverized, so that the gold is freed and easily saved. Washing in this claim (Yankee) will be continued until sometime in November. The outlook for the approaching season is very favorable.

The claims ready for washing are the Jehoshaphat and Central, owned by the Cedar creek company; the Somerset, belonging to Staples Bros., and North Star, No. 2, belonging to Voight & Lekamp. Besides which, the owners of the Boston are pressing work on a tunnel to tap the gravel on a lower level, intending to have it ready for washing early in the season.

PLACER COUNTY.

Gold Run Tunnel.—*Herald*, Oct. 17: Work on the Gold Run tunnel is being pushed ahead with more than flattering results. Early in the season it was thought they would be doing well to complete the tunnel by the first of January next. A few months since they set the first of December for completing the great undertaking, and now we learn that the tunnel is nearly through, a few weeks more only will be required to complete it. It will all be finished in good time for this winter's work.

We learn from visitors to Auburn, that at Dutch Flat, Gold Run, Michigan Bluff, Iowa Hill, and other sections, where large hydraulic mines exist, the miners are busily at work fixing their claims in order for the next season's run, which will commence soon after the first heavy rains, unless the weather should be so cold as to freeze the water in the ditches, or the snow so deep as to clog them up, as was the case last winter.

Lincoln Coal Mine Leased.—The *Union* tells us that R. C. Terry, L. L. Lewis and D. Coffin have leased from Colonel Wilson, for one year, with the privilege of extending the time, the Lincoln coal mine. They propose to go into the business of developing the mine in the most energetic manner, and will take steps to introduce the coal into general use throughout the State. Hoisting works of double the present capacity will be immediately constructed, and a good building to load from provided.

Iowa Hill.—The Morning Star mining company are making extensive improvements in their property. A prospecting tunnel has been run over a thousand feet into the bank and good prospects found. Arrangements are in process for working the company's mine by the hydraulic process. Five acres of ground have been cleared of the bush and timber, ready for washing. A tunnel two hundred feet in length, for sluicing, has been run, and they are now putting in boxes, which are five feet wide. The pipe is being manufactured on the ground by Hoskins of Gold Run. They will use 2,200 feet, three feet in diameter at the upper end, and tapering to eleven inches at the lower end. It will require about fifteen tons of iron to manufacture the pipe, the greater part of which is on the ground. One thousand inches of water will be used, the Iowa Hill canal company supplying it, and work will be commenced as soon as water can be had.

The canal company have completed a mile of flume at Tadpole, and water has been turned in.

The North Star company have been working their claim all summer, using two hundred and fifty inches of water. The mine has paid well, but the supply of water has been too small to work economically, and improvements are in progress by which a larger quantity will be secured.

PLUMAS COUNTY.

Items.—Jameson City cor. *Plumas National*, Oct. 14: The Plumas Eureka holds on in the even tenor of its way and is running up to its full capacity of forty stamps. They have ore enough now developed to last the mill for several years, have a goodly supply of fuel and timbers on hand, and are now engaged in hauling bricks and timbers for the new chlorination works which are to be erected in the spring.

In the Mohawk district Henry Neseman is building a new arrastra for working the rock from his discovery of last spring.

Willett & Co. have about completed their ditch and will soon be crushing by arrastrae from their series of ledges near the Sulphur Spring ranch. They have some good chimneys of ore, and will undoubtedly make a good showing.

At Hardscrabble all the mines upon the lower part of the belt are running constantly, having a good average success, occasionally finding nuggets of several ounces. Wilburn's claim, which is the highest of all upon the mountain, and almost above the water supply, did remarkably well for their short season, having run water through their hydraulic only 27 days, and cleaning up, as I am informed, $10,000.

On Jamieon creek the mining is about the same as for several years past, paying wages to those who work hard and steady.

At the head of the canon, about a mile and a half below town, are the claims of Tivnan & Barrett. These have been opened with a greater degree of system than any upon the creek. They have in a 30-inch flume of considerable length, lined with blocks and have an abundance of ground, with all Jamison creek as a water right.

SAN LUIS OBISPO COUNTY.

Furnace.—*Tribune*, Oct. 17: The "Oceanic" furnace will soon be in operation. When it opens fire we shall look for a sudden change in the quicksilver quotations. Its development shows a mine of truly wonderful wealth.

SONOMA COUNTY.

Mining Suit.—*R. R. Flag*, Oct. 15: The most important case likely to come up during the October Term of the District Court, to meet at Santa Rosa next Monday, will be the case of John White et al. versus Edgar Mills et al. As the titles to several valuable mines in Cinnabar mining district are involved, much interest will be felt. This case is a contest to determine the rights of claimants of 10 or 12 years ago, as against present occupants of mines located on the same ground. The complaint filed says, "The action is brought to recover possession of mining ground in Sonoma county known as the mining claims of the American Quicksilver mining company, embracing the claims located by the following companies, to wit: Pennsylvania, Healdsburg, Empire, Russian River, Gibralter, Chapparal, Petaluma, Buckeye, Boston, Alta California, San Francisco and Last Chance."

TRINITY COUNTY.

Nice Dust.—*Journal*, Oct. 17: Charley Kuper passed 250 ounces of very pretty gold dust over Griffin's counter last Monday. Junction City mines have paid exceedingly well this season.

I. Woonbury is cleaning out the old Seavy ditch, and rebuilding the flumes, preparatory to using it next winter.

Paid Well.—We learn that Adam Burger has done better in his claim, on Cañon creek, this season than ever before, and his was always a paying claim.

Work continues on the Bullychoop quartz ledge with favorable results.

TUOLUMNE COUNTY.

A Good Little Claim.—*Independent*, Oct. 17: A couple of arrastras will be put in working order on the "Ohio" quartz claim, in Calder's ranch, above Soulsbyville, as soon as arrangements can be made. A shaft has been sunk on the vein, which is three feet wide, 100 feet, showing excellent rock all the way. 30 tons on the dump, not a piece of which fails to give the color, although not a speck can be seen with the naked eye.

Hill & Wilson have bought the interest of Mr. Robt Marshall, being one-half of the Rising Sun mine, at Cherokee. There is a good prospect of striking a new chute on the property.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Daily yield 300 tons of ore. The ore breasts on both the 1,200 and 1,300-ft. levels are yielding finely. A winze 100 feet north of winze No. 2 has just been completed from the 1,200 down to the 1,300-ft. level, passing the entire distance through fine ore. The ore breasts on the 1,400-ft. level are yielding the usual amount of rich ores, and never looked richer or better than at present. A drift north is being carried forward ahead of the ore breaste on the 1,400-ft. level, the face of which is in splendid ore. This drift is being run by the use of Burleigh drills, driven by compressed air, which is a wonderful improvement over the old, slow, hand method of doing such work, as the compressors not only furnish the motive power for doing the hardest portion of the work, but ventilates the drifts to such an extent as to make the work comfortable in any portion of the mine. Two new engines for driving these drills have just been set up, making five in all now in operation in the mine. An up-raise has been started from the north drift on the 1,500-ft. level of the Gould & Curry, at a point 100 feet south of the winze which forms the connection with the 1,500-ft. level of the Consolidated Virginia shaft. The face of this raise is in magnificent ore, our samples averaging $230 and $250 per ton. A cross-cut has been run near the Best & Belcher line, which is also in rich ore. The north drift, on the 1,500-ft. level of the Gould Curry is also being driven ahead to the northward, the face in rich ore.

Sierra Nevada.—Sinking the new shaft is again progressing finely. The flow of water from the bottom is gradually decreasing. The connection was completed yesterday morning between the up-raise and the surface tunnel in the old Sacramento works. Cross-cutting the ore vein from the up-raise can now be commenced and there is hardly a doubt but that some fine ore developments will be made in that portion of the mine. The old ore breasts are looking finely. Daily yield 60 tons of ore, keeping the mill steadily running.

Ophir.—The ore breasts on the 1,300-ft. level continue not only their yield of rich ore, but are gradually improving in appearance as the opening on the ore bodies are extended. The east ore body on the 1,465-ft. level has been prospected for a distance of 30 feet, by the cross-cut, the face of which is still in rich ore. This body of ore it is estimated will mill $100 per ton. Its extent north, south and east is yet undetermined, but its richness and solidity is a guarantee that it is of no small dimensions. Daily yield, 100 tons of ore, which will probably be considerably increased in a very few days.

Leo.—In the north drift the ledge continues looking finely. In is from four to five feet wide, and carries good ore.

Crown Point.—The 1,600-ft. station is opened and a drift has been started to cut and prospect the ledge on that level. The main south drift, on the 1,500-ft. level is still driven vigorously ahead, the face in fine ore. Opening the ore stopes on the 1,500-ft. level for the purpose of extracting the ore, has just been commenced. The ore breaste on this level are all opening out finely, and promise a rich yield of good ore. The ore breasts on the 1,400-ft. level are yielding splendidly. The 1,300, 1,200 and 1,000-ft. levels contain thousands of tons of good ore which is being also extracted as needed, and which will last for many months to come.

Globe Cons.—Another fine and promising ore development has just been made in an entirely new and in fact almost unexpected quarter. About 300 feet from the 400-ft. station, while running the west drift, a small seam of quartz, only two or three inches was cut, which at the time did not appear of sufficient importance to attract special attention. A few days ago a drift was started northward on this seam, which in a distance of 25 feet has widened out to 14 feet, with well-defined walls, and much of the ledge good milling ore, and there is yet no determining the width and extent, or the importance either of this now strike.

Lady Bryan.—Main shaft 350 feet deep. Good progress is being made with the machinery, and it will be running in about 20 days from now.

Justice.—Work going on as usual, with no new developments to note.

Julia.—Draining the water is being prosecuted with all the energy possible. It is now down to with 3 feet of the 1,000-ft. level and will be out so as to admit of the resumption of work on that level in a very few days.

Woonville.—Since our last report, the ore body in the south drift on the 300-ft. level has increased both in extent and quantity, developing a heavy body of fine ore, the best yet found in the mine. The mill is doing good work, the shipment of bullion up to the 12th inst. amounting to about $5,000, which would have probably been increased about $500 more, had the batteries, which were copper-plated for catching gold, been cleaned up at the same time.

New York.—The north drift on the ore vein on the 560-ft. level is in 28 ft., the ore vein being 4¼ ft. thick and of a fine quality. The 700-ft. station is opened with a drift started for the ledge which is now in 23 ft. Some good developments may be looked for when this drift cuts the ore vein.

Rock Island.—Last Saturday evening the west drift, on the 200-ft. level of the new shaft, tapped a heavy body of water which has kept the pump running up to its utmost since.

Hale & Norcross.—The south drift on the 2,000-ft. level has reached the south line, without developing any paying body of ore.

Kossuth.—Cross-cutting the ore vein from the main south drift at the first station level is vigorously prosecuted without any important developments.

Nevada.—The lower tunnel is now in 200 ft, and has cut into the ledge itself 20 ft. without getting through it.

The north drift on the 1200-ft. level is still driven vigorously ahead, the face in good ore.

Yellow Jacket.—A cross-cut east from the air winze has been started to cut and prospect the ore vein on that level. A drift north has also been started to prospect the ledge and connect with the south drift from the Imperial.

Collar-Potosi.—The ore bodies in the upper portions of the mine are being gradually exhausted. Daily yield, 75 tons of ore, the assay value of which is $30 per ton.

Union Consolidated.—The east cross-cuts from the main north drift on the 1300-ft. level of the Ophir are still pushed vigorously ahead, finding in their course many small feeders and stringers of good ore.

Sutro Tunnel.—Eighty-four feet have been added to the length of the tunnel during the past week, making a total of 7,165 ft. from the mouth to the header. The ground at the face of the header is hard, but works well, and the Burleighs are doing excellent execution.

Sutro.—The flow of water continues quite strong, but does not interfere in the least with the progress of the work.

Savage.—Sinking the south winze below the 2000-ft. level is making good headway.

Florida.—The drift west at the 300-ft. level will have to run between 100 and 150 ft. to reach the ledge.

Occidental.—Sinking the winze from the old upper tunnel and raising up from the level below to meet it is making fine progress, the face of one and the bottom of the other in ore.

American Flat.—The cross-cut recently started on the 750-ft. level are still driven vigorously ahead, with very favorable indications of soon reaching the main ore vein.

Gould & Curry.—The water is sufficiently drained for the resumption of the prospecting operations on the 1,700-ft. level, which will be again pushed ahead with all the vigor possible.

Belcher.—Daily yield 500 tons of ore. The ore breasts are all looking well, and the usual amount of good ore is being extracted. The air shaft is being gradually extended downward and is fast drawing off the hot air of the lower levels and cooling the mine. The mills on the Carson river are again gradually increasing the amount of ore reduced and should the present cool weather continue a few days longer, will soon again be running up to their full working capacity.

California.—The north drift from the Virginia Consolidated on the 1,500-ft. level will make the connection with the south drift on the same level from the Ophir in about 12 days' time, when cross-cutting both the 1,400 and 1,500-ft. levels will be commenced simultaneously.

Imperial-Empire.—The Imperial south drift on the 1,850-ft. level is still driven vigorously ahead, the face in fine ore. Sinking both the north and south winzes on the 1,850-ft. level is making the usual good progress, the bottom of both still in ore.

Dayton.—The ore breasts on the first and

[Continued on Page 269.]

The Separation of Ores by Magnetic Power.

In most of our metalliferous mines, ores of several kinds are produced from the same lode, which it is the business of the dresser to separate. Where the specific gravities vary considerably, this is not attended with much difficulty; but where such ores as blende are associated with spathose iron, iron pyrites or copper pyrites—all ores of similar specific gravity—a perfect separation is impossible by hydraulic means, and such ores are frequently unsalable from the low percentage of metal, or from the injury caused by one metal in smelting the other. The latter is especially the case where iron and copper pyrites occur with blende, the smelter obtaining only hard spelter. The author had his attention directed to this subject by being interested in a mine where the ores from the vein-stuff consisted of lead, blende and spathose iron. The lead was dressed without much difficulty; but owing to the similar specific gravity of the blende and iron, these could not be separated, although the best-known methods of sizing and mechanical dressing were resorted to. This is not surprising, when it is known that the specific gravity of blende is about 4.0, and that of the spathic iron 3.85. The blende received from this mine being about three times as much as the lead, it became essential that the blende should be marketable. In carrying out various experiments upon these ores, it was found by the author that the iron, being composed of protoxide of iron and carbonic acid ($Fe O, CO_2$), would, at a dull-red heat part with its carbonic acid, and become then a magnetic oxide of iron. It is necessary, however, that this heating should be done without access of air, or a higher oxide, which is more magnetic, will be produced. The process is now in operation at the Ballycorkish mines, Islo of Man, and the agent reports that it is rendering vein-stuff that has hitherto been unmarketable, and commonly discharged with the halvans, of high commercial value.

The treatment adopted is as follows: The blende and iron ores are fed through a hopper into revolving iron retorts heated by a fire beneath, and are delivered when heated to redness in a close chamber. The ores thus prepared are carried by an elevator to the magnetic machine, which consists of four magnetic wheels, the magnets being so arranged that the whole surface of the wheel is magnetic. The ore falls upon a band which passes round the wheel. This band is made of any thin material that allows the magnetic force to pass through, and the blende not being held to the wheel, falls into a shute and is received into harrows, while the iron adheres to the wheel, and drops into another shute at a point where the hand is removed from contact with the wheel by means of a roller. In the separation of copper pyrites or iron pyrites from blende, the treatment is somewhat similar; but the heating process is more simple, as access of air during the heating is an advantage. The result of the application of heat on pyrites is to remove a portion of the sulphur, bringing it to the condition of magnetic pyrites, which occurs as a distinct ore in some mines, and its composition is represented by $Fe S^2 + 6 Fe S$, while that of iron pyrites, before heating, is $Fe S^2$. From the data already obtained it is found that although the arrangements for heating ore are not yet perfect, these ores can be heated at a cost of about 3s. to 4s. per ton, including fuel, attendance, etc.; and that blende ores, hitherto unsalable, can be brought to a value of £3 to £4 per ton. The author trusts that this result is of sufficient importance to justify his bringing the subject to the notice of the Miners' Association of Cornwall and Devon.—*F. C. King, in London Mining Journal.*

Wages in Europe and the United States.

So far, during the present year, the statistics show that the emigration to this country has fallen off nearly 40 per cent. as compared with previous years, and, indeed, a large number of emigrants have actually returned home, being unable to find employment. This being the case, and as reduction in the price of labor is now being discussed, the following tables, collected by the National Bureau of Statistics, and by the Massachusetts Labor Bureau, have an important bearing on the question. These figures were made for the year 1872, and are reduced to our currency.

If we take the ordinary farm laborer in Massachusetts, we find that his weekly wages are $5 with board—which is undoubtedly equivalent to $10. The highest wages in England, paid in Lincolnshire, are $8.17, without board; in Kent, $6,81; in Devonshire and Cornwall, $4.08; in Ireland, $4.91, without board; in France, the highest weekly wages are $2.96, with board; in Denmark, $1.43; in Italy, $3.89; in Prussia, $2.85—all with board.

If we now take the trades, the difference is even more remarkable. We find that a blacksmith in Massachusetts receives $18.50 per week; in England, $7.90; in Scotland, $7.62; in Germany, $6.75; in Prussia, $7.29; in France, $6.01. In the book-binding business the wages are equally remarkable in Massachusetts as compared with with England. A first-class finisher gets $26 in Massachusetts, and $10 89 in England; a forwarder earns $18 here, against $9.80 in the old country; a female folder is paid $9 in Massachusetts and $3.81 in England. Again, in the great trade of Massachusetts in boots and shoes, the first-class upper cutter will earn $18; while the European is paid $7.08; the female machine hand is paid $10, and $2,70 in Scotland: a mender of shoes earns $15 here, against $9.53 in England, $6.75 in Germany, $4.38 in Prussia, and $3.38 in Italy.

Our most expensive trades are the building trades, and in them we see the enormous difference of wages between the two continents. A first-class moulder of bricks earns $20.77, with board in Massachusetts, and $5.94 with board, in England. A mason is worth $24 here, against $10.17 in England; $9.53 in Scotland, $4.50 in Prussia, and $3.21 in Italy. A bricklayer is paid $24 here, against $10.17 in England, and $5.97 in Germany. A plasterer commands $24 in America, while his wages in Europe vary from $6.08 in Italy to $17.10 in Prussia. A carpenter earns $17 in Massachusetts, while in England he would earn $18.17, in Scotland $7.62, in Germany $9.25, and in Switzerland $8.10. Plumbers earn the comparatively low wages in Massachusetts of $10; in England they are paid $9.78, in Germany $4.86. In the business of slating houses, the wages here are $18, to about $8 in Europe. In painting they are $17 to about $10 in England, and about $12 in Germany.

Considering the unexampled good harvests both at home and abroad, and the consequent decrease in the price of food of all kinds, it would seem from the above figures that wages in this country are disproportionately high, and that the tendency will be to lower figures.

The Black Hills.

John W. Clark writes as follows to the Detroit *Tribune* from Cheyenne, Sept. 26th: I arrived here from Detroit last Wednesday *en route* to California, and concluded to remain over at this point for the purpose of learning all the latest news from the Black Hills region. Some 20 or more persons left this vicinity nearly a month ago with the understanding that they would join expeditions from Montana and other places. They succeeded in meeting only one party of 46 persons, which they joined, making the whole number 66. They represent that they have made a thorough inspection of the gold region of the whole country traversed by the Custer party, and without meeting with any success in the discovery of gold as reported by General Custer. In fact, not a color of gold was found in any of the streams by any member of the party.

Several lodes of silver-bearing quartz were found, but as to the real value of the same no one can tell until a proper test is made of the ores brought in.

The country is represented as having every appearance of long and severe winters, and (with the exception of the gold report by General Custer) is nearly the same as the report heretofore published in your paper.

The company made hurried marches, knowing that it would be unsafe to remain long in any place on account of the Indians, who are reported as being very dangerous and numerous.

I received my information from Mr. James Dubois, a long resident of California, and a thorough miner, who was one of the party returned, en route to Salt City, where he resides. I advise all persons having an idea of going to the new El Dorado to abandon the same at once. Surely there is anything but a bright outlook at this time.

THE PINE MOUNTAIN MINES.—Mr. John Broder returned a few days since from a visit to the Broder-Moffat mines at Pine mountain. He ordered work continued on the Last Chance the ledge generally referred to as the Moffat, mine. The developments in this and other mines of the district are deemed quite sufficient to justify the erection of a furnace, which we are assured will be done next spring, if not sooner; the lateness of the season being the only reason for a postponement. We are told by experts in whom we have confidence that the ores of Pine mountain, like those of Sylvania, are of the very best smelting class, there being positively nothing contained in any of them to clog or "freeze" a furnace. The average value of the galena ores proper, of which there is an abundance, as determined by numerous assays, is $73.70 silver per ton. Besides this class there is an immense amount of carbonized lead ore, treated as refuse, some of which Mr. Broder brought in, and had assayed by John A. Knapp, manager of the Swansea works. Lot 1 gave 54 per cent. lead, and 29.16 ounces silver per ton, worth $37.42. Lots 2 and 3 gave a slight percentage less in lead, but silver value the same, being an average of $34.80 in silver per ton. The choice ores run as high as $270, and all considered Pine mountain is certain to be one of our most valuable furnace districts, and one too, so situated as to be of great advantage to the interests of the central or agricultural portion of this valley, relatively of more value in this respect than Cerro Gordo and Panamint both together, since the bulk of everything of the kind from these two, owing to their geographical positions, is lost to us entirely.—*Inyo Independent, October 3d.*

AMONG the list of Vice-Presidents elected by the American Social Science Association, appears the name of President Gilman of the University of California and Professor George Davidson, of the United States Coast Survey, President of the California Academy of Science. Professor Davidson is now absent from this city in charge of one of the expeditions for observing the transit of Venus. His station is in Japan.

The Microscopical Society.

The regular semi-monthly meeting of the San Francisco Microscopical Society was held on Thursday of last week, President H. G. Hanks in the chair: Mr. W. H. Pratt was elected a corresponding member.

Under the head of donations, Mr. Hanks presented a slide mounted with a fragment of brick, from the arch or roof of a furnace in which gold sulphurets were roasted, in Calaveras county. The surface was covered with gold, which, under the microscope, presents interesting peculiarities.

Mr. Kinne presented several slides, mounted by him, embracing the following objects: Pollen of Periwinkle, exhibiting their peculiar slit-like markings; foraminated encrustations on berries of Fuca Navalis, found in the Gulf Stream; hairs of caterpillar, the larva of Spilosoma Acrea, showing minute spines arranged on the main shaft in somewhat regular whorls; sections of cypress, both transverse and longitudinal, showing the characteristic dotted ducts.

Mr. Edwards presented fragments of insects for mounting, from Japan. Dr. Blake presented a species of Coccus, found in the leaves of the growing Fuschia.

Dr. Cooper presented a variety of fungoid growth, found on willows, which was referred to Dr. Harkness for further examination.

Dr. Harkness exhibited the Achyla Prolifera, a fungoid growth found on the bodies of dead flies, and gave a very interesting account of its method of growth. Some very fine specimens of Closterium were shown, which are found abundantly in the bottom of pools, on any sunny day, at the present time, and which illustrated very beautifully cell rotation. Another form of vegetable life, the Gonium Pectorale, revolving across the field with a life-like motion, taken in connection with the Euglena, classed as a genus of Infusoria, and found in the same drop of water, served, with several other forms of life referred to by Dr. Bastian in his experiments on the "Beginning of Life," as a theme for a very interesting evening's study.

REMOVAL OF TRUSTEES.—The County Court has been petioned by a majority of the stockholders of the Justice mining company to call a meeting of the stockholders for the purpose of taking into consideration the removal of the Trustees of the company from office. The petition is signed by Woods & Freehorn, representing 3,490 shares; E. Hesties, 1,880 shares; Dudley C. Bates, as Trustee, 100 shares; Schmeidell, Hochstadter & Co., 270 shares; James H. Lathsm & Co., 3,603 shares; E. Von Santen, 800 shares; T. H. Hawkins, 200 shares, C. A. Kennedy, as Trustee, 200 shares; W. J. Smith, 700 shares; making a total of 13,173 shares out of 21,000 shares of the corporation. The Board of Directors consists of Emilie Hesties, John T. Hill, A. P. Minear, John P. Jackson and J. Clem Uhler. The petitioners say they deem it the best interest and advantage of the company that the management and control of its affairs shall be changed by the election of other Trustees. It is proposed by the petitioners to remove all the Trustees, but especially Minear, Jackson and Uhler.

COLUMBIA DISTRICT.—The news from this new mining camp is very encouraging. We learn from our old friend George Keating, who is largely interested in the district, that work is being prosecuted vigorously on the Badger and other claims in the district. Mr. Keating, who was a delegate to the convention, brought several lots of ore to town from the principal mines, samples of which were worked at the Humboldt Reduction Works, with the following results: Badger, $100 per ton in gold; Panther, $300 per ton in silver, and 35 per cent. in copper; Mayflower, 70 per cent. copper. We are assured that ores like those mentioned are plenty on Bartlett Creek, and mine owners in that vicinity, are confident that if a railroad is built from Winnemucca to Oregon, so as to enable them to transport it, they can supply all creation with copper. As it is, several large teams will be loaded immediately by Keating & Co. with ore from those mines, for the reduction works of Gintz & Ginacca.—*Silver State.*

CHINESE CIVILIZATION.—We notice this week another indication of Chinese advance in civilization. A Chinese washman in St. Helena, Napa county, has advertised his wash house in the newspaper there, the St. Helena *Star*. He says washing and ironing neatly and nicely done, and puts "NO MISTAKES" in small caps. Not only has he advertised, contrary to the custom of his kind, but he has also prevailed on the editor to give him a "puff" in the local columns, in connection with his advertisement. The puff is as follows:

Mow Hing—"*Charley.*"—This enterprising Chinese wash-house-man has advertised, "melican fashion," to-day. He says, "me savey printer ink belly good. You tell em I makee no mistakes. I wash em well."

This circumstance go to show that the Mongolians in this State are fast advancing, and learning some of the "tricks that are dark" of the American citizens. Chinese advertisers are new things under the sun.

THE total number of mail letters collected by the carriers in this city, during the year 1873, was 2,460,427; and the postal cards collected numbered 158,485; while during the first three quarters of the present year 2,522,309 mail letters, and 271,957 postal cards were collected.

Powder Making in California.

The purely mechanical part of the manufacture of powder is essentially the same in principle and only differs in extent of details in the various mills. Our readers will probably like to understand something about how it is made, so we will tell them how they do it in our California mills, belonging to the California Powder Works, on the banks of the San Lorenzo creek, Santa Cruz county. The mills are described as follows: The motive power in most powder mills is water, although both steam and water is used at the California Powder Works. The supply of water used here is taken from the river about one mile above the works, by means of a flume and ditch; but to secure sufficient fall the company were obliged to cut a tunnel 1,160 feet in length through the mountain in the rear of the works.

On entering the different buildings—of which there are 15—located on a circular railway track, at a distance of from 30 to 175 feet apart, you are required to brush and dampen your boots, so as to remove all sand and dirt adhering to them. The different ingredients are conveyed from one building to the other upon small platform cars covered with canvas. The first you enter is the refining room for the nitre or saltpetre. Here you find two large copper tanks for dissolving, and four large vats for crystalizing. Adjoining this is the drying and grinding room. The next is the charcoal house, located about a quarter of a mile from the works, on the opposite side of the river. Here they char or roast the wood in cast iron cylinders, so arranged in mason work as to permit the flames from the furnace underneath to circle around them. There are 20 cylinders, with a capacity of 120 pounds of charcoal each. After being submitted to this roasting process for 9 hours, it is then conveyed in large iron tanks on platform cars to the cooling room, where it is allowed to remain 24 hours. Number four is the pulverizing room. Here you find 20 large wooden cylinders containing iron balls; they revolve at the velocity of ten revolutions per minute, and contain the sulphur and charcoal to be pulverized. The pulverization occupies about 24 hours time. Next in order are the wheel houses—five in number—there the danger of powder making commences. In a large iron basin, to be ground, is placed what is termed a charge consisting of about 200 pounds of the different ingredients which compose powder. The following are the proportions in which they are mixed: saltpetre, 75 per cent.; charcoal, 15 per cent.; sulphur 10 per cent.—in a moist state. The charge is allowed to remain from three to eight hours, subjected to the pressure of 15 tons, produced by a pair of iron wheels revolving on an upright shaft. As the grinding process draws to a close, the utmost care is necessary in watching the charge, so as to prevent it from becoming too dry, in which case an explosion is the inevitable result.

We now pass to the press house, where in a hydraulic press between two copper plates the pulverized powder is subjected to a pressure of 4,000 pounds to the square inch, after which it is known as press-cake, and apparently resembles slate, being half an inch in thickness. The powder has now to be granulated, which is done in the grain house, by passing the press cake between a pair of metal cylinders. As it passes from the cylinders or rollers, it is submitted successively to the action of sieves of gradated fineness, when the portions too coarse to pass through are subjected to a second and third set of rollers.

The granulated powder is next freed from dust by running it through reels, similar to the bolter employed in dressing flour. It is now ready for the drying house, where it is placed on canvas shelves, and dried by means of steam heat. The powder is now glazed, by subjecting it to rotary motion in barrels or drums, in the glazing house. The rotation must be just sufficient to cause the grains to roll over each other slowly. It thus becomes polished by attrition. It is then taken to the packing house where it is weighed, and placed in cans and kegs ready for shipment.

There is an extensive cooper shop connected with the works, where 640 wood and iron kegs are manufactured daily. The cottages occupied by the employes and their families, which number about one hundred, can be seen a short distance above the works, and resembles a country village in many respects. A more desirable spot could not have been chosen for the location of the company's works, which are very extensive, extending up and down the river for about two miles.

ANOTHER lot of 750,000 salmon from the Government fishery on the McCloud river, has been started for these destinations: R. G. Pike, Middletown, Connecticut, 150,000; James Duffy, Manetta, Pennsylvania, 150,000; Alex. Kent, Baltimore, Maryland, 150,000; James B. Thompson, New Hope, Bucks county, Pennsylvania, 150,000; Alfred A. Reed, Jr., Providence, Rhode Island, 100,000; Samuel Wilmot, Newcastle, Ontario county, Canada, 25,000; H. H. Thomas, Randolph, Cattaraugus county, New York, 25,000. At the fishery there is now being prosecuted the work of hatching 1,000,000 young Salmon for the Sacramento river. After being hatched they will be placed in the McCloud river near the fishery.

THE old Empire, on the Comstock, has again fallen into the ranks of ore producing mines,

Useful Information.

Mixing Putty.—We give below a number of valuable formulas for making putty for various purposes.

Common window putty.—Mix whiting and linseed soil to a stiff dough.

Carriage painters' putty.—Take dry white lead and mix with one part brown Japan and one part carriage rubbing varnish. A common wagon putty is made by using whiting in the place of dry white lead and adding a small quantity of white lead in oil, from the keg. This putty should be kept in water when not in use, to prevent drying.

Cementing putty, for water or gas pipes.—Take red lead and white lead, equal weight, and mix with boiled oil.

Putty for furniture.—Mix whiting, Indian red and lamphlack in equal proportions, with carriage varnish, adding a small piece of beeswax to the putty, by heating the same and pounding it well with a mallet, until thoroughly amalgamated.

Hardwood putty.—Take fine sawdust of the same kind of wood, and mix with strong glue.

Putty for walls.—Whiting mixed with glue, or calcined plaster (gypsum) and water.

How Imitation of Gold is Made.—Pure copper, 100 parts; zinc or preferrably tin, 17 parts; magnesia, 6 parts; sal ammoniac, 3.6 parts; quicklime, 1.8 parts; tartar of commerce, 9 parts. Copper is first melted, then the magnesia, sal ammoniac, lime and tartar are added, separately and by degrees, in the form of powder; the whole is now briskly stirred for about half an hour, so as to mix thoroughly; and the zinc is added in small grains, by throwing it on the surface and stirring until it is entirely fused; the crucible is then covered and and the fusion is maintained for about 35 minutes. The surface is then skimmed and the alloy is ready for casting. It has a fine grain, is malleable and takes a splendid polish. It does not corrode readily, and for many purposes is an excellent substitute for gold. When tarnished, its brilliancy can be restored by a little acidulated water.

Marbling.—A fine white marble imitation is made by painting the work with white lead paint, finishing it with China gloss. Then when dry and hard rub the surface until smooth, with fine pumice stone and water, wash clean, dry well, and then holding a lighted candle near the surface, allow the smoke to form the various shades, tints and veins desired. A black crayon may also be used to form fine irregular lines; then, with a very soft hair varnish brush apply a light coat of white Damar varnish, being very careful not to disturb the smoked figures.

Black or variegated marble is made by streaking the surface with colors mixed with carriage varnish and turpentine, using a feather to form the fine lines, and a sponge or crumpled paper smeared with color and then danbed on the work.

The sugar insect is never found in loaf or other refined sugars. All impurities are entirely removed in the process of refining, and nothing remains but pure saccharine matter, with sometimes a trace of salts. The sugar insect, *Acarus sacchari*, inhabits brown sugars, from 42,000 to 268,000 being found in a pound weight. If a spoonful of raw sugar be dissolved in a wine-glass of water, the insects will come to the surface, where they may be seen with a microscope swimming about vigorously. Many scientific men consider the sugar insect identical with the *Acarus scabei*, or common itch insect. Brown sugar is neither so economical nor so healthful as white, and could one but once look through it with a microscope, or see the refuse from the filters in a sugar refinery, he would never eat any other than refined sugar.

To Prevent Rusting.—Boiled linseed oil will keep polished tools from rusting if it is allowed to dry on them. Common sperm oil will prevent from rusting for a short period. A coat of copal is frequently applied to polished tools exposed to the weather. Woolen materials are the best for wrappers for metals. Iron and steel goods of all descriptions are kept free from rust by the following: Dissolve ½ oz. of camphor in 1lb. of hog's lard, take off the scum and mix as much black lead as will give the mixture an iron color. Iron and steel, and machinery of all kinds, rubbed over with this mixture and left with it on for twenty-four hours, and then rubbed with a linen cloth, will keep clean for months. If machinery is for exportation it should be kept thickly coated with this during the voyage.

Fastening Leather upon Metals.—The following is said to be a good recipe for fastening leather upon metals: Digest one part of nutgalls six hours with eight parts distilled water, and strain. Glue is macerated in its own weight of water for twenty-four hours, and then dissolved. The warm infusion of galls is spread upon the leather, the glue solution upon the toughened surface of the warm metal; the moist leather is pressed upon it and then dried, when it adheres so that it cannot be removed without tearing.

A new tubular petroleum lamp has been constructed by MM. Defienne. It consists of ten small circular wicks in place of one large one. They are arranged in a circle, and are attached to a frame movable by a single rack.

Removing Nitric Acid Stains.—The yellow spots produced by nitric acid may be removed from brown or black woolen goods, while fresh, according to Th. Wegler, by repeatedly dipping them into a concentrated solution of permanganate of potash, and then washing with water. The yellow spots on the hands may be removed in the same way, the brown stain produced by the permangate being removed by an aqueous solution of sulphurous acid. Old stains cannot be removed by this or any other process, nor will it answer for cloth or any other color but black or brown.

Fastest Steaming and Racing.—The fastest time on record for steamboats, it is said, is that of the "Mary Powell," which recently made the 28 miles from New York to Piermont, in one hour, which is at the rate of one mile in 2 minutes 8½ seconds, with a boiler pressure of 37 pounds. The fastest time on record for horse-racing, is that of the mare "Goldsmith Maid" at Mystic Park, Boston, which was 2 minutes 14 seconds per mile, corresponding with almost 27 miles per hour.

Utilizing Carbolic Acid.—The immersion of hides for hours in a two per cent. solution of carbolic acid, and then simply drying them, has been recently substituted for the tedious and expensive process of salting them for transportation from South America and Australia, and with most satisfactory results. Bones have been similarly treated for transportation.

Experimental Cremation.—A trial has been made at Breslau, before the National Science Congress, of Dr. Reclam's new cremation apparatus. In half an hour the soft parts of the body were thoroughly consumed, and within an hour the bones were reduced to white ashes.

Good Health.

Milk Diet in the Treatment of Disease of the Heart.—Dr. Pecholier, of Montpelier, attributes great importance to the milk diet, not only in dropsy, like some of his predecessors, but also in other diseases, and especially those of the heart. He states that in active hypertrophy—namely, in those cases where the consequences of the development of the muscular fibres prevail over the embarrassment of the circulation caused by the dilatation of the cavities, the contraction of the orifices, or the insufficiency of the valves, and where, in consequence, the tension of the blood is great in the arteries, and the radial pulse is full and hard; in such cases, at their commencement, the milk diet, together with the use of digitalis, and sometimes without it, will, if continued long enough, induce at once an amendment of the symptoms, and even at last, all absorption of the superabundant muscular tissue, and thus effect a cure. But in order to secure success, the patients must strictly observe the injunctions given to them; and hence the treatment is more successful in those cases where the lesion has produced great inconvenience and suffering than in those where the patients suffer little, because in the latter case they are unwilling to submit to the rules of diet. Under the influence of the milk diet, it is found that the impulses of the heart diminishes, together with the palpitations, and the congested condition of the face, the brain, and the lungs. The patient experiences an unexpected improvement, and by the adoption of this plan life may be prolonged and rendered more supportable; and even where a cure cannot be hoped for, a great palliation of the symptoms may be induced.—*Brit. and For. Med. Chir. Rev.*

The Benefits of Exercise.—Exercise is health-producing, because it works off and out of the system its waste, dead, and effete matters; these are all converted into a liquid form, called by some "humors," which have exit from the body through the pores of the skin, in the shape of perspiration, which all have, and which all know is the result of exercise, when the body is in a state of health. Thus it is that persons who do not perspire, who have a dry skin, are always either feverish or chilly, and are never well, and never can be as long as that condition exists. So exercise, by working out of the system its waste, decayed and useless matter, keeps the human machine "free"—otherwise it would soon clog up and the wheels of life would stop forever. Exercise improves the health, since every step a man takes tends to impart motion to the bowels; the proper amount of exercise keeps them acting once in every twenty-four hours. If they have not motion enough, there is constipation, which brings on very fatal disease; hence exercise—especially that of walking—wards off innumerable diseases, when it is kept up to an extent equal in inducing one action daily. Exercise is healthful, because the more we exercise the faster we breathe—we take that much more air into the lungs; and it is the air which we breathe which purifies the blood, and the more air we take in, the more perfectly is that process performed. The purer the blood is, the better the health must be. Hence, the more the consumptive stays in the house, the more certain and speedy is his death.

Bee Stings.—It is said that a few drops of coal oil applied to parts stung by bees, wasps or hornets, will give instant relief.

Hay Fever And its Cause.

In a book entitled "Experimental Researches on the Causes and Nature of Catarrus Æstivus (Hay fever or Hay asthma)," Mr. Blackley publishes some very interesting conclusions respecting this singular disease. He finds that it is peculiar to the educated classes, but is not aristocratic like the gout, being more common in proportion to the spread of mental culture and the intensity of intellectual occupation. And yet a highly organized state of the mind, is not the only element in its propagation, for race qualities seem to have a marked effect upon it. Thus in Europe it is most common in England, after which follow Germany, France, Belgium, Switzerland, Scotland, Italy, Russia, Ireland. Climate, therefore, has no influence upon its propagation, for England and Ireland, which are geographically contiguous, form the extremes of the above list. Out of 152 patients, 81 were English, 36 German, and only one Irish. As to the actual inciting cause of the disease, it has been referred to summer heat, dust, ozone, the odor of flowers, the pollen of blossoms, and especially of grasses. The author's experiments lead him to the conclusion that it is to the pollen of flowering plants (including grasses) that the disease is due. He collected pollen grains from the atmosphere, and gives curves showing the number of grains which gathered on a square centimetre of surface from May 28 to August 1, 1866, the highest number, 880, falling on June 28. By using kites he ascertained the proportionate amount of pollen at high levels in the atmosphere, with the somewhat remarkable result that at 1,500 feet above the earth the pollen was found to be more abundant than on the surface. The author found that germs and spores of other plants generally outnumbered the pollen, and he thinks that "if these should resemble the pollen in its capacity for absorbing water and discharging granular matter under the influence of moisture, we may have a form of finely divided vegetable and animal matter thrown into the air which the best modern instruments might fail to discover the nature and origin of, but which might, nevertheless, be a powerful cause of disease." As to the places least likely to be affected by the disease, the author found hay fever least common in those localities where pollen is least likely to be plentiful, such as the centers of large cities, the seashore, and high-lying districts giving up to pasturage.

Why Children Die.—The reason why children die is because they are not taken care of. From the day of their birth they are stuffed with food, choked with physic, suffocated with hot rooms, steamed with bed clothes. So much for indoors. When permitted to breathe a breath of air once a week in summer, and once or twice during the cold months, only the nose is permitted to peer into daylight. A little later they are sent out with no clothes at all, as to the parts of the body which need most protection. Bare legs, bare arms, bare necks, girted middles, with an inverted umbrella to collect the air and chill the other parts of the body. A stout, strong man goes out on a cold day with gloves and overcoat, woollen stockings, and thick double-soled boots. The same day a child of three years old, an infant in flesh and blood, and bone and constitution, goes out with soles as thin as paper, cotton socks, legs uncovered to the knees, neck bare; an exposure which would disable the nurse, kill the mother in a fortnight, and make the father an invalid for weeks. And why? To harden them to a mode of dress which they never expected to practice. To accustom them to exposure, which a dozen years later would be considered downwright foolery. To rear children thus for the slaughter pen, and then lay it to Heaven, is too bad.

A Rapid Cure for Tapeworm.—A. J. Schafish, of Washington, says that in treating some cases of tapeworm he employed no preliminary provisions beyond forbidding the patient to take any breakfast the day on which it is intended to remove the worm, and giving him a large dose of Rochelle salts the preceding night. At 10 o'clock in the morning he had the following at one dose: Recipe, bark of pomegranite root, ½ ounce; pumpkin seed one-half dram; ethereal extract of male fern, 1 dram; powdered ergot ½ dram; powdered gum-arabic, 2 drams; croton-oil 2 drops. The pomegranate bark and pumpkin-seed were thoroughly bruised, and, with the ergot, boiled in 8 ounces of water for fifteen minutes, then strained through a coarse cloth. The croton oil was first rubbed up with the acacia and extract of male fern, and then formed into a emulsion with the decoction. In each case the worm was expelled alive and entire within two hours. No unpleasant effects followed. In each case the worm was passed with the head firmly fastened to the side of its body at about the widest part, from which it was with difficulty removed; and the worm was twisted and doubled into various knots.—*The Druggists' Circular.*

Catarrh Remedy.—Take a wide-mouthed glass bottle loosely filled with cotton and pour on it the following mixture: Pure carbolic acid, 80 grains, aqua ammonia (sp. gr. 0.96) 90 grains, distilled water 160 grains, rectified spirits of wine, 80 grains. Inhale frequently through the nose and now and then into the mouth.

Domestic Economy.

The Reason Why.

Why does boiling fast render meat hard?

Because the excessive action of heat causes the albumen of the meat to set solid, crisp up the fleshy fibres, and prevents heat having a gradual access to the interior.

Why, when a good soup or broth is required, should the meat be put into cold water?

Because, as the heat is developed very gradually, there occurs an intermixture between the juices of the flesh and external matter. The solnble and savory part of the meat escapes and enriches the soup.

Why are stews generally healthful and digestible?

Because, being compounds of various substances, they contain all the elements of nutrition, and as the office of the stomach is to liquify solid food before digesting it, the previous stewing assists the stomach in this particular.

What causes the cracking noise when lard is put into a frying pan?

Lard always contains some portion of water, and it is the expansion of that water into steam, forcing its way through the fat, which causes the cracking noise. The heat at which fat or oil boils is much greater than water. When the cracking ceases the water is gone, and when the fat bubbles its heat is very high.

Why should fish or meat that is being fried be frequently turned?

Because the turning assists the evaporation of the water. When the fish or meat is allowed to lie too long steam is generated under it, and the steam is driven off, the surface catches to the hot pan and becomes burnt and broken.

Why is broiled meat so juicy and savory?

Because the action of the fire hardening its surface seals up the pores through which the juices might escape. A fork should not be used for turning it as the tines open a way for the escape of the juices, thus wasting the best part of the meat.

Why should the water upon cabbage be changed in cooking?

Because (according to Dr. Paris) cabbage contains an essential oil which is apt to produce bad effects, and he recommends that it should be boiled in two successive waters, till it is soft and digestible.

Pop Corn—Every farmer should provide this cheap luxury; see that the boys have a patch, and let the young folks indulge in it freely. It is good for wormy children, good for all persons having dropsical habits, waterbrash, dyspepsia, etc. It is good pounded in a mortar, or ground and soaked in milk, or made into a cake, or mush. It is pleasant eating for most folks, especially for those having good teeth. It is quite a treat when young folks have company in the evening. It keeps well after it is parched. Make pop-corn candy; it is much healthier than colored sugar for children.

Jellies.—In making jellies of apricots, quinces, peaches, apples or plums, peel, remove the stones or cores, cut in pieces, cover with water, and boil gently till well cooked; then strain the juice gently through a jelly bag and add a half pint of sugar to a pint of juice. For berries, a pound of sugar to a pint of juice; boil till it ropes from the spoon, or from fifteen to twenty minutes. In making raspberry jelly use one-third currants and two-thirds raspberries.

Breakfast Bisquit.—Take a piece of risen bread dough, and work into it one beaten egg and a teaspoonful of butter or lard. When it is thoroughly amalgamated, flour your hands and make it into balls the size of an egg; rub a tin over with milk, and set them in a quick oven for twenty minutes, and serve them hot for breakfast. When eaten, break them open: to cut would make them heavy.

Artificial Oysters.—Take green corn, grate it in a dish; to one pint of this add one egg well beaten, a small teacup of flour, half a cup of butter, salt and pepper, and mix them well together. A tablespoonful of the batter will make the size of an oyster. Fry them a light brown, and when done, butter them. Cream, if it can be procured, is better than butter.

Sweet Pickles.—Twelve pounds of fruit, six pounds of sugar, and a quart of cider-vinegar, cloves and cinnamon. Let the fruit boil in above until soft; take out, put carefully on a dish, let the syrup boil down, then put on fruit again and boil a few minutes; fill jars and seal with tissue paper dipped in white of egg.

Plum Preserve.—Plums are equally good done in molasses as sugar. If sugar is used, take an equal quantity of fruit and sugar. Make a clear syrup and boil the plums gently forty minutes. They will require heating over once if to be kept.

Jelly Cake.—Take three eggs, one cup of sugar, two-thirds cup of milk, two cups flour, a piece of butter the size of a butternut, two even teaspooneful of cream of tartar, and one even teaspoonful of soda. This makes an excellent jelly cake, and does not break when taken from the pan.

Pound Cake.—One cup of sugar, one-half cup of butter, one cup of flour, and three eggs beaten separately. This makes one loaf.

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Osage Orange, or Bois d'Arc.

Some months since, Mr. C. D. Gibbes called the attention of Californians, through the Academy of Sciences, to the Bois d'Arc or Osage orange (Maclura aurantiaca), both for hedges and for timber. He said he had seen it in its native State, in the swamps of the Bois d'Arc fork of Trinity river, Texas, where it grows to the hight of 60 or 70 feet, with a diameter of two or three feet, and is one of the most beautiful of the native tress. The wood is one of the most durable in the world, and is remarkably strong, elastic and tough. It is of a beautiful yellow color, closs grained, and receives a free polish, making it valuable for furnitures. In Texas it is used for wagon wheels, as it is not liable to shrink.

For ship-building, Mr. Gibbes stated that this wood is preferable to live oak, and by Indians is preferred for bows to all other wood. It also yields a yellow dye. For an ornamental tree, it is one of the most graceful, with its dark-green foliage and hard, smooth bark, drooping branches and large, orange-colored fruit. It forms a good belt of hedge-row for sheltering gardens, vineyards or orchards, being of a rapid growth and bearing formidable thorns for hedges. A plantation of osage orange set out now, would, in a few years, afford a most valuable timber that would pay well, as it sprouts rapidly from the stump and soon renews the timber ent.

At the last meeting of the Academy of Sciences, Mr. Gibbes exhibited some of this wood, which had been sent to the Academy by Dr. R. K. Reid of Stockton. Some of the wood had been polished, showing a beautiful grain. Some cloth dyed with the dye from this wood was also shown. The dye is of a bright yellow color. Mr. Gibbes again called the attention of our land-owners to the importance and value of cultivating plantations of this tree for timber. In swampy soil it grows very rapidly, and in our swamp land, firm enough to produce sycamore and willow, it would do well. It requires a good, moist soil, but not too wet. This tree could be used to great advantage in strengthening levees on the tulee land, where it would not only be valuable for timber, fuel and shade, but also for forming a substantial protection to the levees, strengthening them and assisting to hold them in position.

A Visit to the State University.

We took occasion on Friday last to visit the State University, at Berkley, to listen to a special lecture by Prof. Hilgard, on agricultural education, and to note the progress that is being made for the general advancement of the institution. The lecture was delivered before the entire body of the students, the faculty, several of the regents, and others who had been invited to be present.

The Address.

The lecture was well received, and did justice to the important subject discussed. Professor Hilgard is a teacher and investigator rather than an orator; but all who listen to him quickly perceive that he is well acquainted with whatever subject he may have in hand. We regret that our limited space will not allow us to give the lecture in full.

Agricultural Education.

The Professor commenced by remarking that the subject of agricultural education, or rather of what it should consist, has been the subject of much discussion of late in all parts of the country. In many institutions it has been made a kind of "Botany Bay" into which have been shipped all who were desirous of shirking honest work at the university. Such views, however, are the result of a grievous misapprehension of the importance of agricultural education. A proper and successful prosecution of agricultural studies requires the closet application, and the supervision of such study the attention of scientific men of the highest culture. It is with the greatest difficulty that the advances made in agriculture are inculcated or acquired. Agricultural phenomena are of the most complex character, and involve a thorough knowledge of nearly all the sciences.

Agricultural Experiments, Etc.

Allusion was made to the difficulties attending agricultural experiments, and their great importance. One can scarcely imagine the care which has to be exercised, or the difficulties in the way of arriving at correct conclusions. Much is yet hidden from us, which, by continued, experiment and laborious research, will eventually be placed before the world for future study and practical advantage.

It should be no part of the work of a university to teach students how to plow and dig; such work they should be taught at home. The university should simply explain what should be done on the farm; thoroughly instil into the mind of the student the principles upon which agriculture is founded, and awaken in him a taste and love for the calling. Labor should be dignified in the eye of the student, and a distinction made between educated and ignorant labor. Muscle cannot be made equal to mind. The educated agriculturist can and should occupy as prominent a place in the world as any other person of like culture.

The lecturer gave a lengthy review of what science has done for agriculture in preventing exhaustion of the soil, improving the modes of tillage where by an increased yield was secured, and closed with some general and pertinent applications of the subject.

A Little Talk.

At the close of the lecture a portion of the faculty and the regents, and, per invitation, some others interested in the cause of practical education, repaired to the room occupied by the Faculty, where an hour or more was pleasantly and we trust profitably spent in a little social conversation and interchange of views with regard to the general interests of education and the special efforts now being made at the State University to carry out the cherished objects of the people in rendering the Agricultural and Mechanics' Arts Colleges a practical success. We apprehend that one great difficulty in the way of such a result, and the chief cause of the present antagonism of feeling between the people at large and the management of this institution comes from lack of a proper understanding between the two. Whatever may have been the disposition of the Regents in times past we feel well assured that an honest and earnest effort is now being made to render these important and primary departments of our State University what it was originally intended by the general government and the people they should be.

The College of Agriculture.

To satisfy ourselves and our readers more particularly in this direction—that the Regents are trying to improve the College of Agriculture as rapidly as an empty treasury will admit, we took a walk over the grounds, accompanied by Mr. R. E. C. Stearns, the Secretary of the Board of Regents, and Mr. J. W. A. Wright, Lecturer of the state Grange of Patrons of Husbandry. We found that active measures are being taken to improve the grounds and prepare them for the illustration of agricultural and horticultural work, and were assured that the relation of this work to the instruction in the University will be made as close as possible. Students enrolled in the Colleges of Agriculture will be required to become familiar with their operations.

The grounds have been placed as required by the organic act, under charge of the Secretary of the Board of Regents, who is a practical agriculturist, and of all men in the State most eminently qualified to fill that position. He is most ably seconded by the gardener, Mr. John Ellis, who thoroughly understands his business. A convenient propagating and green house, with all necessary appurtenances, has already been constructed, and a tract of ground laid off and properly prepared for gardening and horticultural purposes. Other portions have been set apart for orchard and forestry and for general farming purposes. These are now being prepared for active work as soon as the season opens. A large barn has been constructed at a point convenient to the farm work. Every thing appears to have been done with good taste and judgment, and in a spirit of economy unaccompanied with niggardness. All who are interested in the progress of this work, or who have heretofore been inclined to utter complaints at the slowness with which it has been entered upon, should now go and observe for themselves.

Work in Other Directions

Is also being prosecuted with most commendable dispatch. Halls or cottages for the accommodation of the students have been erected; five in number, most substantial and convenient. Each cottage will accommodate ten students, at a rental of $30 per year, for each person. Two of these cottages have been set apart for the young ladies, and have been erected at opposite extremities of the ground from those designed for young gentlemen. Houses for professors have been erected in immediate contiguity to the cottages for students.

Mechanic Arts.

Instruction in mechanic arts is given by Professor Le Conte, and in engineering by Professor Soule. In the development of this department special attention is very properly given to industrial and mechanical drawing in distinction from artistic drawing. An acquaintance with this exact art is indispensable to high attainment in mechanic arts. The services of Mr. John D. Hoffman, educated at the Polytechnic School, at Carlsruhe, have been secured for this specialty.

Manual Labor.

The labor of the students is utilized so far as possible, in all the work about the institution and its grounds, for which a fair compensation is allowed. A printing office has also been set up in one of the buildings, in which over forty students are already employed more or less of their time. This office will soon be greatly enlarged, and put in condition to do all all kinds of book and most other work. Stereotyping will no doubt soon form one of its most useful features. Those who desire to learn the art of telegraphy have excellent opportunities for doing so. A machine shop with steam power are among the contemplations of the early future.

Notwithstanding the opinion of one of the Regents to the contrary, as expressed in our "little talk" in the Faculty room, we saw abundant evidence in the printing office, and in and about the grounds that the students were both inclined and able to unite manual labor with their studies, both as a means of aid to their support at ths institution, and as a matter of practical study in mechanic and agricultural arts. Of course the power to do this while maintaining a good rank as scholars, varies much with the individual.

Conclusion.

We would like to say much more with regard to what we saw and heard during this interesting visit to the State University, but neither time nor space will admit. We would simply add in conclusion that the visit and inspection was a most satisfactory one, so far as we could make up our minds to let by-gones alone. Looking to the future we have hope and confidence in the university, and believe that the management is disposed to give the fullest efficiency to *all* the various colleges—those based upon the application of science to the useful arts as well as to those which look more directly to what are termed mere classical attainments. The present total number of students is 228, of whom 37 are young ladies. There is no preparatory class now connected with the University.

W. S. VAN DEELEN'S stage line from Elko to Eureka carries passengers for $10, and the travel is principally performed by day, thus affording an opportunity for the passengers to observe the mountain scenery and avoiding the disagreeable all-night stage ride. This line leaves Elko every other day immediately upon the arrival of the western bound train. Passengers from the West will save $2.50 by this line, and those from the East $7.50 in fare, and also a good deal of valuable sleep. Passengers are provided with a good, comfortable coach, good breakfast and supper, and kind and obliging drivers.

CONNECTION MADE.—Connection has been made between the narrow and the old tunnel of the Sierra Nevada mining company at the Sacramento chimney. The first survey was 56 feet out of the way. They are now ready to begin the extraction of ore from the deposits worked in the early days of the mine.

THEY are to have a telegraph to the Panamint mines.

Our Bullion Product.

The bullion production of the Pacific coast has within the past few years assumed proportions large enough to astonish the world. The sum total, while decreasing in some States, is increasing in others, so that each year shows an increase in the aggregate amount produced. Last year the product was as follows: California, $18,052,722; Nevada, $35,254,507; Oregon, $1,376,389; Washington, $209,395; Idaho, $2,343,654; Montana, $3,892,810; Utah, $4,106,331; Arizona, $47,778; Colorado, $4,083,568; Mexico (West Coast), $866,798; total, $72,258,693. During the year 1872, the total product from these same States and Territories amounted to $62,236,913; showing an increase of over ten millions of dollars for 1873. The yield in 1871 was $58,284,029; about $4,000,000 less than in 1872. Thus, in two years the increase was over $14,000,000. During the three years preceding this, the Pacific coast produced $192,779,035, in hard cash.

During 1873 there was produced in gold bullion, $27,707,059; in silver, $34,315,750; hass bullion, $10,235,884. The production of gold declined $2,721,699; of which $1,000,000 was in California. The mining dividends of which there was any record amounted in 1873 to the sum of $13,356,000, from sums quoted on our stock boards. The assessments during the same time amounted to $6,729,743, leaving a profit to stockholders of $6,626,257, or over $500,000 a month during the year. The total dividends paid in 1872 were $6,731,100; so that 1873 showed an increase of $6,614,900, or about 50 per cent. When we remember that in 1871 the total dividends only amounted to $4,837,950, we can appreciate ths result of last year's operations. This year the dividend will be much heavier. The dividends for last month were larger than any corresponding month in the last ten years. This year, up to the present time, the coinage at our mint has been larger than ever before. For the past nine months of the year it was $19,942,000; as compared with $15,442,900 in 1873; and $11,524,000 in 1872. The receipts of treasure through Wells, Fargo & Company's express, in this city, during the first nine months of this year, is shown in the *Commercial Herald*, in the following table:

FROM THE NORTHERN AND SOUTHERN MINES.

1874.	Sil. Bul'n, etc.	Gold Bars.	Coin.	Totals.
January.....	$ 993,801	$423,898	$626,052	$1,953,751
February.....	1,696,483	452,174	540,351	2,689,586
March.....	1,439,139	548,592	474,463	2,462,194
April.....	1,829. 01	678,741	578,409	3,086,251
May.....	1,920,180	792,522	740,657	3,453,359
June.....	1,892,003	703,973	834,874	3,426,850
July.....	1,417,262	751,448	773,273	2,941,983
August.....	1,495,888	708,418	883,021	3,086,327
September.....	1,651,267	654,398	945,106	3,250,771
Totals.....1874.	$14,235,112	$ 5,718,164	$6,406,806	$26,357,032
1st 9 mos. 1873.	8,784,033	6,702,159	4,274,295	19,760,997
1st 9 mos. 1872.	5,207,727	12 616,379	5,411,089	23,235,194
1st 9 mos. 1871.	11,115,109	10,958,518	5,514,722	27,588,349
1st 9 mos. 1870.	10,484,124	13,340,549	4,800,223	29,121,896

FROM THE NORTHERN COAST.

January.....	.....	$135,300	$ 52,427	$187,727
February.....	.....	57,478	144,802	202,280
March.....	.....	63,798	69,333	133,131
April.....	.....	97,545	28,487	126,032
May.....	.....	132,911	57,275	189,286
June.....	.....	107,820	50,493	158,313
July.....	.....	137,422	49,354	186,776
August.....	.....	199,468	23,892	222,998
September.....	.....	118,520	20,619	139,139
Totals....1874.	.....	$1,048,980	$496,732	$1,615,692
1st 9 mos. 1874.	$4,200	966,681	692,958	1,663,839
1st 9 mos. 1873.	.....	1,531,413	458,205	1,989,618
1st 9 mos. 1871.	9,785	1,826,873	472,637	2,309,295
1st 9 mos. 1870.	.....	2,549,288	358,628	2,907,916

FROM THE SOUTHERN COAST.

January.....	$363	$14,292	$36,383	$51,038
February.....	.....	20,772	29,191	49,963
March.....	.....	5,159	31,797	36,956
April.....	1,946	24,693	54,136	80,775
May.....	4,508	24,606	39,395	68,509
June.....	1,230	30,478	37,619	69,327
July.....	1,300	14,790	35,207	51,297
August.....	.....	10,318	17,206	27,524
September.....	900	17,360	15,189	33,349
Totals.....1874.	$9,547	$162,468	$296,123	$468,138
1st 9 mos. 1873.	2,895	119,087	436,705	558,687
1st 9 mos. 1872.	2,444	224,196	330,651	557,291
1st 9 mos. 1871.	5,750	272,418	439,978	717,776
1st 9 mos. 1870.	13,437	307,865	857,333	1,278,638

THE UNIVERSITY MUSEUM.—Mr. Jas. D. Keene, of the Board of Brokers, has purchased the valuable collection of minerals made by Mr. H. G. Hanks, and has generously given it to the Department of Mining and Engineering of the University, which is presided over by Prof. Wm. Ashburner. The value of the collection is estimated at $7,000. Mr. Hanks' collection of minerals is the finest on the Pacific coast. It is not only valuable from its extent and the beauty of the specimens, but it is arranged in a scientific manner, and the specimens are properly identified and labeled. This collection, added to that made by the Geological Survey, the Mills' cabinet, and the Pioche cabinet, will make the University museum a magnificent one. It is a pity that funds have not been appropriated to have the collection of the Geological Survey arranged and displayed. It will take some time to classify and arrange it, and the work should be commenced as soon as practicable.

JAMES HILL has discovered coal in large quantities in the neighborhood of his property, near Suscol. The coal is said to be equal in quality, if not superior, to that of the Mount Diablo coal mines.

THE chills and fever are driving the Chinese miners away from the Oroville mines. Large numbers pass down on the cars every day.

TEN THOUSAND tons of steel rails have been ordered by the Central Pacific railroad company for the mountain sections.

The Chilian International Exposition.

The Government nf Chili propose holding a grand International Exhibition at Santiago, Chili, September, 1875. The building in which this exposition will he held—a reprssentation nf which is shnwn nn this page—will be architecturally a very handsome structurc. It is now nearly finished, and will be thoronghly complete in sll its parts and fitted for the reception of exhibits. Besides the main building, there will be several tent-liks structnres for special exhibits in the spacions, grand old city nf Santiago, where the palace is located. As the time within which applications can hc mads is very short—they having to reach Santiago by the 15th of January—and as the energetic Consnl-General is hard at work trying to awake the peopls of our Coast to the importance nf a full exhibit of all our productions, we call the attention of onr mining men to the circular recently issned by Senor Casanneva, with respect to mineral exhibits. He is very desirous that the mines of the Pacific coast be well represented, and asks for specimens of ore, details of working, etc.

These specimens should be labeled with the name of ths mine, the district, connty and Stats wherein located, with an account of the net yield of the ore per ton; and this information relative to the mineral collection for the Pacific Coast will be translated into Spanish, and recorded in the Register of the National Museum of Chili. They will be duly forwarded to the Exhibition, and at its close will be removed to the said museum at Santiago, and there remain preserved in glass-cases provided for that purpose.

In the earlier history of California as a gold-producing country, Chilian capital was largely invested in the minee of the State, hut lately hae been diverted to other pnrposee. Within the past eighteen months Chilian capital to the extent of $15,000,000 hae been invested in the lately discovered mines of the Chilian and Bolivian deeert, and it needs but a good showing to call the atteution of Chilian capitalists to the mines of California and neighhoring Statos. The President of the Executive committee of the exhibition hae addressed a circular to the miners of Chili, asking their co-oporation in forming a similar collection from the mines of that Repnblic, to be placed in jnxtaposition to that from the Pacific coast. This will enable the Jndicial cnmmittee, composed of Americans and Chilians, to decide on the respective merits of the two collections. Contributore to thie collection of minerals are requested to carefully pack their specimene in strong hoxes, not exceeding 12x20 inches in eize, marked: "For the International Exhibition of Chili." and addressed to the "Conenl-General of Chili, at San Francieco; care Welle, Fargo & Co." (through which company no freight will he charged to exhibitors). It is to be hoped that our manufactnrers and mechanics will take some trouble to make a good representation at this exhibition, and that onr miners will do likewise. The importance of euch expositions ie so well known that it needs no comment. In Chili, particularly, where we eend large amonnte of goods, California ehonld be well represented, and preparations ehonld be made at once by those who intend to make exhibits. The San Francisco *Journal of Commerce*, which made a very creditable display of Pacific coast products at our late Mechanics' Fair, has already applied for a large and commodious space where samples and models of everything that is manufactured nr sold in this city, may be exhibited in attractive form, and all brought together in a convenient space, where they may be examined leisurely, and without giving visitors the trouble to wander here and there in search of a particular exhibit. They will have a competent representative to explain the details of the exhibit, which gives parties inteuding to make a displa- a good chance to show their wares at little expense.

California in the Miocene Epoch.

In onr issuc of October 10th, we gave the remarks made before the California Academy of Science by Dr. J. G. Cooper on "California iu the nliocene epoch." At the last meeting of the Academy Dr. Cooper mads some remarks on "California in the miocene epoch," which we give as follows:

Unlike the pliocene which I spoke of at our lest meeting, the miocene in California furnishes us, so far, with no *certain* evidence of land animal's existence, and few of vegetable life. It is, however, most probable that snch existed, and will in time be determined or distingoished from the pliocene with which they are now mixed. That there was au extensive and most interesting terrestrial fauna in the adjoining regions of Eastern Oregon, Wyoming and Utah has been proved by the treasures of animal remains found within ten yesrs past in those regions, to ennmerate merely the names of which now would take up too much time.

As there was much less lsnd above water in this part of the continent during the miocene, the field for such animals to exist iu was much more limited than in the pliocene, and therefore, their history requires longer time to work out. Besides this, the convulsions and removals of animal relics from their original beds, during the volcanic and glacial periods, were so general as to mix them up in a macner too puzzling to be deciphered for a long time to come. An iustance of this is ehown by the tooth of an *Archegosaurus* found by me on Mare Ieland, eome years since, and mentioned in our Proceedinge, Vol. V., p 191. This tooth, identified by the lamented Agassiz, belonged to an animal believed to have been one of the earliest reptilian forms known, and charactorizing the carboniferous age. It was an enormous development of the strange "four-legged fish," or larval salamanders still found in the Columbia river and other western waters; but mnet have been 20 feet long, and no similar remains are found in any late formations. Though it is not *certain* that they may not be yet found to have exieted among the monsters of the pliocene epoch on this coast, as their snpposed descendante live in our fresh waters, still the evidence of this single tooth would have gone far to prove the age of Mare Island to be carboniferone if no other foseils had been found there. As it happene, however, to be one of the richest fossil-beds of pliocene remains in California, the single tooth found on the eurface of that formation was probably transported by ice from the Sierra Nevada, where the nearest carboniferous etrata are known to exist. Of conrse the same may be the caee with eome of the pliocene remains, and poseibly others elsewhere. But the peculiar position of Mare Island makee it the most likely place for euch mixtures, as it liee just where the outlet of pliocene or post-pliocene lakes or rivers must once have met a great obstruclion to their flow. On this animale embedded in floating ice would naturally lodge and decay, just as the celebrated extinct elephant nf Siberia was carried by ice to its resting place at the mouth of an Arctic river. The obstrnction referred to was no doubt an elevation of the Mt. Diablo ridge, crossing the Straits of Carqninez at this point, dering the volcanic period before mentioned. By this pliocene beds were made to acenmulate to a depth of over 50 ft., which they still show on the adjoining shores, though the rivers have washed away the obstruction itself, and the greater part of these beds also.

The fossil evidence which we possess relating to the miocene epoch in Californiа is, however, abundant and interesting. It so far consists of beds of marine shells, fonud at short intervals thoughout the coast range and the foothills of the Sierra Nevada, which contain the proper proportion of living spccies to prove their age as relatively older than the pliocene. From their comparatively recent date, it is not generally difficelt to recognize and follow out these beds throughout their extent though much more disturbed and altered by volcanic action than the pliocene. In some places, however, the contact of eruptive rocks or infiltration of foreign mineral matter hy hot springs, has altered them past recognition, though for only limited tracts south of this body.

From these marine beds we find that nearly the whole of the coast ranges south of here were under the sea in the miocene, and the evidences of extensive washing away of the strata are so plain that it is not improbable that the *whole* were submerged.

Beds of excellent miocene, and, possibly, pliocene fossils, are found at the mouth of Kern river cañon, showing that the sea then washed freely against the foot of the Sierra; there is even reason for believing that it extended far up the Colorado river basin; and certainly it deposited a thick bed of the enormous miocene oyster (O. Titan), with other remains, along the west shore of the present Colorado desert, now at an elevation of probably 1,000 feet. Of its extent in the northwest quarter of California, very little is known, and probably most of that region was above water.

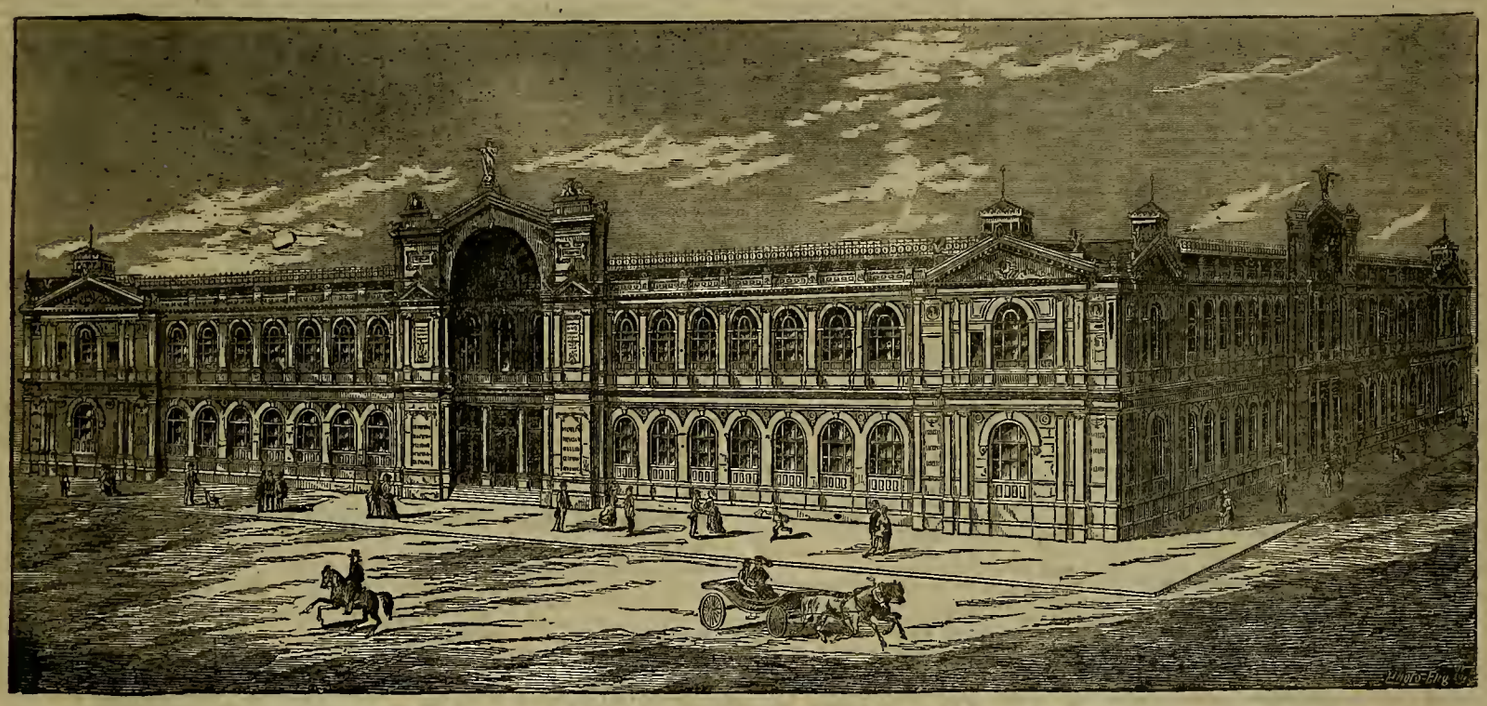
As these changes of level were caused by depression of the land below its present level, our mountains were then probably quite insignificant, and no doubt a much more level and uniform surface prevailed on shore. As the miocene was elsewhere the culminating period of exietence for the large and strange tertiary mammals, it is altogether probable that some of them inhabited portions of the dry land of California, connected with the regions in which they were so abundant in the north; but so far the geological surveys have not been sufficient to define their limits, either in time or space, within this State.

That marine monsters frequented our shores, is proved by the remains of seals, whales and still undescribed creaturee of enormous size, that have been fonud in this formation in the coast range, even more abundantly than in the pliocene. From the great difficulty of obtaining their stone-imbedded relics, there will be work for future generations of studeuts in describing them. From these animal remaine (many of which were only of microscopic size), was produced the petroleum of this coast, a substance so far found only in the miocene period strata of California.

Of the miocene flora as distingushed from the pliocene in California, we know very little. It was apparently of a lese tropical character, more like that of the present time, and probably resembled ours now living as nearly as any other. Beds of lignite, four feet thick, but poor in quality, are common near the coast, containing wood and algæ.

The northern hemisphere seems to have had in the miocene epoch a very uniform climate, in which the vegetation of Europe resembled that now in our Eastern States. The most wonderful fact connected with it is, that recent discoveries have proved that Greenland, in lat. 70°, and Spitzbergen, in lat. 78° 58′, had a rich luxuriant forest of trees, mostly American in character, among them a Redwood, nudistinguishable from that so common here! In all 137 species are known. It is impossible to reconcile this with the existance of even four months night which we know must prevail so near the pole, even if the climate there were tropical. We are forced to the conclusion in spite of astronomical opinions, that the poles have changed since then, and this may help to explain many geological puzzles both in California and elsewhere. Among these the supposed absence of all EOCENE animal or vegetable remains on this coast is one which might be accounted for by supposing that in that epoch California was under covering of polar ice! Such a theory, though it may be called absurd on account of the present flattening of the poles by centrifrngal force, is as tenable as that of the well known alternations of deep ocean and dry land which geology proves to have occurred on our continent. I may mention in this connection, that Pry Dana saw reasons during his explorations of the Oceanic Archipelago, to believe that it has been slowly subsiding from the condition of a continent in the miocene and pliocene epochs, while this coast has been rising. Thus alternations of land and ocean have doubtless been going on, usually slow and gradual, since the creation of the world. The changes in fauna and flora, which in our limited field of view seem to have been sudden and convulsive, were probably nearly all through the tertiary, as slow as at present, but from these enormous undulations of the earths' surface half of their history is for ne buried beneath a fathomless abyss.

Would changee of the poles be any more wonderful or impossible?



THE CHILIAN INTERNATIONAL EXPOSITION BUILDING AT SANTIAGO, 1875.

COPPER IN LIVERPOOL.—Copper was quoted on the 1st inst. in Liverpool, accordiug to Lewis & Sone' Report on oree and metals, as follows; Good ordinary hard, £81 and £81 10s per ton on the spot; especial brands, £82; ore, 16s, and regulue 18s 6d per unit. Transactions in bare, during the latter part of September, were on a moderate scale, consumers being disinclined to pay the advanced prices. The charters advised during the month, amounted to only 3,100 tons. Chili exporte to the 15th of September, from the first of the year, amounted to 37,126 tons fine. Stocks of West Coast produce were estimated on the 1st inst. at 14,814 tons fine, against 16,944 on the 1st of September.

LEAD has been very firm in Liverpool for the month past, and owing to the disturbances in Spain has steadily advanced, though there is not a very large demand; good ordinary brands were quoted on the 1st inst. at £21 15s to £22, and £20 10s £20 15s per ton for eoft silver.

THE CHOLLAR mine on the Comstock is turning out ore from the old works, which in early days would not pay for reduction, but which will now, under improved facilities, return a fair compensation.

THE Virginia and Truckee railroad is being put in the best possible order for the coming winter, throughout its whole length.

The Great Belcher Air-Shaft.

The big air-shaft of the Belcher mining company ie now completed to the depth of 1,000 feet. The shaft is over 100 yards to the northward of the hoisting works and msin engine ehaft, and is heing sunk in the solid weet country rock.

The size of the excavation made in the rock ie 8x14 feet. Thie, when timhered up, gives two compartments, each 6x6 feet in size. Where the rock is hard and perfectly eolid the shaft ie cribbed with timbere 6x12 inches in eize; hut where it is soft or inclined to swell it ie timhered in sets, timbere 12 inchee square being nsed. All of thie work ie done in the most subetsntisl msnner possihle.

From the surface to the 1,000-ft level the shaft is carried down vertically, but from this point it will he on an incline corresponding to the dip of the ledge, which ie ahont 36 degrees and to the east. The portion of the shaft which is carried down on an incline will he kept in the weet country rock, lying back of the ledge. The object in keeping iu this rock is to avoid ground that would be liable to swell and crush in the sides of the ehaft.

Once the ehsft shall have been completed, the compeny want to have no further trouble with it. Repsire to main mining shafts are much more expensive than moet pereone imagine. There is not a main engine shaft on the Comstock lode that has not cost its owners ten imes as much for repairs ae was paid out for ts original sinking.

The ground in which the Belcher compsny are sinking their huge air-sheft is excellent throughout. The npper stratum is a epecies of very firm porphyry, which extends down to the 1,100-ft. level, where blsck dike—very hard and flinty—eets in. This rock works hard, but it will stand for ages; therefore when the work ie once finiehed, it is done for all time.

Work on the ehaft is now progressing at four eeveral points—at the 1,000, at the 1,100, at the 1,200-ft level, and half way between the 1,200 and 1,300-ft. levels. They will shortly begin work on it at the track floor of the 1,300-ft. level—just as eoon as thet portion of the mine ehall have cooled off a little more—snd also at a point half way between the 1,100 and the 1,200-ft. levele. Drifte are now being run at these half-way stations to reach the line of the work, and eome of theee have nearly reached their destined point.

The great ehsft will he pushed down to the 1,500-ft. level as rapidly as possihle. It will not etop there, however, but as other levels are opened below it will be carried on down with the other openings of the mine.

The rock taken out in excevating the shaft is not hoisted to the surfsce, as some may euppose, but is used on the various levels in filling in ground that has heen worked out. This gives support to the several sections of the mine, and in thus disposing of the waste extracted in excavating the shaft, they are "killing two hirds with one stone."

As the shaft is about being attacked in so many points it will not be long before it will have reached the bottom of the mine—the 1,500-ft. level.

The rapidity with which the ehaft was carried down from the surfsce to the 900-ft. level is unprecedented in the history of mining operations on the Comstock lode. Ground was hroken May 25, and the shaft reached the level named September 19—less than four months from the day of starting.

Henry Donnelly, foreman of the mine, has taken great interest in this shaft from its inception, and it was iu great part owing to his exertione and excellent management that we are ahle to chronicle the rapid progress mentioned above.

To make the surveye required was a feat in engineering very diffioult of accomplishment. There were many great and peculiar diffionlties to he overcome in locating the shaft and in ascertaining the exact pointe at which work wse to be commenced upon the several sectione between the surface and the 1,000-foot level, for gange of men were engaged in sinking and raising in various placee at one and the same time. As a proof of the acouracy of the surveys, we may etate that the several portione of the ehaft osme together to an inch. One may now stand at the 1,000-foot level and gazo upwerd toward the emall, square speck of daylight visible at the top, and all the way is seen one smooth, unhroken line. The ehaft ie ae true and straight as a gun-harrel.

The surveys were all make by I. E. James, the well-known civil engineer, and surveyors will appreciate some of the difficulties he encountered when we say that to etart in with no needle could he used, and as no accurate hearing was to he had it was a very intricate problem to get the exact bearing of lines below. In the 850-foot level it wae necessary to take no less than sixteen courses from the old shaft to the new, and at the 900-foot level the great number of thirty-one courees had to be taken to get the exact point at which the ehaft was to be locsted.

The ehaft has already proved of immense value to the compsny in the way of ventilating their mine. All the levels down to the 1100 are now perfectly cool and comfortahle. Pure and fresh air abounds almost everywhere, and in eome places where there is a strong draught, it is almost too cool for comfort. One man cau now do about as much work on the 1100-foot level ae was formerly done by three. We yesterday passed through all the levele down to the 1100, and were astoniehed at the chsnge in tempereture ohservahle everywhere. Where all wss steaming and stifling on the occseion of our last visit, previous to the opening of the air shaft, we yesterdey found sll dry snd as cool as the air at the surface.

The new shaft ie fast cooling the levels below the 1100—even down to the 1300-foot level it is gradually drawing off the hested air and cooling the rock. It is thought that when it shall have heen carried down to the 1500-foot level it will render thst and those next above as comfortable as at present are the levels above the 1100.

The miners are delighted with the chsnge in the temperature of the mine. A few weeke since the best men in the mine were leaving as fset ae they could find places in other minee where the heat was not so great; nnw men from the other minee sre glad to find places in the Belcher.

We lsck epace in which to spesk fully of the vsrious and vast benefits that have already heen derived from the shaft, incomplete ae it is, without attempting to mention those yet to come. It would seem thst the problem of the ventilation of our minee is at lsst about to be eatisfactorily solved, and that thie solution lies in the sinking of spacious air-shafts at proper intervals along the lead, which, resching from tho lowest levels to the surface, shall operate as huge chimneys to draw off the heated air of the regions below.—*Enterprise.*

The Trades in San Francisco.

From an article in the *Call* on the state of lahor, etc., in this city, we extrsct as follows:

The general situation of the mechanics is better in San Francisco st the present time than for eome years past; snd yet from careful inqniry, there are few if any mechenicel branchee in which the number of workmen is not equsl to the demsnd. The new comer will find superior qualities and meritorioue habits an important reliance, and needs to fortify himeelf with a good stock of patieuce and perseverance, and withal the means to maintain himself while awaiting his opportunity. Among the most flouriehing trades at preeent are those pertaining to building enterprise.

The bricklayere in the city are all employed who choose to be. Several very extensive building enterprisee, chief of which is the Palace Hotel, have caused the engagement of about two hundred workmen from the East. This trade, on the average is employed about two-thirds of the time. In the winter they are frequently out of engagements. The etandard rate of wages is $5 a day, some portion working eight hours, according to the rules sdopted hy the union leagnes, but a larger number ten hours.

The carpenters are also generslly employed, to the number of ahout six thousand, which fact gives some indioation of the great magnitude of building operetions at present progressing in the city. The trade work ten hours a day, and the standard wagee for good workmen is $4 a day. A large proportion of the nnmher mentioned, however, receive less.

Of the paintere, nine-tenths are employed, hut the work is irregular, and dnee not cover more than two-thirds of the time, on the average. The wages range from $2.50 to $3.50 a day, while ekillful grainers receive ae high ae $4.00.

The plaeterere all find steady employment at present, working eight hours at $5 a day. There are ahout four hundred in the city.

The lathers receive from $2.50 to $4 a day. There are about 200 in the city, and they are generally employed.

Stone masons are largely dependent upon Government contracts, and the popular style of huildings in the city does not offer an extensive field for the trade. There are ahout 200 here, mostly employed at present, at wages of $4 and $5 a day.

Stone-cutters receive the same ratee. The number in the city is estimated at 300, generally employed.

Mill workmen, engsged in manufacturing huilding material hy machinery, receive from $3.50 to $4 a day. There are hetween 600 and 700 employed in the different mille in the city.

Machiniets are employed at wages ranging from $3 to $6, the average heing $4 a day Few of the trade are idle.

Boiler-makers are generally employed at from $2.50 to $3 a day. There are about 200 in the city.

Of the moulders, many are unemployed at present. Their wages range from $2.50 to $4 a day.

The hlacksmithe are flourishing. They receive $5 a day wagee, and strikers $3.

The ship-carpenters generally find employment here and there; hut their time is irregular. They receive from $4 to $5 a day, and number ahout 250 in the city.

The caulkere have experienced a reign of hard times for many months; hut their prospects have lately improved in a measure. Of ahout 200 in the city, two-thirds are now employed in the city at $2.50 and $3 a day wages.

Of ship-joiners, there are hetween 200 and 300 in the city, generally employed. They receive the same wages as house-carpenters, and a emall portion of skillful workmen as high as $5 a day.

Tannere and curriere number ahout 100. They are all employed, at an average of $4 a day.

Saddlers and hsrness-makere are generally employed, at from $3 to $5 a day.

Tailors usually work hy the niece, making on the average from $4 to $5 a day.

In the printing trade there ie the usual eurplue of compositors common in all large cities and yaoanciee are not of every day occurrence The average wagee range at $20 to $30 a week in the joh and newspaper offices.

Shoemaking business is becoming one of the loet arte in California, eo far ae white mechanice are concerned, the Chinamen encroaching fearfully upon the trade. The wsges sverage about $2 a day, and very few receive above $3.

Cigsr-making is another trade that hae about the same advantage in Ssn Francisco, thst a trade in linen domestics would secure in Alsska. The hnsiness ie almoet exclusively in the hands of the Mongol.

Cabinet making is one of the growing trades, and givee employment to a goodly number. The men generslly work by the piece, and make from $3 to $5 a day.

These oheervatione of a few of the leading trades afford a fair idea of the general eituation snd npportunities of mechanics in San Frsnoieco.

The Day Laborers

Are doing better at present thsn for some yesre past, and it is estimsted tbat between ten and twelve thousand are now employed in grading, peving and huildiug contracte in the city, receiving from $2 to $3 a day. There are many thnusands employed as portere, csr-drivers, and similar pursuits, who are psid on an average from $50 to $60 a month, and, taking this rate of remuncration as a bssie of calculation, are compelled to practice very economical habits of life, particulsrly those who have fsmilies dependent upon them.

The Unemployed

In the city will sggregate ten thousand st any season of the year. This army is composed of adventurers, young men of faetidioue tastes in pureuit of genteel occupetions, principally in the line of clerkebips, and the greet Micawber family generally. A few weeks of waiting snd wstching sufficee to convince them of the great surplus of pereons in the country posessing the same order of talent, and a large proportion of them return in disgust, or eeek other fields, making room for the steady etream following in their tracke, who are anxious to obtain the eame valuable experience. When the dieappointed gentlemen of this clase are unable to effect a retreat, if good fortune attend them, they ultimately drift into an engagement which affords them the means of a bsre sustenance. There ie a vast amount of excellent tslent and education wasting iteelf in conveying dishes in restaurants, mixing oocktails, and like pursuits in San Francisco, that might be employed to eome purpoee in aiding the progress of civilization in more congenial fields. Thie circumetance and other facts above given should he pondered hy intending immigrante. California ie only the land of promise for such as are possessed of the ahilities or means for developing its resources or otherwise advancing its progree.

The Briggs and Gregory Mines.

The Colorado *Register* eays: The Brigge Broe. have 540 conecutive feet on the Brigge and Gregory minee. They have sunk on their old property to a depth of 575 feet on the Briggs crevice and 300 feet on the Gregory. Their principal work ie at a depth of 525 feet, where they have had for more than a year a crevice of paying ore from 12 to 20 feet wide. They have taken out an average of 168 tons per week, which hss yielded from $8¼ to $11 per ton, or from $1,380 to $1,848 per week. They have in addition taken out from 12 to 15 tons of smelting ore per week, one-third of which is firet-class and the balance second-class. The first-class ore selle for an average of $150 per ton, or from $600 to $750 per week. The second-clae from $75 to $100 per ton, making from $600 to $1,000 per week, or a total of from $2,580 to $3,600 per week from all sources. The Gregory crevice is much narrower, hnt is richer. Last week the smelting ore from thie sold for $195 per ton, while the mill ore runs from four to ten ozs. per cord, or from $10½ to $26¼ per ton. Thirty men are employed in the mine; $2½ per dav are paid to miners, and $20 per week to ekilled timherers. The ore is crushed hy a 25-stamp double-issue mill, and as raieed is dumped close to the batteries, so thst no hauling is required. The mine furnishes an ample supply of water for milling purposes. The greater depth of the old property enables them to drift from the bottom of their ehaft directly nnder the new. At the extreme bottom of the main ehaft of the old property the crevice is from eight to 12 feet wide of paying ore, and this continues through the new property, so far as can he seen or judged. The purchase of the latter will require not less 25 additional men, and the erection of 25 more stamps, which will he put up at once. They working very economically and carefully. The amount of quicksilver used annually hy their 25-stamp mill falls short of two tanke. They reason very justly, that where a large amount of quicksilver is loet, gold will be lost with it, and hence they use less.

The tailings from the mill ore are buddled by an automatic apparatus, as they escape from the amalgating tables, yielding from 50 to 60 tons of dressed tailings per month, whioh eell at from $5 to $7 per ton, making a total yield of about $5,000 per annum, which alone ie a nice little income. We are promieed hy them for publication in a few dsys, a detailed account of the amount of ore taken out and the returns from it, together with the workinge of the mine, etc., from the 1st of January last till the present time. These will be very valuable and interesting data.

Santa Barbara Quicksilver Mines.

We tske the following from the Ssnte Barbara *Index* of the 8th inst:

Seven milee north of Ssnta Bsrbsra have been diecovered the richest quicksilver mines of the world; thst is, the aesaye per ton of the ore in the ledges and deposite ae fsr se explored show them to he so. Theee minee have been for several months past quietly visited hy cinnahsr experts in the interest of the leading monied men of the Pacific coast, and the result ie, that, after a eearching examination, a compsny hae heen incorporsted for the purpose of working these mines. The names of the principal cspitslists who have sesisted this enterprise, are as follows: E. L. Sullivsn, Ed. J. Pringle, Hon. J. P. Jones, U. S. Senator; D. D. Colton, Col. Fry, Col. McDowell, J. S. Csesell. This compsny is now fully organized, and have gone to work. Alresdy a graded pack-horse trail has been msde from the mine over the Ssnta Ynez mountains into Santa Barbsra. By this trail horsemen can go from thie city, up and over the mountaine, and down to the minee, in three hours.

To enable the compsny to build furnaces to reduce the ore, and to oonstruct a grsded road from the mine to Santa Barhsra, and to prosecute the work of developing the minee thoroughly, a preliminary assessment of 25 cents upon each of the 100,000 shares of stock has been levied, which will amount to $25,000. Thie ehowe that the company intende to carry on the work of development with energy.

In fact, preparations are now under way for the manufacture of hrick, of which to oonstruct furnsces; and it is claimed by thosé who hsve examined the matter, that a first-rate quslity of fire-clay is found in abundance convenient to the mines, from which a durahle lining for the furnsces can be made. It eeeme ae though nature hsd furnished, near at hand, all the requisites to csrry on the husiness of reducing the oree. There is but one thing wanting in the successful working of the mines, and that is the necessary timber to brace up the exosvatione from which the ore ie extracted. We learn, however, that ahout twenty miles dietant, on the way to Bakersfield, aro forests of white and red pine, that can he reached hy an easy wagon grade. The supply for the Santa Barbara mines will have to come from these forests, or elee to he drawn from northern shipments reaching the wharves of Santa Barhara.

Everything indicates that a rapid development of the Senta Barbara quicksilver minee is about to be carried forward.

The president of the Los Prietoe mining company is Col. Fry, of San Francisco. Mr. Fry is also president of the Crown Point, and also president of the Belcher. The superintendent is Mr. John F. Cassell, an old experienced miner. He ie now in Santa Barhara, meking preparatione to carry on the work with vigor.

The company is compoeed of some of the wealthiest men of this coast. They have ample means for the work, and are determined to make a thorough exsmination of their property, whatever it may coet. They have purchased from the Najalayegua claimants all their right to the land on which the mine ie located, so that the title ie now clear and indieputable.

It will be noticed that among the list of the principal stockholders in thie quicksilver mine, is the name of Hon. John P. Jones, U. S. Senator from the State of Nevada. Mr. Jonee ie represented to be worth several millions of dollars, which hae heen accumulated principally in mining operations in the Washoe mines. Lately he paid over $300,000 for some mines in Panamint, and hae eubecribed $220,000 to the capital stock of the Loe Angeles, Psnamint, and Cerro Gorda narrow-guage railroad.

Imitating Marble by Slate.

Slate ie rapidly taking place of marble for interior decoration. For ornsmental purposee, after heing properly cut and trimmed, it is scoured with pumice-stone, then rubbed with powdered pumice-stone, and polished with felt. It is now ready to he transformed into marble. The elabs having been prepared, and painted with the groundwork color, they are ready to dip. A wat is at hand, containing water mixed with ox gall, on which the colors are floated, and which ie in part prepared in the eame way ae for making marbled paper, or marbling the edges of hooke. A workman dips a small bruch in the colore and eprinkles it on the surface; then he fans the water with a palm-leaf, and draws the hrush through it several times. The mixed paint spreads on the surface of the water, like the veining in marble, and then the slah is let down till it touches the surface of the liquid, when the marbled colors floating on it will adhere to the slab of slate, when it is put to dry. A mere change of groundwork and colors gives the verieties of marble, Egyptian, Spanish, Galway, Pyronese, etc. The most elaborate work, as for altar pieces, chesshoards, and horder, is done by hand. After the application of colors, succeesive bakinge and polishinge finish the work. Thie marhleized slate is quite elegant, posseesing sixteen timee the strength of marble, and scarcely distinguishable from it. The imitation of marble in slate is employed for coffins, caskets, tahletops, mantels, hilliard-beds, lamp-stands, and innumerahle domestic and ornamental uees.

ORE SHIPMENT.—At present the ore shipped by rail irom the Comstock mines to the various mills amounts to 90 car-loads per day.

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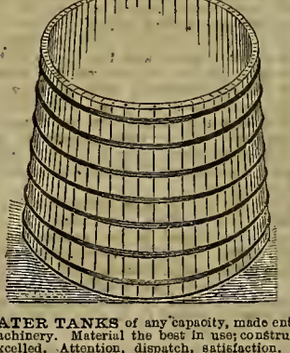

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Aleut Mummies.

At the last meeting of the Californis Academy of Sciences, Dr. W. H. Dall, of the U.S. Coast Survey, who has recently returned from the Cosst of Alsska, gave the following account of Alent mnmmies fonud on the Island of Four Mountains.

"I have previously given the Acsdemy some account of the Alsutian method of mummifying their more distinguished dead. Many tales are onrrent among the Aleuts in regard to particnlar cases of this practice, and among others one has been freqnently related to ms in regard to some mnmmies preserved in a cave on one of the volcanic islands known as the "Four Oraters," or "Four Mountains." When iu the vicinity in 1873 we were unable to land and test the trnth of this history on account of bad weather and the absence of any harbors. More recently, however, this hae been succeeefully done. The Alsska Commercial company has a standing nrder to its agents to collect and preserve objects of interest in ethnology and natnral hietory, and the cabinet of the scsdemy bears witness to the generosity of the company and the value of some of the material thns acquired. Captain E. Hennig, of the compsny's aervice, with the company's schooner "Wm. Sutton," being employed in removing some hunters from the island of the Four Mountains, he was enahled, after seven unsnccessiul attempts, to land at the base of the cliff where the fallen rocks form a kind of cave, and was directed by the natives to the exact spot. Here he obtained 12 mummies, in good condition, heside several ekulls of thoee which. being laid near the entrsnce of the cave, hsd become injnred by the weather. There were sleo a moderate number of carvings and implements found, though some natives, less auperstitious than the rest, had appropriated a qsntity of weapona (reported to have once been there) for nee in hnnting. The island heiog volcanic snd, in fact, still active, the soil is still warm and the atmosphere of the cave was quite hot, which accounts for the extremely good preeervation of the remsins. Most of the bodies were simply eviscerated, stuffed with grass, dried, wrapped in fura and grasa matting and then secured in a water-proof covering of seal-hide. Two or three had mnch more pains bestowed upou them. and were of course of mnch more interest. The story of their deposition is too long to he given here, and is not particularly interesting, hut it includes the fate of an old chief of the Island of the Four Mountaine and his family, all of whom were hnried in the cave. Among the others were a female, who died when with child from a prematnre birth, brought on by an accident, and the esential correctness of the tradition is attested by the presence of a little mummy of the still-born infant. The date of the first interment is very well fixed by the fnct that the old chief died the autnmn before the spring in which the Russians made their first appearance at the Four Monntains; and, consequently, none of the bodies are mnch over 100 years old. Hence they should not be confounded with the aucient pre-historic remains which I have formerly described in the acadeiny's prnceedings.

"The mummies of real interest were few in number. The most conapicuous was that of the old chief. I am informed that thie body wae enveloped in fors, dressed in the usual native attire, and furuished with a sort of wooden armor, formerly worn by the Aleuts. The whole wae placed in a aort of basket, in a sitting poetnre, and carefully covered with water-proof skins, secured by line made of einew, either hraided or made into what aailors call "square eennit." Thie line, together with a net made nf sinew in which another of the bodiee wae secured, were very finely made, and nearly as perfect and strong as when first placed there. The matting, made of prepared grass, wae exceedingly fine, in most cases far superior in finish and delicacy to any now made in the islands. One of the smaller mummies, in a triangular-shaped hundle or basket, had a pattern ot a maltese croea worked into a stripe of another color; thie was quite fresh, aud the grass atill retained its red and yellow tinge. The largest basket hae a wooden arraugement fastened with hone hnttons, forming a hroad hoop, which served it for a base. Moat of the more carefully-preserved specimens had heen once suspeuded in the air hy haudlea or oorde attached to their envelopes.

The other artiolee found in the oave were stone-knives, and other implements, and a few oarvinge, one of which wae supposed hy the finder to he an idol, but tbie ia probahly an error. A child's boot of native make was found in the cave, with the fur perfectly preeerved, and in it wae a little ivory image of a sea-otter. A numher of other bone and ivory toys or trinkete were also found. These artiolee are expected here nn the hark "Cyane," in a few weeke, when those interested in these matters will probahly have an opportunity of making a oareful examination of them.

THE Silver Lake mining company have at last constructed a wagon road from Careon to their ore dumps. It is expected that next year the company will erect furnaces of their own and amelt their oree at home, instead of sending them to California.

MINERE in Weaver Basin are putting in spare time cutting bed-rock. Nice Amusement!

The Apple-worm in California.

Ons of ths peculiar pleasuree connected with the eating of Californis fruit is the confidence that the posession of each well developed globe hss not been pre-empted by a disgusting worm. Our apples especially have been acknowledged to be free from this pest; though predictione have continually been made that our time would surely come. Accordiug to reliable reporte these predictions are now bsing fulfilled.

Unfavorable but indefinite accounts iu this connection have been afloat during the lsst year or two; hnt we derivs the most convincing evidence of this fact from statements made at the San Joaquin Valley fair, by D. A. Lesrned of Stockton. Applee were exhibited at the Pavilion hy Mr. Learned, showing the operations of these frnit maggots. In the opinion of the exhibiter, who had observed their habits closely, they are the same as the insect whioh ie so destructive to the apple crop of the East. He is of the opinion thst they have heen brought ncrose the continent to California in Eastern apples. This ie possible; hut it seems to ue more probable that they were brought here in the clothes, baggage nr "traps" of immigrants. Thie however is a matter of conjecture and of minor importance; the fact that they are here is whst conoerns us most and this fact seeme indiapntable.

But we are not seriously alarmed at the present ontlook for our frnit. In the first place we do not believe that the climate of California is favorable to the existence of insects of this clase. If it were congeuial to them they would probnbly have been more numerous at the preaent time. In other conntries. they have seemed to be "the accompanying evil" to the apple. We have been in other new frnit-growing countries—none of them, it is true, heing quite so isolated as California—and have never known the apple-worm to be a tardy visitor at the feaet. This is not among thoee pests that make periodic excursione in a country, snoh as the locust, weavil, chiuch-hug, grasshopper, etc. It is a permanent settler, like the ant, the house-fly, the mosquito, etc. never failing to make their appearance, though more plentiful iu eome eeasons than iu others.

Our escape thus far from this pest ie, in our opioion, not attributable to our isolation, or to a lack of enterprise on the part of the insect; hut to the peculiarities of our climate. And may we not reasonably expect that a canse which hns been sufficiently potent to keep these insects out of the country up to the present time, will exterminate them after they have etrayed to these ungenial regions. The apple-worm ie only at home in a hnmid atmoaphere, and where the nights are sultry.

And even though thie ahonld become n permanent evil in nnr orcharde, we would not be justified in making a very eerioue matter of it Our Eastern friends do not aink under it, aod why should we? They enjoy their apples perhaps even more heartily than we do oure. The additional care in aesorting, which the supposed presence of the apple-worm necessitatee, is really an advantage in defining the grades nf apples. The presence of this destroyer ia also an effectual check to over production, as the fruit most affected will fall to the grounnd during the early stages of its growth. If the owners of fruit trees would attend properly to the thinning procesa—a duty which they owe to their treee and to themselves also, in reality—then we might diepenee with the labora of the apple-worm; but this they will not do; consequently the over-bnrdened treee are only relieved by these insects or by the visitatione nf frosts and hlighting winds. But in countries like California, where theae agente do not exiat, and where nearly every blossom ia liahle to matnre, a premature death may be expected for our fruit trees.

Now brother fruit growers and frnit eaters of California, don't allow yourselves to be "worked np" in regard to the appearance of the apple-moth. Do not be over-sensitive ahout this thing getting noised abroad, and the reputation of California apples snffering therehy. Probably the contrast between California and Eastern fruit, in regard to cleanliness, haa been somewhat overdrawn; and it is extremely donbtful whether the characteristic of California frnit which has given ns so much satisfaction—posoibly to the neglect of some more esaential points—would really enhance its value iu markete outside of the State.

WHITE SULPHER SPRINGS, ELKO, Co., NEV.—These Springs are becomiug ntilized for various purposee other than medicinal. Hot honsee are kept conatantly at a forcing temperature, and plants and vegetables are alwaya looking green and freeh. Chickens are hatched iu great nnmhers in a eort of hot honse, the necessary heat heing furnished hy the pipes which convey the hot water from the springs to the hathing house. The bathiug facilitiee have been improved of late. A large awimming pond has been constructed, 20 feet wide by 43 feet long, and 5 feet in depth. In this a person can ewim to his heart's content. A convenient bathing honse hae also been erected with roome suitably fnrnished. These wonderful springa sre faet hecoming a favorite resort for invalids and pleasnre seekers, and the proprietor, Mr. Van Allstine, ie highly spoken of hy nur friends and correepondents. The aprings are situated adjacent to Elkn and a four horse coach is daily in attendance to convey passengers back and forth.

General News.

VON ARNIM'S CASE is becoming intelligible. It appears that Bismarck became indignant at the Count for preferring an nltrsmontane monarchy in Francs to a comparatively liberal and pacific republic, and determined to remove him. Not wishiug, however, to offend him, Connt Biemarck wrote him a ceneorions letter, which he expeoted would induce the Connt to resigu. Von Arnim refnsing, hs was finally absolutely dismissed, and took with him Bismsrck's letters, now represented to be so fearfully offensive. For this act he wae arrested and olosely imprisoned; bnt the latest advioee represent pnblio sympathy so largely in his favor that he is now kept nnder less reetraiut. The very lateat report is to the effect that Bismarck threstens to leave the csbinet, nnless his action against the Connt is more fully endorsed.

YOSEMITE STILL OPEN.—The hotels in Yosemite valley are to be kept open, and the etages are to run every other day hy the Meroed cañon ronte all winter, if the patronage should he sufficient to psy. The roade were in excellent condition hefore the storm, and no snow had appeared yet at Gentry's, whose house is 2,000 feet above the highest point on the cañon road. The stages have lately averaged ahont five passengers to a trip. The atmosphere is nsually clearer in winter than in summer, and the scenery in the monntains ie very plessant after the firet rains.

TERRIBLE TRAGENY.—Awful and speedy vengeance was taken by an outraged husband on the alleged seducer of his wife nesr Calistoga on saturday night last. Edward J. Muybridge ehot through the heart Major Harry Larkyns, who had been criminally intimate witb his wife. Larkyns was au old newspaper man and eqnally as well known as the avenger who is one of the ablest and most successful photographers in the State. He was an employee of Bradley & Rulofson. The *liason* was divulged through letters entrueted by the guilty pair to a nurse in the family of Mrs. Muybridge. The huahand ie iu custody.

BRITISH PATENT SPECIFICATIONS.—Governor Booth is spprised by letters from the Department nf State at Washington that the Mechanica' Institnte at San Francieco has been given a complete set of the drawings nnd epecificatione of the British Patent Office. The volumee are very rare. The complete set at the present time consiste of more than 3,000 volumee, and includes upwards of 84,000 specifications of patente. The donation inoludes publieations to be made hereafter, and as they increase at the rate of about 150 aunually, their value ie necessarily great.

MORE POLAR EXPEDITIONS.—It is now definitely known that the Austrian government will eend two more expeditions to the far north. The first will follow in the footstepe of the one just retnrned, and will he conducted and fitted out by the well-known explorer, Count Wilezek. Among ite members will be D. Kepea, one of thoae engaged in the recent expedition. The eecond is to have Lieut. Payer for its ohief, and will proceed north via Greenland.

ARTESIAN WELL.—On the 2d inst., saya the *Semi-Tropical Press*, 2,000 feet of piping for the artesian well of the O. P. R. R. company, at West Oakland, was shipped from Philadelphia. It ie expected to arrive here iu about 15 daye. Upon ite being received here, the present well now sunk to a depth of 400 feet, will be put down 1,000 feet, or a few more.

BRANCH STATE PRISON.—From forty to fifty men are at present employed on the new branch prison, at Foleom. and ao soon as the preliminary work ie sufficieutly advanced, there will be a demand for abont a hundred more builders. The work will be puehed till the appropriation is exhansted.

THE THIRD TERM QUESTION.—A Waehington special saya: "There is the very best authority for the etatement that the President has grown weary of the third term talk, and has intimated his purpose to pnhlioly define hie position on that euhject at an early day. He will dieclaim all hope or ambition for re-election.

COLUMN VENDOME NEARLY REBUILT.—It is officially announced that the rebuilding of the Colnmu Vendome will be completed next month, and that the statne of Napoleon, which ie nearly finished, will be placed on the monument.

THE RAINY SEASON.—There ia a promise of an unnsually early and ahundantly rainy season. The cold, gray eky and frequent showers are unmistakahle in their character. In fact the rainy aeason hae already been fairly inangurated.

NEWSPAPER CORRESPONDENT KILLED.—Mr. Bnokland, correepondent of the New York *Times*, was recently aesaasinated when on his way to the Carlist headquartere. Oue account saye he was shot hy special order of the Republicans.

IMPORTANT FAILURE.—The suspension of the house of E. E. Morgan'e Sons of this city, nn Monday last, hae heen the talk of the week in financial ciroles. The full particulare of the failure have not yet heen made public.

THE thirty-three Chinese students that arrived by the Japan, a few days ago, are en route for Springfield, Mass.

THERE are now over four miles of drives in the Golden Gate Park, and some 300 acres under cultivation.

YELLOW JACKETS.—Every country hss its plagnes. Ancient Eygpt hsd its locuste; our Western territories have their grase hoppers; and it eeems to hs reserved for California, or at least this part of it, to have its plsgue or pest—the yellow jackets. They seem to he rapidly inoressing in nnmbers year by year, and their ravsges especially among the grapes, are becoming slarmiugly destructive. They eat tona of the fruit on the vines, and in some inatanoee make nearly a clean sweep nf that part of the crop spread ont to he dried for raieins. A friend suggests that about the best way to abate the nnisance, would he for the Stste to offer a preminm with a view to encoursging the destrnotion of their nests. The nests he thiuks conld be fonnd quite resdily, by watching the littls msranders when lsden with their pellets, as they theu fly in a "bee hne" straight to them. This suggestion looks plausible, hnt to be effective the plsn would have to be gensrslly adopted and perseveringly carried out. —*Folsom Telegraph.*

THIEVERY EVERYWHERE.—It would seem ss if the very air snrrondiug official position wss pregnant with evil inflnences. Men who for yeare wsre regarded by their neighbors as honest and honorable give wsy to temptation to peculate npon ths public funds when entrusted to their keeping, and to oommitt downright robbery in office. The revelations of this eort nf corruption are oft recurring and fearful. The investigations now going on in this oity are perfectly frightful to an uninitiated person. Thievery seems to be becoming quite an sristocratic profeesion. Doctors, lawyers, merchants and clerks, all take prominent position in the trade, and lay violent hsnds on whstever they can.

INDIAN MASSACRE.—A Yankton, Dakota, dispatch says: "A party of seven, who left there teo days ago for the Black Hills, were attacked while in camp, at the month of the Little Platte river, by a party of Sioux, who killed two and wounded three of the party, but were finally repulsed with ten killed and wounded. The party returned to Yankton.

JOSEPH BOSTON of Santa Cruz has suicided hy poison. He was a very good man, and a prominent member of the Episcopal church. As in Eckfeldt's case an overtaxed brain led him to the commission of the fatal act.

MARRIED IN MID AIR.—A marriage iu mid air, in Donaldson's balloon, took place at Cincinnati on Monday last, in the presence of 50,000 people. The marriage party conoisted of seven.

CAPT. BLACKMAN, lighthouse keeper at Punta Arena, Mendocino Co., fell dead on the 15th. He was an Englishman fifty two years old, and a very efficient officer and obliging gentleman.

WANT MILITARY RULE.—A Wsehiugton special says the conservativee of Sonth Carolina are circnlating a petition eolioiting the Federal government to resume military control of the State.

MR TERRY, teacher in the public school at Ukiah, accidentally ehot himeelf while taking a shotgun from behind a table, on the 19th. He was lately from Michigan.

A FIRE IN MONTREAL, a few days since, destroyed J. McArthur & Son'a building and badly damaged DeBrete Bros. & McGill'e building. Loes, $250,000.

HUNG.—Willis McLean, the murderer, was hung at Enterprise, Miss., on Saturday last. The execution waa public, aud witnessed by about 1,000 persons.

BENGAL has been visited by a frightful oyclone, whioh caused a general havoc. The telegraph linee were prostrated, and csrs blown from the track.

THE OGDEN HOUSE, at Council Bluffs, Iowa, was burned a few days since. Loss, $80,000; insured for $35,000.

A GALE on the coast nf the north of England, Tuesday night, caused serions loss of life and property.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washingtnn, D. C., Oct. 20th, 1874.

FOR WEEK ENDING OCT. 6th, 1874.*

BILLIARD CUSHION.—Richard Kind, S. F., Cal.

QUARTZ MILL FEEDER.—Thomae J. Wood, Sonora, Cal.

BILLIARD TABLE LEVELER.—Geo. C. Brotherton, San Quentin, Cal.

VEHICLE SPRING.—Milton Newell, S. F., Cal.

MACHINE FOR TRANAMITTING POWER.—Albert Reed, Oroville, Cal.

GRAIN SEPARATOR.—Nathan M. Brown, Pescadero, Cal.

TRANSPLANTER.—Timothy Carroll, Anaheim Cal.

———*The patents are not reedy for delivery by the Petent Office until some 14 deye after the date of issue.

NOTE.—Copiee of U. S. and Foreign Petents furnished by DEWEY & Co., in the shortest time poseible (by telegreph or otherwise) et the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

[Continued from Page 261.]

second etation levels are both looking well and yieldiag the neaal amount of good milliag ore.

Arizona

MINING ITEMS.—*Miner*, Oct. 9: Mr. Bellou came in this morniag from Lyax and Haesayampa creeke, and informed us that all of the arrastrae at the General Crook miae are runniag.

On Lynx creek, placer miaere are throwing up gravel, eo as to haes it ready for washiag whenever water comes.

MINING OPERATIONS.—*Arizona Citizen*, Oct. 10: E. M. Pearce has jaet received retarne of 12¼ tons of copper ore ehipped by himself, Tully, Ochea & Co., and others of their company, to San Francisco for redaction. Thoore was from the Mammoth mine in the vicinity of the Youag America, in Silver mountain district, and ths net retarn, after paying all sorts of ohargee, reaeonable and unreaeoneble, ie over $700; excluding the cost of shipment from the mins to Yuma, the return is $986.20.

Several items in the expense account will not he incurred again, as for instaace $61 commieeions efter every other conceivable item hed been put in.

The 25,000 pounds of orê shipped and treated, with this experience bought and paid for, could be now handled at a olear profit of over $900 gold coin. Think of this here and eleewhere! Miniag ore far from all suppliee and convenioaces; then ehipping it 250 miles by wagon; then about 200 by river and oceen with a re-shipmeat from river to ocean veseel; then paying all other charges that are impoeed by the good men in the ciiiee who encouroge mining, aad then get a net return of near $70 per ton! Then know, aleo, that in Silver Mountain district alone this quality of ore ie ae nearly inexhaustible as it ie possible to conceive such a condition of anything. Mr. Pearce and O. O. Brown have jaet returned from this district. On the Young Americe, they have eeveral men miaiag, and 15 at their emeltiag works, about 3½ milee from the mine; and the compeny ie now turning out pure copper, and will eoon ship a train load of the metsl and some ore. The San Francisco men worked so well for their own interests, ia the case meationed, that it ie now determiaed to ehip direot to Baltimore—which may be a hint of value to San Francisco.

Colorado.

BULLION. — Coloredo *News*, Oct. 10: The Stewart silver reduciag company have shipped since last weekly report, 10 silver bars, coin valne $11,170 88.

THE Jodd & Crosby reduction works have shipped 8,428 ozs., coin value, $9,083.35.

CLEAR CREEK COUNTY ITEMS. — The Silver Plume is being worked right along on five levele. Meesre. Carpenter & Johnsoa have taken a leaee on the third level, and now have good ore, while every iadication (never heretofore deceptive) points to the proximity of a hig pooket. All the different levele are in pay.

THE last ore brought down from the Beker mine by Mr. Millepaugh runs—firet class, 408 ozs., and eecond olaee, 235 ozs. silver per ton.

THE Pelican mill is expected to be ready to reeame operatione in ten or twelve daye. It hae heen enlarged by the addition of three Bruckner furnaces, making five in all, and hes been thoroughly overhauled, enlerged and improved in every respect. When it commences operations, the prodaction of hullion in Georgetown will be greatly increased.

THE Ocean Wave tunnel is now in 760 ft, and ie progreeeing at the rate of 100 ft. per month, being run night and day by eight hour shifts.

Idaho.

RICH.—*Statesman*, Oct. 15: Capt. Bledsoe informe ue that they are doing a lively business at South Mountain district, Owyhee county. In a twenty-five houre' run of one furnace from sixty tone of hullion, they got one hundred bars of metal, abont 1,200 pounds, and in value about $2,400. All the flux neceeary for smelting is found in the district. There being but one furnace there, several teame are hauling bullion to the Winnemucca smelting works.

Utah.

LITTLE COTTONWOOD.—From a correspondent of the *Tribune*, writing from Little Cottonwood, we learn that the mines are generally looking better than they have ever done, and are prodacing plenty of ore. The Daveaport ie takiag out good ore. The Wellington hae been leased and will make its first shipment of ore thie week. The Fuller is shipping conoiderable ore. The Enterpriee is developing finely. The Hawkeye tunnel ie in 75 feet in a eolid maes of ore. The Phœnix tunnel is in 700 feet with encouraging indications. There ie talk of organizing a new district.

PEALEY MINES.—A correepondent of the *Tribune* writes a letier from Park City from which we extract ae follows: The Grizzly ehows an encouraging view of ledge walls. The McHenry mine hee a mountain of good mining ore oa the surface and a tuanel striking the ledge several hundred feet below the surfece, affordiag rich ore. The Flagstaff mine has 24 men at work. They have discountinued work ia the Porcupine for want of faade.

TINTIC DISTRICT.—Cor. *Tribune*, dated Enreka City, Oct. 15: The Eureka hill mines are by no meane all there ie in thie neighborhood, in the way of good miniag property, for there are other valuable loeatione cloee by, but the stoppage of Eureka Hill has diecouraged owners hithorto and preveated their receiviag the attention which they undoubtedly ultimately will.

THREE bars of silver bullion, worth about $2,500 was ehipped last mail per Welle Fargo, from Tintic mills—and Tintic hae been shippiag more bullion for a long time than any other miniag dietrict in Utah,

THE Wyoming mill at Homansville, etarted up again recently to work Eureka and Sunbeam ores.

MR. JOHN LEETHAM ie paehiag on his smelting works near Goehen dam, and expects to soon etart the farnaces. He ie also talking of concentrating worke, and ie pushing his developments on Mineral Hill with satiefactory results.

HAND VS. MACHINE DRILLS.—At the Gold Run tunnel in Kean couaty, while running the tunael by hand thoy had three white men and fifteca Chinamen at work and oaly made three feet in eighteen shifts. With the Barleigh Drill at the other end of the tunnel they made 30 feet ia a week, there being 12 shifts with the drill and 18 ehifts with the men. The drill made 5 feet per day in an 8x8 tunnel and the 18 men oaly made three feet in a week although working three shifts to the drill'e two. Cost—by hand $80 per foot; by machinery $23 per foot. Difference in form of maohinery $57 per foot. This work wae done nader the stone contract.

DEATH OF AN INVENTOR.—The boiler of the Bailey mill and wood eawing eetablishment of E. W. Perrin, at Eureka, blew up on Friday morning. Mr. Perrin was injared to euch an exieat that he died ehortly afterward. Portions of the boiler were hnrled half a mile over the mein portions of the town to the head of Poverty Galch. Three other men who were in the place nerrowly eecaped being killed. Mr. Perrin was about 46 yeers of age, and leaves a wife. He was the inventor of the patent iron-fastened wood pavement, which we illuetrated in thie journal a few months eince, and had several contracts to improve the streets of Eastern cities.

MINING TIMBERS —The Truckee *Republican* eaye: "Some of the leading stookholders of the Bank of California have closed a contract with lumber dealers at Carson, for the delivery of 60,000,000 feet of lumber and mining timbere for the Cometock Lode. The contract extends over a period of five years—12,000,000 to be delivered annually. Tue lumber and timber for this extensive contract is to be obtained from the Lake Tahoe haein.

THE average wages in the Massachusetts factories ie etated as follows: Skilled mechanics employed on wood, and iron workere, $15.27 and $14.30 per week; engineere, $14.30; laborers, $8.75. Factory operatives proper—Dressers, $14; mule-epinnere, $11.75; girders, $9.80; picket-feedere, $8.25; etrippers, $7.70.

TWENTY tons of machinery and eixty thousand feet of lumber arrived here thie week from California, eaye the Winnemucca *Silver State* of Ootober 13th, for a quartz mill in Bull Run dietrict. Twenty-seven tons more of machinery for the same place have since arrived.

A COMPANY, among whom are E. L. Sulliven, Ed. J. Pringle, J. P. Jones, D. D. Colton, Col. Fry, Col. McDowell and J. S. Caesell has been formed to open the rich cinnaber mines seven milee north of Saata Barbara.

WORK etill continues on the new canal of the El Doredo water and mining compaay, with increased force and energy. It ie probable that wherever work caa be done to any advantage, a force will he kept on all through the winter.

THE Sulphur Banks mine, Napa county, ie shipping fifty flaske of quicksilver per week.

A NEW mining region has been discovered twenty miles north of Panama.

THE San Francisco Copper Mine, Nevada county, ie being worked with succese.

THEY are talking abont a 4,000-foot shaft on the Imperial mine on the Cometock.

ENCOURAGING reports are received from the mines eight miles below Riverside.

ANTIMONY regulus ie quoted in Liverpool at £46 and £47 per ton.

FROM AN INVENTOR.

PLACERVILLE, Octo ber 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen*: Yestarday I received from you my Letters Patent for my Hydraulic Mining Lamp, and I herewith tender you my grateful acknowledgements for the energy and promptness which you have displayed in working said invention through the Patent Office for me; and shall in the future, as well as the past, recommend all parties having new inventions, to go direct to the office of Dewey & Co., and ask for Mr. Boona, in the Patent Department, and if he cannot procure a patent for them, they will find it useless to try further. Yours Respectfully, O. B. BROWN.

MORTALITY PREVENTED.—It would be a moderate estimate to place the number of cases in which Consumption is prevented by the timely use of *Hale's Honey of Horehound and Tar*, at ten thousand per annum No cough, cold, bronchial affection, sore throat, or other ailment of the organs of respiration, can aver degenerate into a mortal disease, if this palatable, and absolutely infallible specifio be taken in time and long enough persevered in.

Pike's Tooth-Ache Drops—Cure in one minnte.

METALS.

WEDNESDAY M., Oct. 21, 1874.

American Pig Iron, ₱ ton	—	@	42 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig, ₱ ton	—	@	42 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ lb	—	@	3½
Refined Bar, good assortment, ₱ lb	—	@	4
Boilsr, No. 1 to 4	—	@	5½
Plats, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9½	@	—
Norway Iron	8	@	—
Rolled Iron	8	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Brazier's	31	@	32
Copper Tin'd	45	@	—
O.Nail's Pat	50	@	—
Sheathing, ₱ lb	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	13 00	@	14 50
Plates, I C Charcoal	12 75	@	14 00
Roofing Plates	11 50	@	14 00
Banca Tin, Slabs, ₱ lb	31	@	33
STEEL.—English Cast, ₱ lb	20	@	25
Anderson & Woods' American Cast	10	@	17
Drill	18	@	22
Flat Bar	18	@	22
Plough Points	16	@	17
ZINC	—	@	11
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	5¾	@	8
QUICKSILVER, per lb	—	@	1 45

GENERAL MERCHANDISE.

WEDNESDAY M., Oct. 21, 1874.

BAGS.

Eng. Stand Wht	—	@	12
Detrick's Machine Sewed, 2x36 E..12	—	@	12½
do 22x36, do E W	—	@	13¾
do 22x40, do A	—	@	15½
Flour Sacks ½s..	8¾	@	11½
" ¼s.	6	@	7
Stand. Gunniee..			
doubls seam	15	@	15½
single seam	13¾	@	14
" Wool Sacks	60	@	67½
Berley Bags 24x35	—	@	14
do 23x40	—	@	14½
do 24x40	—	@	15
do 28x36	—	@	16
Oat Bags, 24x40	18	@	16½
do 28x36	—	@	17
Hessian 40-in.gds	9¼	@	10
do 45	10¾	@	11
do 60	—	@	15

CANNED GOODS.

Asst'd Pie Fruits	—	@	—
in 2½ ₱ cans	2 75	@	—
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	—	@	3 50
Sardines, qr box	18	@	—
do Pine Boxes	3 25	@	—

COAL.—Jobbing.

Anstralian, ₱ ton	10 50	@	11 00
Coos Bay	—	@	10 00
Vallejo & San Bay	—	@	10 00
Saattla	—	@	11 —
Cumberl'd, cks	—	@	18 00
do bulk	16 00	@	17 00
Mt. Diablo	8 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 —
West Hartley	9 50	@	10 00
Scotch	10 00	@	11 00
Soranton	—	@	11 00
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ sk	75	@	—
Coka, ₱ bbl	—	@	60

COFFEE.

Sandwich Island	—	@	22
Central Americ'n	19	@	20
Costa Rica per lb	19	@	22½
Guatemala	19	@	20½
Java	—	@	27
Manilla	19	@	20
Ground in ce	—	@	27
Obicory	9	@	10

FISH.

Pac.Dry Cod, new	5	@	—
casse	—	@	—
do bonelesc	11	@	12
Eastern Cod	—	@	—
Salmon in bbls	8 00	@	9 25
do ½ bbls	4 50	@	5 00
do 2¼ ₱ cans	—	@	3 00
do 2lb cans	2 65	@	2 75
do 1lb cans	1 75	@	—
Do Col. R. ½s	—	@	—
Pick. Cod, bbls	6 22 00	@	—
do ½ bbls	11 00	@	—
Sos. Sm'k'd Her'g	40	@	50
Mack'l, No.1, ½ bls	8 00	@	8 50
" Extra	9 00	@	9 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½ bs	—	@	12 00
Sm'k Herr'g, bx	50	@	60

NAILS.

Assorted size, ₱ keg	4 37½	@	7 50

OILS.

Pacific Olne Co.			
Neat Ft No. 1	—	@	90
Pure	—	@	—
Castor Oil, No.1	—	@	1 75
do No.2	—	@	1 60
Cocoanut	—	@	65
Olive Flagnio	5 00	@	—
do Possel	4 75	@	—
Palm ₱	9	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
Chinat nut in ce	—	@	1 75
Sperm, crude	82½	@	88
do bleached	—	@	1 40
Coast Whalee	—	@	2 00
Polar, refined	60	@	—
Lard	1 15	@	1 30
Coal, refined Pet	37½	@	—
Oleophina	20	@	23
Devoe's Bril't	25	@	28
Long Island	20	@	23
Eureka	—	@	—
Devoe'e Petro'm	20	@	23
Barrel kerosene	20	@	23
Olive	4 00	@	9 50
Downer Karose'e	—	@	37½
Oas Light Oil	—	@	28

PAINTS.

Atlan. W. Lead	6	@	10¾
Whiting	—	@	2
Putty	4	@	5
Chalk	—	@	2½
Paris Whita	2¾	@	—
Ochre	2	@	5
Venetian Red	2½	@	5
Red Lead	7	@	11
Litbarge	10	@	11
Eng. Varmillion	2 00	@	2 10

RICE.

China No. 1, ₱ lb	6¾	@	6¾
do 2, do	5½	@	5¾
Japan	—	@	6¾
Siam Cleanod	5½	@	—
Patna	5¾	@	5¾
Hawaiian	7¼	@	8
Carolina	10	@	10½

SALT.

Cal. Bay, per ton	10 00	@	14 00
do Common	8 00	@	10 00
Carmen Island	11 00	@	13 00
Livarpool fine	—	@	22 00
do coarse	16 00	@	—

SOAP.

Castile ₱ lb	10	@	11
Local brands	5	@	8

SPICES.

Cloves	45	@	60
Cassia	26	@	27
Citron	—	@	30
Nutmag	1 20	@	1 25
Whola Pepper	18	@	19
Pimento	—	@	15½
Gr'nd Allsp'ce	—	@	12½
do Cassia do	—	@	1 50
do Cloves do	—	@	1 50
do Mustard do	—	@	1 20
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	2 10

SUGAR, ETC.

Cal. Cube per lb	11½	@	—
Parr's Pro. Cube bbl or 100 lb bxs	—	@	11¾
do in 50 lb bxs	—	@	12
do in 25 lb bxe	—	@	12¼
Circle A crushed	—	@	11½
Powdered	—	@	11¾
Granulated	—	@	11
Dry granulated	—	@	11½
Hawaiian	8	@	10½
California Beet	—	@	1
Golden Crush'd	—	@	—
do Rey'g grade	—	@	60½
Cal. Syrup in ols	—	@	70½
do in ½ bls	—	@	87½
do in ¼ bls	—	@	75
Hawaiian Molasses	25	@	27½

TEA.

Oolong, Canton, lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imparial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	90
Gunpo'der, Canton	30	@	42½
do Pingsuey	50	@	90
do Moyune	65	@	1 25
Y'ng Hy., Canton	28	@	40
do Pingsuey	50	@	70
do Moyune	65	@	85
Japan, ½ oheste, bulk	30	@	75
Japan, lacquered bxs, 4½ and 5 lbs	45	@	67
Japan dn, 3 lb bxs	45	@	90
do pl'n bx, 4½ lb	35	@	65
do ¼ & 1 lb paper	30	@	55

TOBACCO—Jobbing.

Bright Navy	50	@	55
Cark do	50	@	55
Dwarf Twist	65	@	70
12 inch do	60	@	70
Light Pressed	65	@	75
Hard do	50	@	60
Cnnn. Wrap'r	35	@	40
Penn. Wrapper	20	@	45
Ohio do	20	@	20
Virgi's Smok'g	45	@	75
Fine ot obe'g, gr	8 50	@	9 25
Fine cut chewing, hue's, ₱ lb	75	@	90
Banner flue cnt	9 00	@	9 25
Eureka Cala	—	@	8 00

TURPENTINE.

Eastern	65	@	70

LEATHER.

WEDNESDAY M., Oct. 21, 1874.

Trade is fair, and prices hold firm. Little change.

City Tanned Leather, ₱ lb			25@29
Santa Cruz Leather, ₱ lb			28@28
Country Leather, ₱ lb			24@28
Stockton Leather, ₱ lb			25@28
Jodot, 8 Kil., per doz	$50	@	54 00
Jodot, 11 to 19 Kil., per doz	66	@	90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55	@	72 00
Cornellian, 12 to 18 Ko	57	@	67 00
Cornellian Femalee, 12 to 13	63	@	67 00
Cornallian Femalee, 14 to 16 Kil	71	@	76 50
Simon Ullmo Females, 12 to 13, Kil	60	@	63 00
Simon Ullmo Femaces, 14 to 15, Kil	70	@	72 00
Simon Ullmo Females, 16 to 17, Kil	73	@	75 00
Simon, 18 Kil., ₱ doz	61	@	63 00
Simon, 20 Kil. ₱ doz	65	@	67 00
Simon, 24 Kil. ₱ doz	72	@	72 00
Robert Calf, 7 and 9 Kil	35	@	40 00
French Kips, ₱ lb	1	@	1 15
California Kip, ₱ doz	40	@	60 00
French Sheep, all colors, ₱ doz	9	@	15 00
Eastern Calf for Backs, ₱ lb	1	@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9	@	13 00
Sheep Roans for Linings, ₱ doz	5	@	10 50
California Russett Sheep Linings	1	@	4 50
Best Jodot Calf Boot Legs, ₱ pair	5	@	5 25
Good French Calf Boot Legs, ₱ pair	4	@	4 75
French Calf Boot Legs, ₱ pair	4	@	—
Harness Leather, ₱ lb	30	@	37½
Fair Bridle Leather, ₱ doz	48	@	72 00
Skirting Leather, ₱ lb	33	@	37½
Welt Leather, ₱ doz	30	@	50 00
Calf Leather, ₱ foot	17	@	23
Wax Side Leather, ₱ foot	17	@	23
Eastern Wax Leather	—	@	—

New Inventions!

Of real merit, if brought plainly before the public when fresh, are most likely to become profitable to the patentee. For this reason, patentees (of worthy devices) should have the best of Engravings Made, and published in the PRESS. Superior Engravings Made, at reasonable rates, by artists in this office hp-tf

Mining and Other Companies.

Black Mountain Coal Mining Company—

Location of works, Santa Cruz County, State of California. Location of principal place of business, City and County of San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amonnt.
Bankhead, H	30	100	$5 00
Burroughs, C B	25	25	1 25
Burroughs, C B	31	25	1 25
Forrester, J	35	50	2 50
Parshley, W H	32	25	1 25
Parshley, W H	33	25	1 25
Ramsey, Peter	62	10	50
Smith, Geo H	26	25	1 25
Smith, Geo H	34	75	3 75
Strader, W	3	1000	50 00
Strader, W	37	14	70
Strader, W	43	150	7 50
Strader, W	44	10	50
Strader, W	45	10	50
Strader, W	46	10	50
Washburn, O A	19	3000	150 00
Washburn, O A	20	1000	50 00
Wuch, Valentine	55	10	50

And in accordance with law, and an order of the Board of Directors, made on the 28th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said Company, No. 402 Montgomery street, Room No. 23, San Francisco, on the second day of November, 1874, at the hour of 12 o'clock m., of said day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

F. H. WELLS, Secretary.

Office—No. 402 Montgomery street, Room No. 23, San Francisco, Cal.

Cincinnati Gold and Silver Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Kelsey Mining District, El Dorado County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 25th day of September, 1874, an assessment of two and one-half cents per share was levied upon the capital stock of the corporation, payable immediately, in United States Gold and Silver coin, to the Secretary, at the office of the Company, No. 531 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the second day of November, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before will be sold on Tuesday the 24th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. SMALL, Secretary.

Office—Room 1, No. 531 California street, San Francisco, Cal.

Confidence Mining Company---Location of

Principal place of business, San Francisco, Cal. Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees, held on the nineteenth (19th) day of September, 1874, an assessment of thirty (30) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, 217 Sansome street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Monday, the twenty-sixth (26th) day of October, A D, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the sixteenth (16th) day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

W. S. ANDERSON, Secretary.

Office—No. 217 Sansome street, San Francisco, Cal. sep25-4t

The Orleans Mining Company—Principal

place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of October, 1874, an assessment (No. 1) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary at the office of the company, Room 8, 315 California street, San Francisco.

Any stock upon which this assessment shall remain unpaid on the 2 th day of Nove ber, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 18th day of December, 1874, to pay the delinquent assesment, together with costs of advertising and expenses of ale.

J. F. NESMITH, Secretary.

Office—Room 8, No. 315 California street, San Francisco, California. oc24

The Orleans Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Grass Valley Township, Nevada County, State of California.

There will he a special meeting of the Stockholders of the Orleans Mining Company, on Tuesday, the 10th of November, 1874, at 1 o'clock, P. M., at the office of the company, room 8, No. 315 California street, San Francisco, Califo nia, to take into consider tion the disposal of the company's reserve stock, and transaction of such other business as may come before the meeting.

By order of the Board of Trustees.

J. F. NESMITH, Secretary.

Office—No. 318 California street, San Francisco, Cal. Room No. 13. oc24

Stanislaus River Mining Company—

Location of principal place of business, San Francisco, California. Location of property and works, Stanislaus River, Tuolumne County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees held on the 23d day of September, 1874, an assessment (No. 4) of twenty cents per share, was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at his office, 113 Leidesdorff street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Tuesday, the 27th day of October, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 13th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

WILLIAM STUART, Secretary.

Office, 113 Leidesdorff street, San Francisco, California. sep26

Taylor Mill and Mining Company--Location

of principal place of business, City and County of San Francisco. Location of works, Garden Valley Mining District El Dorado County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 21st day of September, 1874, an assessment of twenty-five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 607 Montgomery street, in the City and County of San Francisco.

Any stock upon which this assessment shall remain unpaid on the 28th day of Oo ober, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 23d day of November, 1874, to pay the delinquent assesment, together with costs of advertising and expenses of sale.

SAMUEL S. MURFEY, Secretary.

Office, No. 607 Montgomery street, City and County of San Francisco, California. sep28

Machine Builders.

THE RISDON

Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Joseph Moore, Jesse Holladay, O. E. McLane,
Wm. Norris, Wm. H. Taylor, J. B. Haggin,
James D. Walker.

WM. H. TAYLOR.....President
JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
24v17-qy

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY, P. O. box 2032, San Francisco, Cal., will receive prompt attention.
☞ The highest price paid for Scrap Iron.

UNION IRON WORKS,

Sacramento.

ROOT, NEILSON & CO.,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

Dunbar's Patent Self-Adjusting Steam Pieton

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery,

Front Street, between N and O streets,
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OCCIDENTAL FOUNDRY,

137 and 139 First street.....SAN FRANCISCO.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the **Hepburn Rolling Pan** and **Callahan Grate Bars**, suitable for Burning Screenings.

NOTICE.—Particular attention paid to making Superior Shoes and Dies. 20v26.3m

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,
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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch
☞ PRICES MODERATE. ☜
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PRESCOTT & ECKART,

Manufacturers of Quartz and Amalgamating Machinery, Hoisting Machinery, Saw and Grist Mill Irons, House Fronts, Car Wheels, and Castings of every description made to order.
Steam Engines constantly on hand for sale. 9v28-1y

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LIGHT AND HEAVY CASTINGS,

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AGENTS FOR THE

Burleigh Rock Drill Company.

—MANUFACTURERS OF—

PNEUMATIC DRILLING MACHINES,

AIR COMPRESSORS AND OTHER MACHINERY.

The only Drilling Machinery that has ever done any successful Tunnel work in America, is being used upon the largest tunnels and mining operations on the Comstock lode; also in Placer, Mariposa and Nevada Counties, Cal.
Sample machinery can be seen and further information given, by applying to

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Sole Agents for States and Territories west of the Rocky Mountains, 108½ Leidesdorff street, Hayward's Building, San Francisco, Cal. 21v28-3m-hdl4p

DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches.	4	5	6	6	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches.	2	3	4	5	6	7	9	10	12	16	18	18
Stroke of Piston, in inches.	6	6	6	6	7	8	10	10	12	12	12	12
Capacity per double Stroke, in gallons.	1-6	1	2½	3½	4½	6	9	12	15	20	25	30
Capacity at ordinary Speed, per minute.	10	15	40	60	90	120	180	240	300	400	500	600
Maximum Capacity.	25	40	80	120	150	225	350	600	675	900	1300	1500
Boilers in horse power they will supply.	½	1	2	3	4	5	7	10	12	15	20	25
Size of Steam Pipe, in inches.	¾	¾	1	1¼	1¼	1½	2	2½	3	3½	4	4½
Size of Exhaust Pipe, in inches.	¾	¾	1	1¼	1¼	1½	2	2½	3	3½	4	4½
Size of Suction Pipe, in inches.	1	1¼	1½	2	2½	3	4	5	6	8	10	10
Size of Discharge Pipe, in inches.	¾	1	1¼	1½	2	2½	3	4	5	6	8	8
Weight of Pump, in pounds.	186	295	400	435	810	1180	1500	1500	1032	2250	3375	4500
Length over all, in feet and inches.	8-4	3-4	3-10	3-10	4-11	4-11	5-4	5-6	6-6	6-10	7	8
Height over all, in feet and inches.	1-6	1-9	2-8	2-9	3-1	3-1	3-7	4-3	4-7	5-7	6	8
Width over all, in feet and inches.	9	10	1-1	1-1	1-3	1-4	1-6	1-10	1-10	2-1	2-9	2-10
PRICE..... $												

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons*. Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS. { No. 4, 24-in. Stroke, $ / No. 5, 26-in. / No. 6, 30-in. Stroke, $ / No. 7, 30-in. Stroke, $ / No. 8, 36-in. $

These Long Stroke Pumps have large free openings, and are highly esteemed *for developing mines*.

C. E. ROBERTS & CO.
C. E. ROBERTS
H. C. GOODRICH
Manufacturers of
STEEL AND CASE HARDENED SET MACHINE AND CAP
SCREWS
QUALITY AND FINISH UNSURPASSED.
7 & 9, S. JEFFERSON ST. CHICAGO.
CREWS FOR ALL PURPOSES.
MADE TO ORDER

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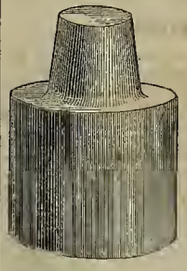

Improved Cast and Forged

STEEL SHOES & DIES FOR QUARTZ MILLS.

[PATENTED MAY 26TH, 1874.]

To Superintendents of Quartz Mills and Mining Men Generally.

We guarantee these SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent. cheaper. They are gradually coming into use in all of the principal mills on this coast.

Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.

Address all orders, with dimensions, to

CAST STEEL SHOE & DIE CO.,
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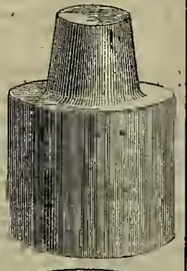

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MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

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BIRCH, ARGALL & CO.,

Builders of QUARTZ, SAW AND FLOUR MILLS
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THE ECONOMY HYDRAULIC HOIST FOR STONES,
And General Machinists. 25v23-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

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Machinery and Castings of all kinds.

Machinery.

THE

AMERICAN TURBINE WATER WHEEL

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 60.08; ½ 69.64; ¾ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "These are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

TREADWELL & CO.,
SAN FRANCISCO, CAL.

Sole Agents for the Pacific States and Territories.
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STEEL SHOES AND DIES

FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy*

Die.

Shoe.

Will wear three times longer than any iron Shoes

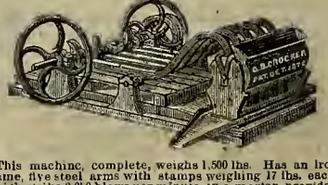
BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.
All orders promptly filled.

MOREY & SPERRY,
88 Liberty street, N. Y.
Examination solicited. 9v28.1y

CROCKER'S PATENT

TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 200 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

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BALL'S SWEEPING DREDGE,

A NEW AND VALUABLE

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Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is hut this one machine that has aver had these improvemants employed. It is an old machine, formerly huilt for another device, and is unfavorahly constructed for Ball's improvements; yat this first temporary experimental machine has filled a scow of eighty-fiva cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights nniess upon a *basis* of actual work performed by a machine built hy myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responaible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cnbic yards per minute (to fill a scow at that rate). $20,000 will hut littlo more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patente nnless my machine dredges more than six cnbic yards per minute. But it shall be frnrther agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every snch additional cubic yard thns dredged par minute, and for addltional fractions of a cubic yard thns dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any otherTerritorial or State rights (either United States or Foreign) npon the samo plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a singlo machine with scows and all complete, and right to use tha same in a limited territory, for $ 40,000 on the same plan as above stated, hut will add only $2,000 to each additional yard over the six cnbic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Paymente to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

Address, JOHN A. BALL,
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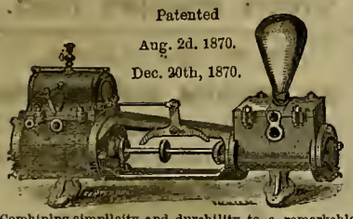
THE SELDEN DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.



Patented
Aug. 2d. 1870.
Dec. 20th, 1870.

Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are nsed.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

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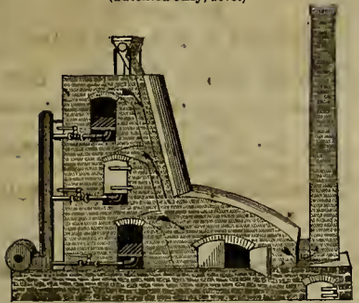
EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)



The Cheapest and Most effective Furnace now in use Parties desirous of huilding above fnrnace, or for any information on same, address,

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Water Wheel.

The best in the Market, and sold at less price than any other first-class Wheel for a Pamphlet and be convinced.

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Of all sizes—from 2 to 60-Horse power. Also, Qnartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by

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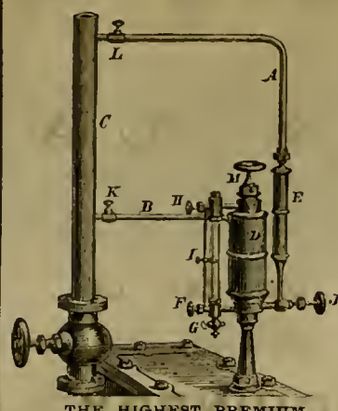

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Awarded hy the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

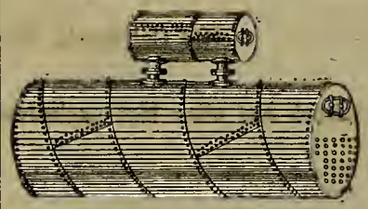
These Lnbricators are acknowledged hy all engineers to he superior to any they have ever used; feed constantly hy pressure of condensed water, supplied hy pipe A, regulated under the oil hy valve J, and forced out through check valve and pipe B into the steam pipe O; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amonnt used per hour. Packing on rods and atems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gange; K, valve to shut off when engine stoppe; H, F, valves to shut off in case of frost; steam does not enter the cnp; it is always cool; warranted t giva satisfaction. Patented February 14, 1871. Man facturedhy California Brass Works, 125 First street, S F. 24v23t

San Francisco Boiler Works,

123 and 125 Beale Street.....SAN FRANCISCO

F. I. CURRY,

(Late Foreman of tha Vulcan Iron Works,) Proprietor



High and Low Pressure Boilers of all Descriptions.

SOLE MANUFACTURERS OF THE CELEBRATED SPIRAL BOILER.

SHEET IRON WORK of every description done at the Shortest Notice.

All kinds of JOBBING and REPAIRING promptly attended to. I7v25-3m

THEODORE KALLENBERG.

MACHINIST,

and Maker of Models for Inventors. All kinds of Dias Stamps and Punches made. Also, all kinds of Small Gears Cnt,

Repairing done on very Reasonable Terms and in tha best manner. No. 32 Fremont street, S. F. I9v23-3m

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MANUFACTURERS OF

HYDRAULIC PIPE

AND

Artesian Well Pipe.

Having the Latest Improved Machinery, we can make it an object to

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WATER WORKS,

TO CONTRACT WITH US FOR

SHEET IRON PIPE.

ALL SIZES MADE AND ALL WORK GUARANTEED:

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NONPAREIL OIL.

140 Degrees Fire Teet, for Family Uee.

OWNERS OF MILLS AND MANUFACTORIES, your attention is particularly called to this beautiful and safe ILLUMINATING OIL. Its use is urgently recommended hy the New York Fire Commissioners and Insurance Companies. For sale to the trade in lots to suit. A. HAYWARD, 224 California St.
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Nickel Plating,

Silver Plating,

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Copper Plating,

IN THE HIGHEST STYLE OF THE ART.

MINING PLATES

—OF—

EXTRA QUALITY AT LOW PRICES.

Old Plated Ware Re-Plated

GOOD AS NEW.

Works, 134 Sutter Street, S. F.

I3v29-tf

TO MILLMEN AND MINERS.

ASSIGNEES' SALE IN BANKRUPTCY.

NOTICE IS HEREBY GIVEN THAT THE UNDERsigned, under and by virtue of the power and authority vested in them, and by virtue of an order of the District Court of the United States for the District of California, made and entered on the 16th day of September, A. D. 1874, in the matter of the MENDHA SILVER MINING COMPANY, Bankrupt, will sell at public auction, in the city and county of San Francisco, at the auction salesroom of John Middleton & Son, No. 310 Montgomery street, on

Friday, the 23d day of October, A. D. 1874

At 12 o'clock, M.,

All that certain mining and mill property and premises situate in Highland Mining District, near Pioche, State of Nevada, described as follows, to-wit:

One twenty-stamp mill and machinery, together with the appurtenances belonging to the same and necessary for the proper working thereof;

Also, the mill site and the spring known as Mendha Spring, and the tract of land snrrounding the same to the extent of twenty (20) acres;

Also, all the water-pipe connecting the springs with said mill;

Also, the huildings, office, atable, boarding-house, etc., upon said land and adjacent to said mill;

Also, the "Stetefeldt" furnace in said mill;

Also, the following named mines, to-wit:

Mendha Mine;
Mendha West Extension Mine;
Regent Mine;
Arizona No. 2 Mine;
Ohief Mine;
Orown Prince Mine;
Sadowa Mine;
Alaska Mine, and
Mendha East Extension Mine;

Also, the hoisting works, machinery and all other appurtenances connected with said mines, mill and premises.

Said property is known as the Mendha Mill and Mines.

Terms of Sale—Cash in U. S. gold coin; ten per cent. on fall of hammer, halance on confirmation by U. S. District Oourt.

For particulars respecting this property apply to the undersigned, at their respective places of husiness, and to J. M. SEIBERT, Agent of Wells, Fargo & Co., at Pioche, Nevada

Dated San Francisco, September 17, 1874.

WILLIAM A. SCOTT, JR.,
At Wells Fargo & Co.'s, San Francisco.

And HENRY O. HYDE,
Room 21, No. 411½ California street, San Francisco.
Assignees of Mendha Silver Mining Oompany, Bankrupt.
John Middleton & Son, Anctioneers. sep26-4t

BLACK DIAMOND FILE WORKS.

TRADE MARK

G. & H. BARNETT,

Manufacturers of Filss of svsry Description,

Nos. 39, 41 and 43 Richmond street,

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Sold hy all the principal hardware stores on the Pacific Coast. 18v26.1y

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Metallurgy and Ores.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

ASSAYERS' MATERIALS

Chemical Apparatus and Chemicals,

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PHOTOGRAPHIC GOODS, ETC.,

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We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

ASSAYERS' MATERIALS

—AND—

Chemical Apparatus,

Having been engaged in furnishing these snpplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valnable tables for comptation of assays in Grains Grammes, will be sent free upon application.

7v25-tf JOHN TAYLOR & OO.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no eqnal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great nnmber now in operation, not one has ever required repairs. The oonstant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pnlp, or with steam bottoms, as desired.

This Amalgamator Opsrates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, whore it is drawn down through the apparture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ors is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They hring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco

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Ores worked by any process.
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Analysis of Ores, Minerals, Waters, etc.
Plans furnished for the most snitable process for working Ores.
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Mining Engineers and Metallurgists.

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On all kinds of Ores, and particular attention

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Important to Miners and Mill Men.

Silver-Platsd Coppsr Amalgamating Platss, for Saving Gold.

Of all sizes and in any quantity, furnished to order. Full instructions sent for operating. Particnlar attention given to plating goods for Builders, Plumbers, etc. Hotel and Restaurant work replated.

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(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical CHEMIST,

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(Opposite the U.S. Branch Mint

SAN FRANCISCO CAL. 7v21-3m

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STRONG & CO.,

Metallurgical Works,

No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes
H. M RAYNOR,
25 Bond street, New York.
Platinum Scrap and Native Platinum purchased.

KABATH & LADD,

IMPORTERS AND DEALERS IN

MINING HARDWARE, MACHINERY, GUNPOWDER,

FUSE AND CAPS,

ELECTRICAL BLASTING AND OTHER BLASTING MATERIAL,

CANDLES, OILS, Etc., Etc.

P. O. BOX, 522. - - - - - 109 California Street, San Francisco.

Imported Explosive Caps for Dynamite, Giant, Hercules, Rendrock and other high explosives for sale in lots to suit.

Quotations cheerfully given. 18v29-16p-tf Orders promptly filled.

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(From 1 to 10-Horse Power.)

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CITY
Brass and Bell Founder,
Corner Natoma and Fremont Streets,
MANUFACTURERS OF
Brass, Zinc and Anti-Friction or Babbet Meta
CASTINGS,
Church and Steamboat Bells,
TAVERN AND LAND BELLS, GONGS,
FIRE ENGINES, FORCE AND LIFT PUMPS.
Steam, Liquor, Soda, Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder and Copper Rivets, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles. HYDRAULIC PIPES AND NOZZLES for mining purposes. Iron Steam Pipe furnished with Fittings, etc. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."
☞ Highest Market Price paid for OLD BELLS, COPPER and BRASS. 6-tf

FOR SALE.
One 20 and one 10-Stamp Quartz Mill with Hoisting and Pumping Engines, Pumps, Columns, Tubs, Oars, &c., good as new.
A. L. FISH,
tf 9 nd 11 First St., S. F.

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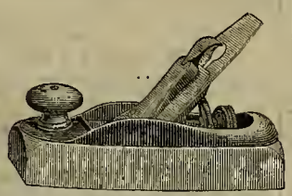
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Patented May 26, 1868.
THE ONLY SAFE BLASTING POWDER IN USE.
GIANT POWDER, NO. 1,
For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.
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For medium and seamy Rock, Lime, Marble, Sulphur, Coal, Pipe Clay and Gravel Bank Blasting, Wood, etc.
Its EXCLUSIVE use saves from 30 to 60 per cent. in expenses, besides doing the work in half the time required for black powder.
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[Covered by Letters Patent of July 2d, 1872, and recent applications.]
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Added to a battery of stamps these machines constitute a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 15 or 20 tons per 24 hours.
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At Denver, Colorado, Look-Box 2225, or corner of Blake and 32d Streets. sg8-16p

The Mining and Scientific Press, San Francisco, Cal., Dewey & Co., is a rich *placer*, wherein golden information may be found, valuable to any searcher after knowledge. *Newark Manufacturer.*

Thursday Noon our last forms go to press. Communications should be received a week in advance and advertisements as early in the week as possible.

Scientific Press.—The attention of our readers is called to an interesting article on the Mining Interests of Northern Sierra, on the first page of this issue, from the Scientific Press, San Francisco. This is the ablest, most instructive and influential Mining Journal published in the Great West, and should be liberally patronized by all our mining friends.—*Mountain Messenger*, April 25.

MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, OCTOBER 31, 1874.

VOLUME XXIX Number 18.

Teats' Furnace for Roasting Ores.

This revolving furnace, which we illustrate today, is intended for the roasting, desulphurizing, chloridizing and oxydizing of gold, silver, or other ores. It is built of light boiler iron, conical shaped ends, with cast iron hollow throats, lined with common brick, laid flatwise. The furnace revolves on four adjustable wheels, as shown in the engraving, and is driven through a gear wheel secured in sections to the periphery of the furnace in such a way as to permit of its being removed and replaced without disturbing the brick lining. The driving pinion is on a counter shaft, on the other end of which are change gears worked by a clutch moving on a feather; by this means the speed of the furnace can be changed from fast to slow, or it can be stopped by simply moving the handle of the clutch. At the front end of the furnace is a fire box, 4 ft. long and 3 ft. wide, built of light iron, lined with brick and arched with fire brick. It is so constructed that it can be removed from the ash pit without disturbing its lining.

At the back or rear end of the furnace are the dust chambers, shown in Fig. 3. These are built on pillars in series or stories. The dust is easily and quickly scraped down from one chamber to the other, and finally into the furnace, by means of a hoe.

The interior of the furnace is provided with a sifting conveyor, (shown in Fig. 6,) placed lengthwise with the furnace, and composed of hollow cast iron pipes and movable slotted plates fitted into the pipes in grooves. Each end of the furnace is provided with angle pieces, (shown in Fig. 4,) which, in connection with its conical shaped ends, assist in throwing the ore being roasted on to the conveyor, which moves it from end to end, thoroughly mixing and at the same time sifting it through the heated air. The conveyor, which forms the axis of the furnace, offers but slight obstruction to the free passage of the air currents.

The furnace is charged through one or two doors, from a hopper resting on a beam scale for convenience in weighing. The ore is carried from the stamps to the hopper by means of a screw conveyor. Between the fire box and the conical end of the furnace the throat is provided with a series of holes covered by a sliding ring. By a movement of this, the holes are opened, and such an additional amount of air is introduced as may be desired. Where the rear throat joins the flue to the dust chambers there is a hinged ring of cast iron, which, being opened, allows the removal of the furnace for repairs without displacing the masonry. Immediately above this ring is the revolving damper, which regulates the draft of the furnace. Under the arch in the rear is a door used to introduce salt or other material, and in taking sample tests from the furnace while in motion.

The furnace is heated with coal or wood, light wood being preferred. When hot it is charged and made to revolve slowly, so as to make as little dust as possible till the sulphur commences to burn, after which the speed may be increased to the maximum. After the sulphur is removed, or nearly so, if silver ores are under treatment, salt may be added, in quantity from four or five per cent. for low grade ores upwards. A few revolutions mix the salt thoroughly, after which the furnace should be run very slowly, and occasionally allowed to stand for several minutes till the ore is fully chloridized, which can be ascertained by test samples. A car is then run under the furnace and the charge emptied into it in a few minutes by revolving the furnace rapidly. The furnace is then ready for another charge. The capacity of the furnace illustrated above is about two tons of gold or silver ore, and the charge is treated and the silver chloridized in from three to five hours. Some ores containing a large percentage of zinc, lead or other base metal require as much as eight hours in chloridizing.

One man on each watch attends to the firing, charging and discharging of from five to eight furnaces, and one cord of wood per furnace for every 24 hours is sufficient in chloridizing roasting.

The total weight of iron in each furnace, including hopper, dust-chamber, plates, fire-box, etc., will not vary much from seven tons. It is no more difficult or expensive to set up than ordinary machinery.

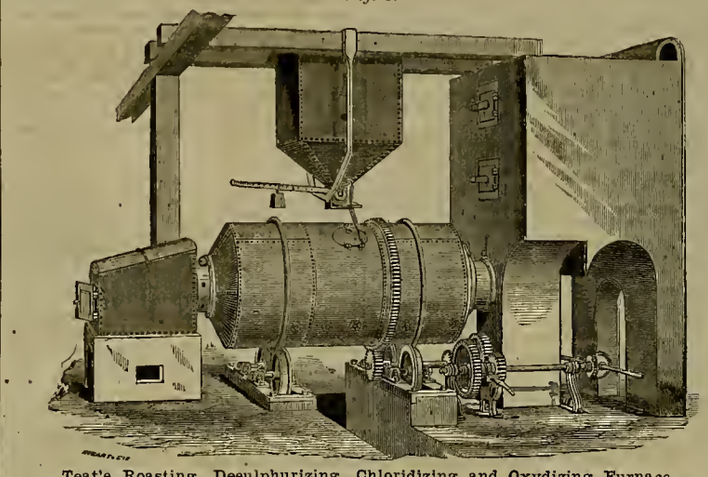
It is claimed for this furnace that it is simple, and can be worked with less expense, and that it effects a greater saving of the precious metals, at a less cost, than any other invention in use.

Figure 1 is a perspective view of the furnace, showing it complete and ready to run. Figure 2 is an axial section of furnace, showing the interior arrangements, the manner of holding and introducing plates, etc., and position of angle piece. Figure 3 is a sectional view of the dust chambers, showing different apartments, passage of the draft and the manner of returning the dust to the furnace for reroasting. Figure 4 is a sectional perspective view of the furnace, with the conveyor and angle pieces in place, showing spaces where the ore sifts through. Figure 5 is a cross section of the furnace, showing position of conveyor, and showing that it offers no obstruction to the free passage of the currents of heated air. Figure 6 is a sectional perspective view of the conveying cooler, showing the manner of introducing water, and the passage of the ore in the opposite direction. Figure 7 is a perspective view of the dry kiln, showing the manner of introducing air by and through perforated pipes by a blast, etc.

Messrs. Teats & Breed make also a patent kiln for drying ores by means of an air-blast, and an apparatus for cooling and conveying roasted ore from the furnace, heating water for amalgamation and boilers at the same time.

There have been patents obtained for the above in different foreign countries. Further particulars can be obtained from Messrs. Teats & Breed, care of A. L. Scovill & Co., No. 12 West 8th street, Cincinnati, Ohio.

Fig. I.



Teat's Roasting, Desulphurizing, Chloridizing and Oxydizing Furnace.

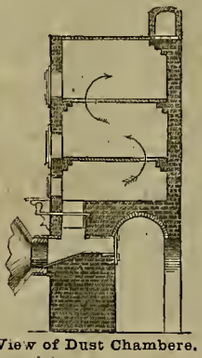
Fig. II.

Axial Section of Furnace.

Fig. V.

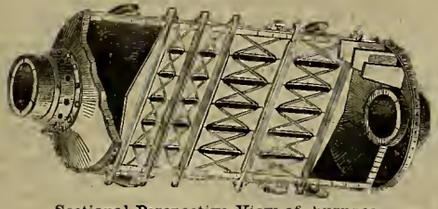
Cross Section of Furnace.

Fig III.



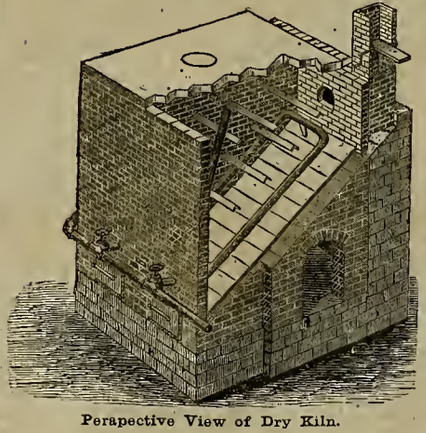
Sectional View of Dust Chambers.

Fig. IV.



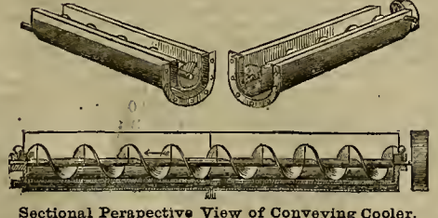
Sectional Perspective View of Furnace.

Fig. VII.



Perspective View of Dry Kiln.

Fig VI.



Sectional Perspective View of Conveying Cooler.

Our Dried Fruit at the East.

It is extremely gratifying, but not at all surprising under the circumstances, to know that the Eastern market for the dried fruit and vegetables of California is assuming a definite form. When the intrinsic merits of the raw material are considered, with the admirable condition in which it is prepared for the market, securing great economy in handling without any sacrifice of richness, flavor or attractiveness, it is not to be wondered at that this trade should already exhibit a clearly defined basis. There is one important point in this connection which has evidently failed to receive the consideration which it deserves. The satisfaction of having our fruit reach the Eastern consignees in admirable condition is so thorough that the important point has scarcely been realized that it still retains this condition in the hands of dealers, and thus becomes one of the staple articles which the large contractor or the small grocer can safely carry.

Our attention has been called to this subject at present by comments of the New York *Tribune* on the Alden fruit of California. These comments occur in the market reports column of the *Tribune* of Oct. 6th, and are as follows:

This trade promises quite a revolution in the fruit business of this coast, growing out of the general introduction of "Alden's" drying and curing machine. There are now quite a number of large factories in successful operation in different parts of the State. The result of this industry will not be only the supplying of the Pacific slope with dried fruits required, but give large and superior shipments East, and for export not only dried fruits but also canned in good variety, and they compare favorably with the choicest of England's "Oilman's stores." There is considerable inquiry for dried fruits for shipment East and for export, all packed in boxes of 10 and 20 lb.; apples at 25@ lb.; apricots, pears, etc., 30c. do. Dried fruits "Alden's" evaporating process by the attract much attention; the saving is immense, both on freight and in transporting the goods to distant points and is worth careful consideration; to illustrate: One case of "Alden's" onions weighing 58 lb. gross is equal for all culinary purposes to 550 lb. or 5 bags of fresh ones, and 1 case of peas weighing 43 lb equal for family use to 7 cases of canned peas, weighing 350 lb.; the same rule is applied to all fruits and vegetables prepared under this process; boxes of 40 lb. at 16c @ lb., each lb. equal to 7; cherries, etc., 1 lb. at 55c. is equal to 7 lb. of fresh.

The Ophir Mine.

The Gold Hill *News* gives the followiug description of the Ophir mine: Yesterday afternoon, accepting a kind invitation from Superintendent Curtis to visit and examine the mine, in company with some 15 others, mostly mining superintendents, experts and stock speculators, we stepped on one of the cages and glided smoothly and noiselessly down to the 1300-foot station. Proceeding along the main drift, in a westerly course 100 feet, brought us to a turn-table and the main south drift. This drift we followed a distance of 110 feet, which brought us to winze No. 1, where the

First Ore Discoveries

Were made on this level. The winze is an incline, on the sides of which the ore has been breasted out, two sets of timbers in width, to a depth of 85 feet. At that point the ore breasts are still being carried forward, with fine ore in the face and overheard. This body of ore mills $35 per ton and lies 290 feet north of the south line. Again following the main south drift 100 feet, brought us to east cross-cut No. 2, 150 feet from the mouth of which was struck an extremely rich vein of ore, four feet in width. This ore assays from $300 to $700 per ton, and was the first discovery of the

East Development Ore Body,

On this level. An incline winze was first started on the ore vein, but after sinking a few feet, finding themselves in rich ore on all sides, the winze was changed to a perpendicular shaft 12 feet square, which is down 90 feet, the entire distance in ore, the tub samples of which give average assays of from $70 to $300 per ton. This winze is 180 feet from the south line, and is in as fine an ore development as has been made on the Comstock for many a day. Its extent is as yet undetermined in any direction. The west side near the top slanting to the westward, and the east side pitching to the east, gives the whole the appearance of a mighty wedge-shaped body, with the butt end of the wedge downward. From this winze we passed into a southwest drift, which took us to the

Southwest Ore Body,

Developed near the south line in east cross-cut No. 3. This body of ore averages $40 per ton milling test, and its extent north and south is yet undetermined. An incline winze has been sunk directly in the ore, through to the 1465-foot level, and the whole body lies full 100 feet west of the east development winze. We then descended through this winze to the 1465-foot level, stopping frequently on the way to examine the rich ores exhibited on its sides. We reached the 1465-foot level,

Near the South Winze,

Which extends downward to the 1700-foot level, and from the mouth of which a hot sweltering steam was escaping. From this point a drift has been run in a southeast direction 80 feet beyond the south line into the California ground, the entire length of which is in rich ore. Nearly opposite the south winze and about 20 feet from the south line we entered

East Cross-Cut, No. 3,

Following which, a distance of 90 feet, brought us to the face in the right hand corner and bottom of which some fine ore was just beginning to show, and which is believed to be the extension southward of the rich east ore body lying between the 1300 and 1400-foot levels. About forty feet from the entrance to this cross-cut a winze has been started on the left hand side, which was down thirteen feet, the bottom in ore which gives average assays of from $70 to $200 per ton. Returning to the main south drift 50 feet in a northerly course brought us to a west cross-cut, which carries us back 50 feet to where the

Ore Body

Found in east cross-cut No. 1, on the 1300-foot level, was being breasted upon three sets of timbers in width, and which is of much better quality than the ore was in the breasts of the winze 90 feet above. This body is also undetermined in extent, and mills $50 per ton. Again returning to the south drift, 110 feet further to the northward and 250 feet from the shaft, we entered east cross-cut No. 2, of that level, following which a distance of 160 feet brought us to the rich

East Ore Development,

But very recently made. At that point a large chamber has been excavated in the ore preparatory to putting in timbers and stoping. This ore body has been cut into a distance of 29 feet, and in the face, overhead, and on the sides, was one rich mass of sulphuret ore, not a spot showing where either the sulphurets or rich chlorides were not disclosed. The point at which this body was struck is about 60 feet west of where the east development winze is being sunk in the rich ore body lying between the 1300 and 1465-foot levels. The entire body mills $125 per ton, there not being a scrap of waste to be found mixed with the ore. A few feet further on a cross-cut has been run to the northeast a distance of 50 feet, developing fine ore, the milling test of which gave $60 per ton. Returning to the shaft we entered east cross-cut No. 1, which is in a distance of 361 feet from the shaft, at which point is the north air winze, which connects with the 1700-foot level. According to the

Measurements and Surveys

This cross-cut drift will have about 60 feet yet to run to reach the east ore body. The work was being done on the 1700-foot level and we had already spent three hours in the hot subterranean chambers of the mine we were glad to ascend to the surface, more than pleased with our trip, and more convinced than ever of the great extent and richness of the ore developments of the Ophir. The hears and croakers may howl themselves hoarse, but the rich, vast chambers are there to be seen on every hand and no cane man dare go and look at them and then attempt a denial of the fact. And further: the opening up of the rich extensive ore bodies on the 1465-foot level, leaves hardly a doubt but that as soon as the

Air Compressor

Is ready to run, which will be in a very few days, and when cross-cutting on the 1700-foot level is commenced there will be found a continuation of the same rich vein on that level. On the 1300-foot level the ore vein shows that it has been greatly broken up, while on the 1465-foot level the solidity of the ledge and even character of the quartz and ores proves the ore vein, although undetermined in width, to be much better concentrated than on the level above. The value of the mine is established beyond all doubt, and gladly do we welcome back a return of the rich and prosperous days of Ophir's by-gone glory.

Compound Engines of the U. S. Coast Survey Steamer "Hassler."

Mr. Charles E. Emery, consulting engineer, has communicated the following to the *Journal* of the Franklin Institute. If other engineers would follow his example, the question of relative merit between simple and compound engines would soon be permanently settled. We omit the details of the experiments, which seem to have been conducted with great care, and simply give results.

The vessel, on her trial trip, using Schuylkill coal and both boilers, developed 125 horse-power with 250 pounds of coal per hour, a performance of two pounds of coal per horse-power per hour, when the boiler and engines were not felted and the weather quite cold. Only one boiler was in use during the run.

The following extracts are from the official report of Commander P. C. Johnson, U.S.N., commanding the "Hassler."

It gives me pleasure to request your notice of the consumption of coal while engaged in such work as the "Hassler" was designed for.

At San Diego, before starting the fires, the ship had in her bunkers	101.09 tons
To-day on hand	68.30 "
Deduct for distilling water, galley, stoves, etc.	3.60 "
Showing a consumption in 35 days of	29.19 "
Averaging per day	0.83 "

The ship has been under steam every moment since leaving San Diego. Excepting Sundays, she has been under way during the day, and banked fires at night, having steamed 1,069 miles and made 704,026 revolutions. The hunker-doors are closed and locked at all times (except when in the act of getting out coal), and the key always in possession of the engineer. Besides weighing, the bunkers are frequently examined and their contents measured.

In a subsequent letter Commander Johnson writes: We have been 58 days under steam, running from daylight till dark generally. Banked fires at night and Sundays, and have consumed in the furnaces only 1,891.4 lbs of coal per 24 hours—0,844 tons per day.

There is no mistake about it. There has been no stealing of coal. The bunker-doors were locked, except when carving out, and the measurement shows the proper amount on hand now.

Mr. Emery claims that the above facts are sufficient to show conclusively the great economy which may be obtained by the use of the compound engine.

A New Invention.—Colonel Hyde, the steam wagon and plow manufacturer, has been for some time engaged in perfecting a machine for excavating irrigating canals. Much of the work has been done at Gunn's shop, on I street near Front, and the machine is now nearly completed. It consists of a scoop-shaped iron scraper, with a series of teeth that look like sharp plow points. This takes the lead, and will cut a ditch about twelve feet wide. Following it come two revolving aprons which catch the dirt from the scraper and throw it out at either side of the canal. Then comes a powerful steam wagon, something like that which propels the plow; this pushes the scraper and and aprons along ahead, and the engine also causes the aprons to revolve and do their work. The machine is intended for use in irrigating ditches in the San Joaquin Valley, and looks as if it would work admirably in the light soil there. When at work it will cut a canal say two feet deep and twelve feet wide, about three miles per day. The machine will be put together and ready for trial about the latter part of this week.—*Sac. Union, Oct.* 22.

The London Society of Arts offers its gold medal or $105 to the inventor of an improved lamp or means of illumination suitable for railway passenger carriages, that shall produce a good steady, clear, durable and safe light. It must be simple in construction, and capable of being readily cleaned and repaired. In judging the merits cost will be taken into consideration.

Three hundred persons are now working in the Los Prietos quicksilver mines, Santa Barbara county. The mines will soon be made more accessible by a good road.

Cinnabar.—The continued reports of the rich discoveries in Cinnabar district, accompanied by specimens ranging from 50 to 75 per cent., has had a tendency to make those of our citizens who are interested in that District feel themselves millionaires. And not without some cause, for the developments of the past few weeks have gone far toward proving that in Trinity county is located the most extensive and richest deposit of cinnabar in the world. We have seen a $20-piece entirely coated with quicksilver, from a piece of ore but little larger than a pin-head, by simply holding them in a flame; and that ore came from the Cinnabar district of this county. (Where the $20 piece came from we don't know—it wasn't ours.) As yet the only extensive discoveries made have been in the Lytle claim, where the lode was struck about 6 feet below the surface, found to be about 3 feet wide and quite rich. A tunnel was then run and the lode struck at a depth of 70 feet, where the vein proved to be 16 feet in width and immensely rich—a single barrow load producing $400 worth of quicksilver. With two small retorts, Mr. Lytle produced 16 flasks of the metal. These being burned out, he has procured four large retorts which are being put up eight miles this side of the mine, where they could be hauled with wagons. It is Mr. Lytle's intention to transfer five tons of ore from the mine to the retorts, and from this he expects to realize not less than $5,000, the ore averaging over fifty per cent. It is further estimated that, at the present time, Lytle has $100,000 on his dump. The main ledge and all the stringers cut by Lytle run North and South, and the ledge, four feet wide, has been struck on the surface several hundred feet due north from where he found it. A letter from Mr. Lytle to County Clerk, Trotter, received Thursday evening, says that Worland & Butler had just struck it rich in the Boston claim. Further developments are anxiously awaited.—*Trinity Journal.*

An Efficient Safety Cage.—Last Sunday night the hoisting cable at the Belcher works suddenly parted at the reel. At the moment there were being hoisted up on the cage (three-decker) three car loads of ore, weighing over four tons. Without safety apparatus the cage, with its load of cars, would have dropped to the bottom and been dashed to pieces; but as it was the cage dropped but about three-fourths of an inch. The cage, with the safety apparatus and all connected therewith, was made by William Bray, head blacksmith at the Belcher works. That a cage so heavily loaded as that above mentioned should fall so short a distance that it can hardly be said to have fallen at all, is incontestable proof of the efficiency of the safety apparatus with which it is provided. The sense of security with which the safety cages inspire the miners is alone worth thousands of dollars annually. As they pass up and down the shaft they are not in constant fear of the breaking of the cable by which they are suspended in a shaft hundreds of feet in depth. As a proof of this fact we may state that but a few days since we descended the Belcher shaft and were lowered by the same cable that parted last Sunday night. As we descended we said to a miner on the cage: "Should the cable break where would we go to?" "Nowhere! We would stop right here. The safety apparatus would not allow us to fall an inch," was the reply. He was right, we should have stopped and stuck fast in the shaft, and all the weight that could have been piled upon the cage would not have forced it down a single inch. The more weight there is on a cage the more firmly the cogged eccentric wheels of the safety apparatus bite into the guides on each side.—*Virginia Enterprise.*

Channel Passage.—The project to construct a tunnel between France and England, says *Iron*, is assuming a practical phase. The capitalists and engineers embarked in this gigantic enterprise demand a concession of thirty years instead of the ninety-nine usually accorded to railway companies, and ask for neither guarantee nor grant. Further they are ready to advance a sum of four millions for preliminary investigations. The project in question consists in the immerging of a duct on the English and French coasts, and the boring of two long galleries from each side. The soul of the enterprise, with MM. Michel Chevalier, Leon Say, and Rothschild, is M. Lavalley, an engineer who has surmounted the greatest difficulties in the construction of the Suez Canal and without whom this gigantic enterprise could not have been accomplished. M. Lavalley estimates the cost of the work at 150,000,000 francs. The English engineers think it will amount to 250,000,000 francs. He suggests that this work should be done partly by France and partly by England, and that to induce the two countries to proceed on this undertaking energetically there should be a bonus for the one which works the fastest. The 4,000,000 francs forming the preliminary capital are nearly all, it is said, subscribed.

The litigation between the Excelsior and Fourth of July mines of the Eureka district has been compromised, and the suit withdrawn from the Court by the Excelsior paying costs. The case was in the United States District Court at Carson.

A registry for artizans out of work has been founded in London, where for a fee of six cents the applicant's name is registered, and the fact that he needs employment is announced in a paper without further charge.

Snow Creek Mining District.

A short time ago David Butler and others discovered what promises to be one of the richest mining districts in Northern Nevada, ten miles from Bartlett creek, and about seventy miles "as the crow flies" northwest from Winnemucca. Upon making the discovery the prospectors organized a new district which they named Snow creek, and located six ledges all of which crop out to a greater or less extent, and contain free gold and silver-bearing ores. On the largest and most promising of the ledges, named Belle of the West, a shaft has been sunk to a depth of fifteen feet, and the ore assays from $244 in silver and $95 in gold, to $1,500 per ton. Pieces of the ore burned in an ordinary fire yields almost pure silver, and is so tractable as to be easily amalgamated by ordinary mill process. The formation in which the ledges are found is granite, and bears a close resemblance to the country at Silver City, Idaho. There is plenty of timber and water in the mountains in which the ledges have been discovered for all practical purposes; and the valleys, unlike the deserts of Central and Southern Nevada, are covered with luxuriant grasses. The soil is alluvial, and susceptible of a high state of cultivation. Deer are plenty in the mountains, and the streams are literally alive with trout. The whole country is represented as being the most inviting in the State to farmers and miners. A road from Leonard creek to the mines is being built as rapidly as the means of the mine owners will admit of, and will be completed in a few weeks.

David Butler brought 2,500 pounds of ore from the Belle of the West to Gintz & Ginacca's Reduction Works last Saturday, for the purpose of giving it a fair, practical test; and if the result is as good as is anticipated, lively times may be expected at Snow creek this winter, and an express line for the accommodation of miners and others in that vicinity will be started immediately from Winnemucca.—*Silver State, Oct.* 19.

Ink.

We might bring many other accusations against ink. Among them is the difficulty of carrying it about. The patent bottles, which open like a jack-in-the-box were no doubt a great discovery, and are as convenient as may be. But bad is the best. For the ink when long shut up acts as a glue upon the lid, whether you give way or opens with a jerk and makes a mess. It is almost impossible to keep ink in good order. The best part of it sinks to the bottom of the pot, like the cream in good London milk. If it is not frozen in winter or dried up in summer, it gets full of hairs, or becomes a cemetery for the dead bodies of flies. There is nothing among the small worries of life more trying to the temper than when the pen at every dip is clogged with something that makes writing impossible. Ink is almost useless without a paraphernalia of other things. You must have pens whose nibs, however good, are corroded after a few hours writing with the acid in the ink. You must have either sand or blotting paper, an inkstand, an ink-eraser, a pen-wiper, etc. But it may be asked after all this abuse of ink, what can be offered in its place? One cannot draw up decds in pencil or write histories in blue chalk. No doubt the one merit of ink is that it is practically indelible. But surely in these days of chemical science we need not be driven to galls and water in order that what we write may not be rubbed out. There must be some means of preparing a paper such that the mere touch of a chemical pencil should make an indelible mark. The man who should confer this boon on the public would deserve a prize medal at the next exhibition. But perhaps we should say good-by with sadness to ink, after all. For ink would be to the new compound what the old stage coach is to the train. The poetry of writing would be gone. With a chemical pencil on chemical paper, the old triumphs of penmanship, the ups and downs, and flourishes produced by fine nibs would no longer be possible. True, we should be saved the trouble of dipping our pens, but how often does an inspiration come at the moment of rest, when the pen needs filling? And as to wiping it, there is a positive pleasure in wiping a good pen when it has done its work satisfactorily. —*Saturday Journal.*

A free wagon road is proposed by way of the Feather river gorge, through the Sierra Nevada mountains from the town of Oroville, in Butte county, California, to Sierra valley, in Plumas and Sierra counties, a distance of about 130 miles. At present there is no communication through this county for six months of the year, except across rugged, snowy mountains, at an altitude of 6,000 or 7,000 feet; and such is the communication at all seasons of the year that the region is comparatively uninhabited, notwithstanding its great mining, timber and agricultural resources.

London is literally built on a foundation of pipes. In some places it would be difficult to find room to lay another pipe. One gas company supplies two districts with nearly four hundred miles of pipes. Then there are the underground telegraph pipes, and 2500 miles of drain-pipes, the lead and iron pneumatic tubes, the sewers, the water pipes, and the underground railway.

Fifteen tons of manganese ore arrived at Stockton, Monday, from the vicinity of Jackson, Tuolumne county, for shipment to Baltimore.

MECHANICAL PROGRESS.

The Cause of Temper in Cast Steel, and its Effect upon its Physical Structure.

The physical structure of cast steel is composed principally of molecules of iron. Those molecules are held in a fixed corrolative position by virtue of the molecular forces; and between contiguous molecules there exists certain cavities known as physical pores. It is conceived that carbon is absorbed and retained within these pores by the force of attraction exerted by the molecules or iron and the atoms of carbon.

The molecular force of attraction is opposed by another force which is due to heat, and the balance of these forces is called the resultant force. These forces exerted by contiguous molecules being balanced in each physical pore, each pure represents a distinct resultant force; therefore the resultant force may vary in different pores. If so, the absorption and retention of carbon will not be uniform.

Any variation of temperature in any part of the structure will cause a corresponding change in the resultant force in such pores as are subject to such change. And as this force attracts more or less carbon, in proportion to its intensity, it follows that a change of temperature in any part of the structure causes a redistribution of the carbon. Hence, I conclude that though the molecules of iron are fixed in a correlative position, that the carbon is transitive, subject to be withdrawn from pore to pore, as the resultant force exerted at each point changes.

When a "cold chisel" made of tool cast steel is heated and suddenly cooled, the point will be white and brittle, because the point being thinnest cooled quickest, and as the temperature was reduced, the molecules were drawn closer together, the resultant force increased, and as each modulus of force absorbs its equivalent, the accumulation of carbon was greatest at the point where the increase of the force was most rapid and greatest, it being so great as to fill the pores to excess, and when the temperature was reduced to the point where the carbon crystallizes, the contraction of the molecules were retarded, and the structure subject to an internal strain. Therefore it becomes necessary in tempering a "cold chisel" "*to draw the temper*. This is done by cooling the point until it is white, and by holding it in the air for a few seconds the heat from the upper part is diffused toward the point, enlarging the pores, reducing the resultant force, and redistributing the carbon; and thus by graduating the resultant force, the distribution of carbon may be graduated, securing the largest amount in the extreme point, and a less amount in the background, where elasticity is desirable to cushion the blow.

The transition of carbon from pore to pore, and the volume at any point, is indicated by varying shades of color displayed on the surface of the steel. These varying shades, I apprehend, are caused by a variable resultant force—physical pores of varying size, and a variable density of structure. All of which are due to the molecular force, and the transitive character of carbon.

Tempering cast steel does not disarrange the molecules in their correlative position, but as carbon exerts the force of attraction in a much greater degree than iron, its presence in the physical pores adds largely to the resultant force of the physical structure, drawing the molecules nearer each other, thus reducing the size of the physical pores, and these pores being filled with carbon, the molecular undulations are retarded, elasticity is lost in rigidity, and porosity in density. That part of the structure which is cooled quickest and coldest, will possess the smallest physical pores, and as the greatest force is exerted in the smallest pores, it follows that the greatest absorption of carbon will be there. Thus the smaller, colder and stronger pores are enabled to rob the larger, hotter and weaker pores of a portion of their carbon, and this transition does not stop until an equilibrium has been established.

In conclusion, the comparative density, hardness and strength of cast steel is due to the molecular forces. The phenomena of temper (that is, one part of the structure being made harder than the remainder) is due to the transitive character of carbon. Tempering cast steel is merely an unequal distribution of the carbon. Nothing is added to the structure, and if performed with care nothing should be lost.—*Cor. Iron Age.*

PREMIUM FOR CIRCULAR SAW.—The Board of Commissions of the Cincinnati Industrial Exposition for 1874, offer a special premium of $100 in gold, in addition to the regularly advertised premium, for the best circular saw. The conditions for competition are: The saws must all be 56 inches diameter, teeth either inserted or solid, gauge at option of exhibitor, eye 2 inches diameter, pin holes ⅝ inch, and 3 inches from center to center. The saws will be tested on the same engine, while diagram cards are taken from the engine during the performance of each saw. This offer is made at the request of the western lumbermen, who are very much interested in good saws and also confident that notwithstanding late years have shown many important improvements in this line, still further economical improvements can be accomplished.

STRENGTH OF BOILER IRON IMPAIRED BY HEATING AND CHILLING.—It is well known that repeated concussions produce a change in the texture of wrought iron, causing it to pass from the fibrous to the crystalline state. It is not so generally known that a similar change takes place, superficially at least, when fibrous wrought iron is heated very hot, and suddenly cooled. Prof. Kick, whose experiments in iron are well known, heated the best Styrian boiler plate in a muffled furnace, not to a red heat but nearly so, and then chilled it. On breaking it was found that the exterior layer, to the depth of about one millimeter, was crystalline, while the inner portion exhibited the same fracture as before heating. In a second experiment another piece of the same material was heated to a bright red heat, dipped in water and broken. In this case, also, the surface layer was crystalline, but more distinctly so than before. The plate tested was 10 millimeters—two-fifths of an inch thick. If the experiment is made with thin plates the change of texture, as might be supposed, extends all the way through the plate. Since the change from a fibrous to a granular structure is attended by a corresponding diminution of strength, this fact may be deserving of notice in the management of steam boilers. If boilers are left empty for some time after blowing out, between hot walls, and then fed with cold water, there must be, in addition to the injurious contraction, a molecular change on the inner surface of the boiler.

WERDERMANN'S PROCESS FOR RE-SHARPENING FILES.—If this process is reliable it must be of immense importance. The *modus operandi* is given as follows: Well worn files are first carefully cleaned with hot water and soda; they are then placed in connection with the positive pole of a battery, in a bath composed of 40 parts of sulphuric acid and 1,000 parts of water. The negative is formed of a copper spiral surrounding the files, but not touching them; the coil terminates in a wire which rises toward the surface. This arrangement is the result of practical experience. When the files have been in the bath ten minutes they are taken out, washed and dried, when the whole of the hollows will be found to have been attacked in a very sensible manner; but should the effect not be sufficient, they are re-placed in the bath for the same period as before. Sometimes two operations are necessary, but seldom more. The files thus treated are to all appearance like new ones, and are said to be good for 60 hours' work. M. Werdermann employs twelve medium Bunsen elements for his batteries.

THE METALINE LUBRICANT.—Considerable has been said from time to time in regard to the new lubricant known as metaline, which it has been claimed has proven quite successful as a substitute for oil. The material is a peculiar alloy which is inserted in cavities made in the interior of the journal boxes, and its effect is to form a thin film over the opposing metal surfaces, and to prevent either heating or cutting. At the late American Institute Fair in New York there was exhibited a counter shaft, speeded to 750 revolutions, in which the bearings were cut down to the diameter of the shaft, one inch. This communicated motion to a short emery grinder spindle, speeded to 3,500 revolutions, and the latter to a cotton spindle, which runs at 14,000 revolutions. It is reported that there was not the slightest cutting visible under these very high speeds, and the amount of heat developed was barely discernible by the touch.

The *Scientific American* says a company has been formed to carry out the invention by supplying bearings of all kinds. According to the same authority this substance has been used on a slotting machine at Patterson, N. J., since 1870, which has never been renewed although the bearings on the same machine always cut with oil.

A SINGLE STAVED BARREL.—An Indiana firm have patented a process which they are employing, by which a barrel is made consisting of only one stave. This is accomplished by turning a steamed log, of the length of a barrel, against a sharp knife of the requisite length, and thus cutting it into a continuous sheet of wood of the thickness for a barrel stave. Enough of this ribbon of wood is then cut off for the circumference of a barrel, and crozed or chamfered by suitable machinery. To give the barrel the proper shape, slits are cut in the two ends by a gang of saws, and the heads are thus brought to the requisite size as compared with bilge. The usual number of hoops are put on, and the barrel thus made is said to be equally as strong as those manufactured in the ordinary way. The principal saving is in the amount of time and labor involved in the process, the cost of material being about the same as in the ordinary manufacture.

INCOMBUSTIBLE WOODEN SHIPS.—The English admiralty is going to put the wood made incombustible by the new chemical preparation the tungstate of soda, to a very severe test. A vessel is being built of which all the wood has been thus prepared. After it has been launched, it will be filled with all kinds of combustible matter, which will be set on fire, then it will be exactly known what results can be achieved in this way. If favorable, wood has the advantage over iron in lightness, absence of rust, and consequent durability, cheapness, less expense in preservation and elasticity, as wooden ships are not subject to leakage after shocks, as is the case with iron vessels at the joints of the plates.

SCIENTIFIC PROGRESS.

The Divisibility of Matter.

An article in the *Journal of Applied Science* says: "So far as our senses, aided by the most powerful microscopes, are able to discern, matter is infinitely divisible. Chemical experiments seem to prove that there is a limit beyond which we cannot go. Let us take a particle of chloride of silver and subdivide it until we reach that limit, and the infinitely small particle of chloride of silver which remains to us is called a molecule. Let us divide the molecule and we have no longer a particle of chloride of silver, but an atom, each, of chlorine and silver. A molecule is so small that it cannot be divided without breaking it up into its constituents. When water is heated and converted into steam, the particles of water become so small that they are invisible; as the heat increases the particles of water break up into smaller ones, until finally the molecule is reached; then increase the heat still more, and the molecules break up into atoms of hydrogen and of oxygen. To this particular phenomenon the name of dissociation is applied. Assuming, then that all matter consists of atoms united in the form of molecules, which may be simple or complex, we have one principle on which to base our system of notation. These atoms, being indivisible, as the word implies, must have certain definite weight, which weight has been relatively ascertained by careful experiments. Ampere has satisfactorily established the following law, that equal volumes of all bodies in the gaseous state contain the same number of molecules. Hence it follows that the molecules of all bodies, when in the gaseous state, are of the same size. This makes it a very easy matter to ascertain the weight of a molecule of any given substance, if that substance be a gas or convertible into gas. Oxygen is sixteen times as heavy as hydrogen; hence if we call the molecular weight of hydrogen two, the molecular weight of oxygen must be thirty-two. Having learned the molecular weight of any simple substance, by finding its specific gravity as referred to hydrogen, we only need to divide that by its atmospheric weight to find how many atoms there are in the molecule of that substance. The atomic weight of oxygen is sixteen, its molecular weight is thirty-two, hence there are two atoms in in its molecule. With a very few exceptions, molecules of all simple substances contain two atoms each. The molecule of a compound body may contain one or more atoms of several different substances, but it always remains of the same size, even if it contains fifty atoms."

ELECTRIC AND GAS LIGHTS.—The London *Daily News* furnishes some interesting comparative information as to the relative value and cost of electricity and gas for lighting purposes. It appears that there are two lanterns placed upon the clock tower of the Houses of Parliament, at an elevation of 250 feet. One of these lanterns is lighted by gas and the other by electricity. The gas light has three burners each composed of 108 jets. The electric light is produced by an electro-magnetic machine, worked by steam power. The House of Commons has just published a report on the comparative value of the two lights which is decidedly favorable to the electric light, which throws off 65 per cent. more light than can be obtained from one of the 108 gas jets. Then as to cost; the electric method gives a saving of 162 per cent., measured in cost per candle, per hour, when a 108 jet gas burner is used, and of 133 per cent., when three burners are used.

STRAW AS A CONDUCTER OF ELECTRICITY.—An extraordinary account has appeared in a French agricultural journal, to the effect that straw forms admirable lightning conductors. It had been observed that the straw had the property of discharging Leyden jars without spark or explosion, and some one in the neighborhood of Tarbes had the idea of constructing straw lightening conductors, which were formed by fastening a wisp or rope of straw to a deal stick by means of brass wire, and capping the conductor with a copper point. It is asserted that the experiment has been tried on a large scale around Tarbes, eighteen communes having been provided with such straw conductors, only one being erected for every sixty arpents or 750 acres, and that the whole neighborhood has thus been preserved from the effects, not only of lightning, but of hail also. The statement comes from a respectable source.

WROUGHT IRON AND GASES.—Dr. A. P. S. Stuart stated before the American Association at Hartford, that an unglazed wrought iron tube, when deprived of air and heated, allows hydrogen gas to pass through its pores, but when externally glazed and heated, such a tube becomes perfectly impervious to gases. Such a tube was therefore, for obvious reasons, well suited for making nitrogen determinations; and experiments, so far as they have been made, promise excellent results. During the experiments made by the writer on this subject, his attention was called to an inference of Prof. Graham on the origin of hydrogen in meteoric iron, and the suggestion was made that possibly such hydrogen did not come from the celestial spaces, but from water decomposed by the hot iron when it was buried in the earth.

The British Association of Science.

The following are abstracts of various subjects discoursed at the late meeting of the British Association for the Advancement of Science:

"Recent experiments conducted at high pressures, by Professor Andrews, show that the compressibility of liquid sulphurous acid (unlike that of water,) diminishes as the pressure increases. In a mixture of three volumes carbonic acid to four of nitrogen, even at two degs. F., carbonic acid cannot be liquified under any pressure. In short, the critical point (a term introduced into this branch of science by Professor Andrews) of carbonic acid becomes lowered many degrees when that gas is mixed with a nonliquifiable gas, such as nitrogen.

The flight of birds. Professor Guthrie, in relation to the hovering of birds, states that, when the bird desires to hover over a given spot, it moves by an expenditure of muscular force until it finds a region where one layer of air is moving, say, from right to left and another from left to right. Then placing its body and most of its right wing in the lower stratum, it tilts its body so that some of its left wing is in the upper layer. By altering its hight, by turning one wing in its socket, and probably also by turning some of the pen feathers on their axis, and altering the inclination of its wings, the bird so governs the pressure on the two wings that the sum of the vertical revolved parts is equal to the bird's weight, while the horizontal revolved parts are equal and opposite.

A self registering apparatus for measuring the chemical action of heat is described in a paper by Professor Roscoe. The tint produced by the exposure of a certain prepared sensitive paper to the sun can be measured on a self-registering principle. By this means can be determined, with a great degree of accuracy, the relative amount of chemical action falling upon the earth's surface from the sun and the variations which take place from hour to hour, day to day, and season to season in that action.

Improved telescopic lenses. Professor Stokes says that, if opticians can manufacture glass containing terborate of lead or titanic acid, lenses made therefrom will greatly decrease secondary dispersion. Phosphatic glass might answer the same purpose, but it has the objection of being too perishable and too soft.

The decomposition of eggs, according to Mr. William Thomson, is due to three agencies: First: a putrid cell capable of being developed within some eggs, no matter how effectually their shells are protected by varnished coverings. This is generated in the yolk, in which the minute granules assume a morbid vitality, absorb oxygen, and liberate carbonic acid gas. The second form is a vibrio. If the shell of the egg be allowed to get wet, the dried bodies of these animalcule existing in the atmosphere develope in the water, assume vitality, enter the shell, and set up putrefaction. The third cause is a fungus, also derived from the atmosphere, which, settling on the shell, sends myriads of filaments through the same, converting the white into a strong jelly. It is strange that this fungus acts on the air like animalcule, absorbing oxygen and liberating carbonic acid gas.

Comets and the Comet of 1874.

W. Tegg & Co., an English publishing house, has collected in a little treatise about all that is known as to the matter and motions of those erratic and little understood bodies called comets. In alluding to our late cometary visitor, we are informed on the authority of Father Secchi and Dr. Huggins that the spectrum of its nucleus resembles that of carbon; and they also found that about one-sixth of its light was polarized. The laws of cometary motion are even less understood than their chemical constitution, for they change their paths as well as their aspects so often and so widely that identification is impossible. Some are even suspected, with good reason, to be wandering visitors of many more sidereal systems than that of our own sun, and many of them are suspected to have parabolic and hyperbolic paths which never return into themselves. The continuous changes which they assume under observation are curious and unaccountable, and no less so in their behaviour in approaching or receding from the sun, which sets all theories of gravitation at defiance. The vibrations of their tails and other phenomena connected with that appendage also perplex the minds of astronomers. Occasionally comets have come very near the earth. Indeed, it is stated on high authority that the earth passed through the tail of the comet of 1861 on the evening of the 30th of June of that year, and Arago has suggested whether the extraordinary mists which in 1783 and 1831 covered a large part of Europe may not have been the result of an admixture of the vaporous particles of comets with the terrestial atmosphere. Comets are further considered, as respects the length or shortness of their periods, and as to their density or rarity, and the various theories of Herschell, Laplace, and others, described and discussed. Of their numbers we are told, in the words of Kepler, that they are as numerous as fish in the sea; a statement to which is added the further one that most comets of our system are visible to us, but the impression left on the mind, after a recapitulation of the observations that have been made upon comets, is that no reasonable hypothesis has yet been constructed regarding them.

The "Mining Bureau."

If there were such a thing as a "Mining Bureeu" the officers of which were perfectly honest and above suspicion, it might be of some benefit to purchasers of mines. But the temptetions are so great and the opportunities are so many, that bureaus have never been a success. Even if the officers were models of good faith and honor tbe public would not believe in the bureau, because there would he so many chances for fraud that it would be difficult to suppose that there was none. Men with capital wbo want to buy mines can get plenty of experts to examine the properties offered, without the necessity of going to any bureau for information; and there is much more chance for honesty in an individual mining engineer, with a reputation to nphold, than there is in a mining bureau, where the responsibility is divided among so many persons. Noue of these bureaus have ever prospered here, nor is it likely they ever will. There has been the semblance of one hovering about for some time, but even this has been broken up. And it is well it has been, for judging from the reports of a case in wbich this bureau figured largely—or rather its representative did—the whole thing was a swindle. The *Chronicle* of this city deserves great credit for having made a fight ageinst the swindle and even more credit for having proved it a swindle, both in and out of conrt. Mr. J. Berton, the head of this bureau, sued the *Chronicle* for libel, for commenting unfavorably on him and his bureau, and after the case was tried the suit was dismissed. In the judge's decision, as reported by the *Chronicle*, he said: The defendants called Berton "a fraud and an adventurer," and the testimony beers them out. A Mining Bureau would be a good thing if it were possible to conduct it honestly. Berton got one up and had full control, and with one other man, Linden, ran it, violatiug every law adopted for its government. Every other member left it in disgust in consequence of its corruptions, even to the Secretary. He then reviewed the attempt to blackmail the Knox & Boyle owners, commenting very severely upon Berton's apparent scoundrelism. He concluded as follows: The Miniug Bureau is unquestionably a fraud of the grossest kind—it is the most corrupt institution I ever heard of. I find that the defendants were justified in their publication, which was warranted in the interest of the community and in accordance with their duty as journalnete to the public. I now discbarge tbem from custody.

This is pretty strong langnage; but we ehould judge by the testimony that it was warranted. Mr. Berton, wbo was "Vice Consul of France" at Sacramento, the capital of this State, has tendered hie resignation and it is about time that he did. The *Chronicle* has tbe credit of unearthiug this fraud and of bringmg the thing before the community in euch a light that it would not be misunderstood.

Mining Accidents.

Last Sunday John Andrews had his thigh bone broken by a cave on the 1,100-ft. level of the Crown Point mine. He also received contnsions on different paits of bis body. On Tuesday James Wood fell th rough a set of timbers on the 1,400-ft. level of the seme mine, but escaped without having any broken boues, altbough severely bruised.

On Thursday of last week a miuer named William J. Blnnt accidentally felldown a chute in the Consolidated Virginia miue 70 feet in depth. He was badly bruised in the region of the spine, bnt no bones were broken,

On the same day Patrick Sullivan, a workman iu the Consolidated Virginia mine, while pursuing hie lebors on the 1,500-foot level, tbe plaukiug on which be was standing gave way, precipitating him into a winze. He fell about forty feet, etriking on his back. He ie severely jarred end injured internally.

An accident occurred last week at the Richmond smeltiug worke at Eureka, occasioned by tbe sudden breaking of the belt of the fan. The shaftiug was considerebly twisted, a pulley cent through the roof of the house, and the machinery generally put out of gear.

A dispatch from Virginia deted the 28th says: As tbe seven o'clock shift were coming np the incline of the Yellow Jacket mine this morniug, a man by the name of John Quinn, who wae seated on the hind end of the giraffe, had his back broken by coming in contact with some of the timbers overhead. Upon examination, it wae diecovered that two of the vertebral joints had parted and slipped past each other. His recovery ie a matter of greet uncerteinty. Quinn had been working in the mine only about two weeks. Tbeacoident was a very unnsuel one, and that the man ehould bave got such a terrible thump seems etrange, when on the morning of the fire in the Yellow Jacket, twenty three men rode upon the eame giraffe in safety at one time. Quiun has a wife and three children depending on him for their support. Even if he doee not die, he will probably never be able to labor any more.

MINING SHAREHOLDERS' DIRECTORY.

Cnmpiled every Thursday frnm Advertisements in the Mining and Scientific Press and nther S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Arizona & Utah M Co	Washoe	10	50	Sept 12	Oct16	Nov 4	J Magnire	419 California st
Belmont M Co	Nevada	4	1 00	Oct 9	Nov 10	Nov 30	O H Bogart	402 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	R W genor	414 California st
Daney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Sninney	320 California st
Empire M & M Co	Washoe	16	50	Oct 21	Nov 27	Dec 21	G R Sninney	320 Oel fornia st
Globe M Co	Washoe	8	50	Sept 12	Oct 16	Nov 4	J Magnire	419 California st
Globe Cons M Co	Washoe	3	50	Sept 12	Oct 13	Nov 4	J Maguire	419 California st
Golden Charriot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaolan	Merchants' Ex
Hale & Norcros M G & S M Co	Washoe	44	5 00	Sept 8	Oct 13	Nov 3	J F Kellner	438 California st
Hub & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball	4?9 California st
Ida Ell more M Co	Idaho	14	1 00	Sept 21	Oct 27	Nov 14	W Willis	419 California st
Independent G M Co	Butte Co Cal	7	50	Oct 5	Nov 5	Nov 26	G T Grimea	240 Montgomery st
Lady Bryan M Co	Washoe	3	50	Sept 18	Oct 20	Nov 9	F Swift	419 California st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 28	Thomas Derby	320 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	J B Cager	507 Montgomery st
Original Hidden Treasure	White Pine		1 00	Oct 12	Nov 14	Dec 9	D A Jennings	401 California st
Pice & Pancas S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	H P Bnsh	Merchants' Ex
Pauner M Co	Idaho	3	50	Oct 26	Nov 30	Dec 21	D Wilder	M rchants' Ex
Pictou M Co	Washoe	6	25	Oct 21	Nov 28	Dec 16	S Phillips	408 California st
Sander-on G M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Leidsdorff st
Segre ated Caledonia M Co	Washoe	2	10	June 22	Oct 14	Nov 2	A O Eyre	308 California st
Silver Hill M Co	Washoe	4	2 00	Oct 23	Nov 30	Dec 22	W E Dean	419 California st
Silver Peak M Co	Ely District	5	50	Sept 3	Oct 10	Nov 2	G T Grimes	240 Montgome y st
Utah S M Co	Washoe	6	1 00	Sept 21	Oct 26	Nov 16	W E Dean	419 California st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Baena Vista Petrolenm Co	Cal	23	75	Oct 5	Nov 16	Dec 14	L Hermann	320 Pine st
Chance S M Co	Cherry creek	1	50	Oct 7	Dno 14	Dec 14	J Marks	414 California st
Esperanza M Co	Nevada Co Cal		20 00	Sept 7	Oct 12	Nov 8	H C Wilde	44 Stewart st
El Dorado Water & Deep Gravel Co	Cal	6	10 00	Oct 28	Nov 27	Dec 12	H Elias	416 Montgomery st
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Excelsior G M Co	Tnolumne Co Cal	14	15	Oct 20	Nov 25	Dec 19	E Chattin	442 California st
Excelsior G M Co	Tnolumne Co Cal	14	15	Nov 20	Nov 25	Dec 19	E Chattin	442 California st
Gold Mountain G M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Cavallier	513 California st
Great Blne Gravel Range On	Cal	6	10	Sept 23	Oct 28	Nov 20	W H Watson	302 Montcomery st
G ld Run M Co	Nevada Co Cal	8	15	Oct 14	Nov 16	Dec 3	C C Palmer	41 Market st
Green M Co	Placer Co Cal	1	50	Oct 7	Nov 10	Nov 30	W R Townsend	330 Pine st
Guadal M Co	Sonoma Co Cal		5	Sept 29	Nov 5	Nov 25	James R Martin	Larue's Wharf
Hayes G & S M Co	Nevada	5	20	Sept 4	Oct 6	Nov 3	G R Sninney	320 California st
Los Prietos M Co	Santa Barbara Co	1	25	Sept 29	Nov 2	Nov 20	S H Smith	6 Montgomery Av
Mount Savage M Co	Utah	1	10	Oct 16	Nov 18	Dec 10	D F Verdenal	409 California st
North Belmont M Co	Nevada	2	10	Sept 30	Nov 2	Nov 18	D L Thomas	419 California st
North Fork M Co	Plumas Co Cal	6	2 00	Oct 24	Nov 20	Dec 4	A Martin	520 Washington st
Omega Table Mt M Co	Cal	4	2½	Oct 15	Nov 23	Dec 14	D Wilder	Merchants' Ex
Oneida M Co	Amador Co Cal	9	75	Oct 8	Nov 11	Nov 30	L Ka lan	Merchants' Ex
Phœnix Tunnel & M Co	Utah	6	25	Sept 6	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Quintero M Co	Nye Co Nev	3	10	Sept 30	Nov 2	Nov 18	H O Kibbe	419 California st
Silver Cord M Co	Idaho	5	1 00	Sept 11	Oct 12	Nov 2	Frank Swift	419 California st
"Sixty-three" G & S M Co	Cal		25	Sept 2	Oct 5	Nov 2	J R Helm	411½ California st
Starr King S M Co	Nevada	8	25	Oct 3	Nov 6	Nov 25	L Kanlan	Merchants' Ex
State of Maine M & M Co	Cal	7	5	Sept 17	Oct 24	Nov 10	J M Buffington	Merchants' Ex
St John G M Co	Kern Co Cal	2	5 00	Oct 2	Nov 5	Nov 23	W R Townsend	330 Pine st
Tecumseh G S & O Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Tolman & Miller M & M Co	Cal		30	Oct 9	Nov 12	Nov 28	J L Trask	306 Montgomery st
Victoria & Imperial P & M Co	Utah	3	10	Oct 7	Nov 11	Dec 5	W H Watson	302 Montgomery st
Wm Shakspeare G M Co	Butte Co Cal	4	10	Sept 23	Oct 26	Nov 12	W E Townsend	330 Pine st
Wyoming G M Co	Nevada Co Cal	4	40	Sept 30	Nov 2	Nov 23	W J Gunn	410 Montgomry st

MEETINGS TO BE HELD.

Name nf Cn.	Lncatinn.	Secretary.	Office in S. F.	Meeting.	Date.
Cosmonolitan M Co	Nevada	D L Thomas	419 California st	Special	Nov 23
Great Western Quicksilver M Co	Cal	A Halsey	312 Montgomery st	Annual	Nov 3
Washington M Co		Called by Trnstees	419 California st	Special	Nov 17
Mount Savage M Co	Utah	Called by Trustees	409 California st	Special	Oct 14
San Marcial S M Co	Mexico	Called by Trnstees	409 California st	Special	Nov 17

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name nf Cn.	Lncation.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 Onlifornia st.	30	July 17
Belcher M Co.	Washoe.	H. O. Kibbe,	419 California st.	3 00	Oct 7
Chariot M & M Co	Cal	Frank Swift	4?9 California st	50	Oct 15
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	3 00	Oct 12
Crown Point M Co	Washoe	O E Elliott	414 California st	3 00	Oct 12
Diana M. Co.		220 Hay st.	220 Hay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor.	419 California st	1 00	July 6
Eureka M Co.	Grass Valley, Cal.	R. Wezener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

Although reports from the principal mines dealt in on the Stock Board continne favorable, the stock market for the past week has been quite dull. Transactions have been comparatively limited and prices have ruled low. On Thursday there was a tumble in stocks and everything fell. It ie hardly probable, however, that the "bottom will drop ont" of stocke just now, with ench wonderful ore developmente ae are now being made in Ophir, Cons. Virginia aud Belcher, and with the very flattering prospects of snbstantial value in Overman, Confidence and Justice.

New Incorporations.

The following companiea have filed certificates of incorporation in the County Clerk's Office, San Francieco:

NOTRH CARSON S. M. Co., OCT.24—Eagle valley, Ormeshy county, Nevada. Directors—L. D. Brown, C. W. Fox, Nathan Leigh, C. E. Ivy and J. H. McCrory. Capital stock, $5,000,000.

JUPITER G. M. Co.; OCT. 27.—Location: El Dorado County. Directors—Alpheus Staples, C. M. Peck, C. J. Eaton, Robert Aitken, J. J Holmes. Capital atock, $3,000,000, divided into 30,000 shares.

WILLOW CREEK S. M. Co., OCT. 27.—Location: State of Nevada. Directors—James Morgan, J. R. Hardenhurgh, J. B. Fargo, George Dodge and Solomon Heydenfeldt. Capital stock, $2,000,000, divided into 20,000 shares.

KNIGHT'S VALLEY LAND AND CONTRACT Co,. OCT. 28.—The object ie to carry on the business of mining and agriculture in Napa and Sonoma counties. Directors—Wm. A. Stuart, E. W. Steele, G. P. Kellogg and Charles Laird. Capital stock, $600,000, divided into 6,000 shares.

EUREKA BULLION.—The bullion report for the past week at Eureka shows a decline in both production and ehipmeut when compared with that of previous weeke. This is owing to the fact that the Ruby Conecolidated and Hoosac furnacee bave not been running and the accident at the Richmond on the 20th instant, spoken of in another column. The latter company are now running only two furnaces, No. 2 being repaired. The bad oondition of tbe roads has materially interfered in the speedy transportation of bullion to the railroad, the wagons not being able to carry more then half loads for the past week. The *Sentinel* etates that the bullion shipment for the past week was 391,280 pounds. The prodnct for the week was 437,055 pounds.

FOUR timee as many patents were issned in thie country last year as were granted in England during the same time.

San Francisco Stock Market.

THURSDAY MORNING SALES.

120 Alpha Con.....18½|100 Globe.....1½
2665 Belcher.....57@56½|355 Hale & Norcros....46@47
91....do.....b 5..56½@57|20....do.....b 5..47
110....do.....b 30..57@57½|40....do.....b 30..48
1040 Best & Belcher..29½@30|1565 Imperial.....10½@10¾
50....do.....b 30 30|825 Justice.....38@39
775 Baltimore Con.....9½@9|100....do.....s 10 36½
50....do.....b 5..9½|185 Julia.....10@4½
123 Bullion.....17½@18|420 Kentuck.....17½@18
420 Chollar-Potosi.....62@61|10....do.....e 10..47¾
50....do.....b 5..62½|50....d.....b 5..48
245 California.....59½@60|510 Knickerbocker.....4½@5
765 Crown Point.....57@58|200 Lady Bryan.....2½@3
20....do.....b 10..57½|250 New York Con.....3½@3¾
30....do.....b 5..57½|355 Overman.....64½@64
100....do.....b 30..58|190....do.....b 5..64½@65
40 Con. Gold Hill Quartz....2|415 Ophir.....58½@59½
210 Confidence.....21@21½|30....do.....b 30..69
845 Con. Virginia.....108@110|45 Rock Island.....4¾
10....do.....b 30..110½|570 Savage.....74@73
315 Caledonia.....8½@20|10....do.....b 30..75
269 Dayton.....5¾@5¾|600 Sierra Nevada....3½@3¾
50....do.....b 5..6|170 Sey. Belcher.....12½@12¾
50....do.....b 5..6½|150 Succor M. & M.....3
150 Dardanelles.....17½|150....do.....b 5..2½
120 Daney.....1½@1¾|575 Silver Hill.....7¼@7½
520 Empire M. & M..3½@3¾|50 Utah.....3½
175 Eclipse.....7½@7¾|710 Yellow Jacket.....91@93
20....do.....b 30..7¾|90....do.....b 5..92@93
1055 Could & Curry...29@27½

AFTERNOON SALES.

75 M Valley.....6¾@6¾|100....do.....b5.....1⅞
225 Ra mond & Ely..17@16¾|80 Indus.....1½
25 Eu Con.....13@12½|705 Kossuth.....2½@2¾
25 Pioche.....6½|100 O G Hill.....1¾
100 Page & Panaca.....3½|250 Le.....1¼
970 Belmon.....8@7¾|50 Pacific.....50
1145 Rye Patch.....3¾@3½|670 Overman.....69@68
200 El Dorado S.....2@1¾|50....do.....b 30..70
100 N Belmont.....10|895 Belcher.....58¾@57½
300 Eldorado North.....1¢|410 Choilar.....64½@63
100 Eu Gr es Valley.....9|405 Y Jacket.....94@92½
400 Calistoga.....10¼@10½|1000 Ophir.....59½@58¾
200 Ida Elmore.....2¼|150....do.....b 30..59½@59¼
36 Golden Chariot.....2½|240 Gould & Curry....28½@28
50 Silver Cord.....1¼|420 Cons Virginia.....113@112
50 St Patrick.....1¼|70 Savage.....7@6¾
200 Senator.....1½|345 Crown Point.....58@57½
100....do.....b 30..1¾|65 Confidence.....22
50 Phil. Sheridan.....50|430 Califo nia.....60½@59¾
250 American Flat...9½@9¾|20....do.....b 30.....61
1145 Union.....10@17⅛|745 Imperial.....19½
2345 Woodville.....2@1¾|30 S Belcher.....130@125

THE San Bernardino *Guardian* says: "The Carter mine, Holcomb valley, will shortly rival even Panamint in interest. Indeed, had such operators as Jones and Stewart taken hold of Bear velley, Panamint would be in the shade."

IT ie reported that work will be commenced on the 8,000-foot tunnel through the monntain near San Fernando on the Southern Pacific Railroad. When this is done we will have railroad conuection from thie city to Los Angeles or even San Diego.

PANAMINT and San Bernerdino will soon be connected by telegrapb.

Gathering and Storing Winter Apples.

People in rigorous climates are in many cases compelled to do just what those in mild climates ought to do, but will not, because they are not compelled to. One of these timely but compulsory labors in the Eastern States is gathering and storing winter apples. Impelled by their dread of frosts, which may be expected in the latter part of September to be sufficiently severe to spoil the nnharvested apples, they attend promptly to this important product, and gather it in about the time when it should be gathered without considering the frost.

If the growers of Californie winter fruit would give more attention to gathering and storing it—apples especially—it would be much better for both producer and consnmer. Apples should be harvested—being carefully picked—as soon as they are ripe, before they show an inclination to fall from the tree. They should be assorted and graded, being carefully handled in every instance. All except the perfect ones should be fed out or converted into cider. The reserved fruit should he placed in a dark room, having a moderately dry atmosphere of equable temperature. Avoid pressurs from weight as much as possible. Plece them in shallow bins or racks, tier above tier, and during the storage season devote a spare hour occasionally to examining their condition, and turn the fruit.

Now, the labor end expense that this calls for is trifling; but it is all that is needed in this country. It is as nothing compared with the treatment which winter fruit demands in the Eastern States. There tbe apples must be picked about the middle of September, and housed above ground until winter fairly sets in. Then a wall about three feet high, and of abont the same thickness, composed of fresh stable manure, tan-bark, or common earth, must be constructed about the cellar on all sides; and in this steaming, nuventilated pit, the apples are to be placed. Tbe apples of the East, under any system of storage, are more liable to rot than those of California; and being more juicy the rot ie soft and wet, and more contaminating. A rotten apple will not only spoil all with which it comes in direct contact, but will infuse a bad odor into apples a yard distant. This rot spreads rapidly, and necessitates picking over; and this, it will readily be seen, ie an irksome, nnpleasant task. Still, by attending strictly to it, tbe people of the East are enabled to enjoy apples the year round, and at as low rates as we get them here. They have their early winter, late winter and spring applee; with golden and Roxbury russets, which last nntil apples come egain.

If a system balf as expensive and laborious were practiced in California, we also could have epplee all the year round, and the market would retain an equable, healthy tone, the producer being able to regulate tbe supply by the demand.

The importance of using all available meens for furniehing a succession of fruite throngb the winter, spring and early summer season, ie, in our opinion, only second to tbat of drying our surplus of fall frnit. The welfare of both producer and cousumer demands attention at this point. The time of year for which tbis system provides is just when fruit is most needed; and there ie no adequate reason why we ehould not have it in abnndance. It is not enough that it is obtainable as a luxnry; it should be placed within the reach of tbe poor at all seasoue. We believe that providence designs that the poor of this country shall have fruit as well as bread to eat; and failing to get either, it will be a difficult matter to make them believe that the fault all lies with ths middlemen.

On the 1st of November next the Virginia and Gold Hill Water Company will commence laying their pipes from Lower Gold Hill to Silver City. The material required for thie pnrpose has been ordered from the East and will arrive in a few days.

THE two furnaces erected for the California Borax Company, at Sulphur Banks, Lake county, are proving quite a success. They produce daily, from the lowest grade ore, twelve or fifteen flasks of quicksilver.

NINE furnaces are now buey at Eureka, and together they produce about seventy tone of argentiferone lead per day. The base bullion contains on the average about $200 in eilver to the ton.

WORK is to be reeumed on the Emme mine. The company have made an arrangement with T. W. Park, who has the property nnder attachment, by which the owners take possesion.

MINERS in Calaveras county are actively preparing to resume operations. The canal is running at least two-thirde full, and there is no danger of a diminntion of the volume this season.

THE Carson City mint is being eularged. Upward of half a million dollars will be coined this mouth—the largest amount of work done in one montb since the mint started.

Mining Summary.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

AMADOR COUNTY.

Amador Quicksilver Mine.—*Ledger*, Oct. 24: The latest intelligence from this mine is very encouraging, and the indications now are that the mine will soon be developed into a very valuable one. At the depth of 35 feet a drift was run a little south of east, and a very fair vein of ore was struck; afterward the main shaft was sunk to the depth of 75 feet, and a drift run from the bottom of the shaft immediately under the upper drift, and, after blasting through the wall, the same vein of ore was again discovered, clearly proving the vein not only to be regular, but that the ore was confined between clearly-defined walls. The vein carrying ore has thus been proven to the depth of 75 feet, and clearly dissipates all doubts as to its being a regular formation. We are informed that the ore taken from the 75-ft. level looks remarkably well.

CALAVERAS COUNTY.

San Bruno.—*Chronicle*, Oct. 24: A small crushing of eighty tons of rock from the San Bruno mine, at Mosquito, yielded $2,100. That is an average of $26.25 per ton—a good yield for quartz-sorted rock. We learn that the owners of the mine intend putting up steam hoisting works immediately.

DEL NORTE.

Gravel.—Cor. Crescent City *Courier*, Oct. 24th: The work of breaking through the vein-rock of the Happy Camp mine is progressing satisfactorily. The ground prospects well, the bed-rock shows gold at every hand, and the clearing up of the bed-rock through which the cut runs yields $2,000.

INYO COUNTY.

Panamint.—*Independent*, Oct. 24th: E. A. Reddy, we learn that the machinery for the big mill for that place is beginning to arrive. The Stewart and Jones companies are working every available man (to say nothing about some 90 Chinamen) in the camp, preparing for the mill, building freight and ore roads and upon their mines. The camp displays an extraordinary amount of activity. The number of persons in the camp is about 500 or 600.

A Mill for Gold Mountain.—General Page informs us that in a very few weeks he will have a fine new new mill in full blast at Gold Mountain. It is to have but five stamps but they weigh 1,000 pounds each, and on the rich ores of that district will doubtless turn out piles of bullion.

LAKE COUNTY.

Quicksilver.—*Bee*, Oct. 22: Last week some very rich deposits of quicksilver were reported nearly opposite Lakeport. The two furnaces erected by Mr. C. A. Luckhardt, for the California Borax company, at Sulphur Banks, are proving quite a success. They produce daily from the lowest grade ore, 12 or 15 flasks of quicksilver.

MARIPOSA COUNTY.

Mine Bonded.—*Gazette*, Oct. 24: The Harbert mine, situated near Fine Gold gulch, Upper Fresno, has been bonded to Mr. James McMachin for twelve months. Mr. McMachin informs us that it is his intention to set a gang of miners at work immediately, and thoroughly test the mine.

NAPA COUNTY.

The Mines.—*Free Press*, Oct. 24th: Captain E. Green informs us that they have two furnaces, one a Knox & Osborn, and one of his own invention, at work and are turning out ten flasks per day. They have just commenced operations and their machinery is not in good running order. When everything is in good running order they will turn out about 30 flasks per day. The Great Western is considered by all to be skirting the hills. We expect ere long, to pay a visit to the Western and will give a full description of it. About 150 men are now employed. Mr. M. Freidburg of the Geyser mine, showed us some rich rock this week, which for richness cannot be surpassed. He says the further they get into the tunnel, the richer the rock proves. All connected with the mine are highly pleased with the prospects. Alex. Badlam informs us that he will ship eight silver bricks next Monday from the Calistoga mine to Borland & Deane, San Francisco. Alex's face is all smiles, and his boots are as large and "foxy" as ever.

A Copper Mine.—*Reporter*, Oct. 24th: W. B. Roberts of Yountville, is the fortunate discoverer of what he claims to be a good copper mine, on St. Helena mountain. Since the Calistoga mine has proved the richness of Mount St. Helena in silver and gold, there is no limit to the discoveries of mines on it—nor of their kind.

Pope Valley.—*Register*, Oct. 24: The Washington continues on as usual, taking out ore and reducing. The Rucker is prosecuting the work of development. They have a shaft down to the ledge, and a tunnel started. A gold-bearing ledge has been discovered, and a number of specimens were lately sent down. The Etna company are working on the Valley and Silver Bow mines, taking out very fine ore. Messrs. Norton and Kester went up Monday to put in a new blower, and with a good stock of ore on bond it is expected that a rich yield of quicksilver will be the result.

NEVADA COUNTY.

Omaha.—*G. V. Union*, Oct. 28: We yesterday saw some splendid rock which had just been taken out of the Omaha mine. The specimen was firm and lively quartz, showing richly in free gold and plentifully studded with rich sulphurets. The specimen was taken out at a depth of 160 ft. The ledge there is about 16 in. thick, and is enclosed between perfect walls. The shaft is still sinking for a third level, and is about 40 ft. below the second. Water is quite free in the bottom of the shaft.

Moore's Flat.—*Union*, Oct. 25: Times are very lively. The mines are running full handed and some splendid clean-ups have been made during the past week, among which is one made by the Illinois company. After a six weeks' run they cleaned up $11,000. The Bluebank company cleaned up in the neighborhood of $12,000 after a short run.

Pittsburg.—*Tidings*, Oct 24: A crushing of 15 tons of Pittsburg ore cleaned up at the Larrimer mill this week is said to have resulted in the product of $900 in gold, or $60 per ton, and over two tons of sulphurets, assaying at the rate of $250 a ton. The shaft of this mine is now down over 100 ft. and the first level started.

The great tunnel at North Bloomfield is nearly completed and the work of taking out dust, many little grains of which it will take to reimburse the millions of dollars expended on this work, will soon be the programme. This is understood to be the greatest gravel mining enterprise ever undertaken in California.

Large Blast.—*Transcript* Oct. 28: W. A. Roberts, of the Manzanita mine, has been having drifts run and will in a day or two put in a blast of between four and five hundred kegs of powder. The Manzanita, we learn, will be worked with all the force which can be put on the coming season. The run this summer has been a very successful one and proves the mine one of the best in this vicinity.

Rich Rock.—We learn that very rich rock is being taken out of the California and Gold Tunnel mines. Both are owned by the same company. A sufficient depth has been attained to prove their richness beyond a doubt. The success of the company is gratifying and the richer the rock the better it will suit all around.

PLACER COUNTY.

Mining Items.—*Argus*, Oct. 24: We are gratified to be able to state that the St. Lawrence mine is looking well. Work is steadily advancing, and the prospect is of the most encouraging character. We shall not be at all surprised to hear of rich developments in this mine, at an early day. A. A. Pond & Co., fired a blast in their gravel claim at Todd's Valley on the 16th, that was probably the largest ever exploded in the county, Eighteen hundred and fifteen kegs, or forty-five thousand, three hundred and seventy-five pounds of powder were used.

In the Orleans mine work is progressing favorably. The main shaft is down 95 feet, and is in better ore than has yet been found. The east drift is still being pushed, and is now 123 ft. east of the east shaft. It has all the time been in good ore, and at the present time the rock taken out shows free gold in encouraging quantities. The Eclipse mill is pounding steadily away, and will continue to do so till the end of the month, when it will clean up. From the amount of quicksilver used, it is judged the clean-up will be a good one.

Greene Mine.—It is claimed by those who know something of the inside of this mine, that the reasons which caused work to be suspended for a while were not that it did not contain plenty of paying ore.

Booth Mine.—The ledge holds its own in thickness, and the rock, both at the bottom of the shaft, and at the end of the east drift, continues to show an abundance of free gold, altogether indicating very high grade ore. The company have just made a contract with the proprietors of the Eclipse mill to crush 600 tons of rock, from which it is reasonable to anticipate flattering returns.

Crater Mine.—Work at the Crater mine is progressing with considerable earnestness. The prospects are rather encouraging. At the bottom of No. 2 shaft, 150 ft. deep, and which they are still sinking, they have a ledge about 15 in. thick, that pays $25 to the ton. They are also extending the east drift from shaft No. 1, on the 312-ft. level, with good prospects as they go. While this work of sinking No. 2 shaft, and extending the drift on the 312-ft. level is going on, another force is at work stoping out the ore between the 150-ft. level and the 100-ft. level, in order that the mill may be kept in motion. The rock now being taken out from between the last named levels is paying from $21 to $25 per ton.

Nevada.

WASHOE DISTRICT.

Ophir.—Gold Hill *News*, Oct. 22: The ore in the stopes of the west ore body, at the bottom of the winze, 85 ft. below the 1,300-ft. level, continues of the usual fine character. The north winze from east cross-cut No. 2 is down 95 ft., the entire distance in the finest quality of ore. On the 1,465-ft. level the east cross-cut, No. 3, 50 ft. north of the California line, is in 95 feet, with almost the entire face of the drift in rich ore. This is without a doubt a continuation of the rich ore body found in the north winze from the 1,300-ft. level; also the rich body of ore struck in east cross-cut No. 2, 180 ft. further north. A winze has been started 40 ft. from the mouth of this cross-cut, and is down 15 ft., the bottom in ore that assays from $70 to $200 per ton. The rich ore body in east cross-cut No. 2, is being opened out for breasting operations, and looks better every day. It is now breasted out for 30 ft. in width, in ore assaying from $300 to $700 per ton. A northeast drift has been started from this main east cross-cut, which is in 35 ft., the face still in ore of a fine character. There is no longer the least doubt of the great extent and richness of the ore developments of the Ophir, the resumption of its payment of dividends now being only a matter of time.

Consolidated Virginia.—Daily yield, 300 tons of ore. The north drift on the 1,300-ft. level is still pushed ahead, the face in fine ore. The ore breasts on both the 1,300 and 1,400-ft. levels are advancing steadily to the northward, both in ore that mills from $70 to $100 per ton. The several cross-cuts are all still in fine ore, with the exception of the north cross-cut, on the California line, which has about 60 ft. yet to run to reach the ore body. The north drift on the 1,500-ft. level of the Gould & Curry, which penetrates the ledge 38 ft. below the 1,500-ft. station of the shaft, has been driven through the ore body, a distance of 110 ft., the average assaye of the car samples ranging from $150 to $250 per ton. The body of ore in this drift is the richest on the Comstock, and its width and extent is yet entirely undetermined, as no cross-cutting from that drift has yet been done. A second winze 100 ft. south of the connecting winze between the Gould & Curry and Consolidated Virginia, has just been completed, passing the entire distance through rich ore.

Belcher.—During the past week there has been considerable increase in the amount of ore extracted from this mine. The largest day's work was that of day before yesterday, amounting to 700 tons. All of the mills employed in crushing Belcher ore are being run up to their full capacity, the Enreka mill alone working 185 tons per day. Yesterday the company's hoisting works were shut down for the purpose of making some repairs, which will be completed to-day. The new air shaft is down to the 1,000-ft. level, and its beneficial effects as regards ventilation are felt even down on the lower levels of the mine. The miners are able to work on the 1,300 and 1,400 ft. levels, without any particular discomfort from the heat. The mine is looking well in every part.

Sierra Nevada.—Sinking the main shaft is again progressing finely, the bottom having passed through the soft clay body, recently encountered, into a firmer and much more favorable character of rock for sinking. The flow of water from the bottom still continues quite strong, although showing a marked decrease in quantity. The pump handles the water with the utmost ease. The north drift from the Sierra Nevada tunnel passed through the body of white quartz and ore recently discovered, at a distance of 40 ft. from where it was struck, and is now being pushed ahead to make the connection with the old works as first intended. Another prospecting drift has just been started from this tunnel to cut and prospect a southwest body of red quartz and ore discovered during the early prospectings of the old Sierra Nevada shaft. Daily yield, 65 tons of ore, keeping the mill steadily running.

California.—The drifts from the Consolidated Virginia and the Ophir on the 1,400 ft. level have been connected, giving a fine ventilation of the mine to that depth. The drifts from the Ophir and Consolidated Virginia on the 1,500-ft. level are so nearly connected that the men can very distinctly hear each other at work, and it will now be but a very short time until the two are connected. As soon as the connection of these drifts are completed, cross-cutting the 1,300, 1,400 and 1,500-ft. levels will be commenced. A drift has been extended 80 ft. from the south line of the Ophir into the ore body, on the 1,465-ft. level, which is of the finest possible character, the last 20 ft. being in ore that will mill $100 per ton.

Julia.—The shaft is now as fine a working shaft as there is on the Comstock lode, and when the new pumps are once in good running order, the development of the mine will be prosecuted with all the vigor possible.

Gould & Curry.—Cross-cutting northward at the fourth station level shows a fine, extensive body of quartz, but no ore that will pay for extracting. Sinking the north winze from the 1,500 to the 1,700 ft. level is making good progress. It is now down 90 ft. An air pipe is being carried from the compressor to this winze for the purpose of driving a small engine to do the hoisting.

Crown Point.—Daily yield, 550 loos of ore. The ore breasts are looking well and yielding finely on all the different levels. The ore stopes just being opened on the 1,500-ft. level are opening out splendidly, and promise a rich yield The face of the main south drift on the 1,500-ft. level is in rich ore. The mills are all running up to their full working capacity, and good returns for the month may be looked for.

Hale & Norcross.—The main incline is down 25 ft. below the 2,100-ft. level, the bottom in rock of extreme hardness. Opening the 2,100-ft. level is making good headway. The main south drift on the 2,000-ft. level is in 90 ft., the face in porphyry.

Woodville.—The ore stopes on the 200-ft. level are still yielding finely, as are also the stopes on the 300-ft. level. The ore vein below the 300-ft. level is 15 to 20 ft. in width, with 5 to 6 ft. of rich ore. The machinery, for an addition of 10 stamps to the mill, is on the ground and will be erected at the earliest day possible.

Dayton.—The ore breasts north, on the second station level, are showing much improvement in the quality of the ore extracted.

Imperial-Empire.—The main east drift on the 2,000-ft. level is being pushed with all the energy possible, to cut and prospect the ledge. Sinking the north winze on the 1,850-ft. level is making good progress, the bottom still in fine ore. The bottom of the south winze on the 1,850-ft. level is also in rich ore. The ore in the face of the main south drift on the 1,850-ft. level is still of a fine character, though slightly broken up.

Utah.—Prospecting the 400-ft. level both north and south is still vigorously prosecuted in the hope of yet finding pay ore.

Sutro.—The main west tunnel has entered a heavy clay wall, and has passed into a body of ledge material of a compact formation, carrying some quartz and almost perfectly dry, there being no water whatever to impede the steady progress of the work.

New York.—The streak of ore in the north drift from the main west tunnel on the 560-ft. level still continues of a good quality.

Globe Consolidated.—The ore in the face of the main west drift at the 400-ft. level is showing considerable improvement. The ore body struck a short time since in the north drift from the main west tunnel is opening out finely. It is now 15 feet in width, and appears to be widening out to the northward.

Bullion.—The main north drift from the 1,700-ft. station of the Imperial is driven vigorously ahead, the quartz in the face showing a steady improvement during the week.

Senator.—The main west drift on the 400-ft. level yesterday encountered some fine ore prospects, the assay ranging from $15 to $30 per ton.

Overman.—Sinking the main shaft is making steady headway. The face of the north drift, on the 1,200-ft. level, is still in ore of a fine quality.

Lady Washington.—Considerable water has been encountered in the bottom of this shaft during the week, which impedes the progress of the sinking.

Challar-Potosi.—About 70 tons of ore per day is being extracted from the old workings, the assay value of which is $30 per ton.

Caledonia.—Opening out the new station 77 ft. below the 1,000-ft. level.

Yellow Jacket.—Drifting both north and south on the 1,740-ft. level is making good progress without any change to report.

Dardanelles.—The new shaft is down 140 ft., at which depth a strong flow of water was encountered. Finding the flow of water too strong to be handled until the new machinery was in running order, the sinking was stopped and a station opened for the purpose of drifting to the ledge.

Genessee No. 2.—Sinking the main shaft as usual.

Justice.—This mine is once more in full work, with everything going ahead as before the recent trouble.

Kossuth.—Sinking the main shaft is making splendid headway, the rock in the bottom blasting out finely. The east cross-cut, from the main south drift on the 200-ft. level, during the week cut through a fine body of ore, 10 ft. thick, lying directly against the east wall of the ledge.

Knickerbocker.—A station has just been opened at the 700-ft. level, and in two or three days more a drift will also be started from that station for the ledge.

Leo.—There is no particular change to report of the ore producing sections of the mine. The timbers are being put in preparatory to commence raising up on the main shaft.

Nevada.—The ledge in the lower tunnel shows continued improvement as the tunnel is driven ahead, giving excellent assays which show that milling ore is close at hand.

Savage.—Sinking the main incline is making the usual good progress.

Silver Hill.—Prospecting at the second and third station levels is being vigorously prosecuted both north and south.

Rock Island.—Draining the water from the 200-ft. level is being prosecuted with all the vigor possible. The flow of water is gradually decreasing.

Mint.—Sinking the shaft is still progressing finely.

Buckeye.—Sufficient ore is being extracted to keep the Hope mill running.

Baltimore Consolidated.—Cross-cutting on both the 450 and 750-ft. levels is being vigorously prosecuted.

Iowa.—The prospecting tunnel west is still driven vigorously ahead.

Union Consolidated.—The east cross-cuts on the 1,300-ft. level are looking much more favorable.

East Belcher.—The new working shaft, with its three compartments, is being sunk at a very energetic rate, with excellent prospects.

Florida.—The main shaft has attained a depth of 347 ft.

Sutro Tunnel.—The header is now in 7,600 ft. The daily rate of progress is 12 ft. in good working ground which does not require timbering.

It is estimated that there are three hundred men engaged in active mining pursuits in Napa county.

Last month 3,450,000 pounds of bullion was forwarded over the Utah Central road.

Quicksilver prospectors are still locating in the coast range of Stanislaus county.

Newark Mining District.

A recent visit to this locality, says the *White Pine News*, has convinced us that a bright future is in store for this really meritorious district. Upon the advice of Mr. Stratton, superintendent of the works and mines, Mr. A. Long, one of the directors of the company, and a large, owner therein, is at present making a visit to the property. In conversation with him we ascertained that the company still have perfect faith in the richness and permanency of the mines, and are prepared to advance money to properly develop the same. A smelting furnace of 40 tons' capacity is now being erected at the town of Newark, and will soon be ready to start up on ores from the mines situated on Diamond Mountain, but a short distance from the site of the furnace. Mr. Bassett, of Eureka furnace notoriety, is the builder, and having procured the lining stone from the Pancake stone quarry, no doubt can be had that the venture will prove eminently successful. The Dictator mine, one of the leading ones of this district, is now being worked under contract by several miners, and has recently shown a large and rich deposit of ore, which assays show, goes as high as $200 and $225 per ton. The body of ore referred to now shows a width of three feet, with every indication of widening as depth is attained. Much feeling is expressed by the miners in relation to an item appearing in a late number of the Eureka *Sentinel*, in which it is stated that the ore contains much copper. The contrary is the case—no trace of copper is to be found—in fact the ore is of a free milling character. The Diamond mine is also looking remarkably well, showing quantities of free milling ores, which are being rapidly extracted and placed on the dump ready for transportation to the furnaces. The Battery mine is also being successfully worked, and producing large quantities of pay ore. Many other locations are showing well, and all bid fair to become leading properties. The feeling among managers and employees seems to be one of great unanimity of hopeful sentiment in the future of Newark district, one in which we most heartily share. When the new furnace is finished and a start made, we are of the opinion that our oft repeated theory of the success of smelting as against milling for this district will be fully realized. At Newark, we met our old friend Gus Gould, of Austin, who, we are informed, will be retained at Newark in the employ of the company. Gus has been enough among miners and miners to know all about the management of them, and his presence there presents another argument in favor of the eventual success of this district. For years the management has been of the worst order, and only persistent and well directed efforts by the present powers that be can bring back the faded glories of this mineral-bearing district. The district is also noted for its extensive ranching interests and stock grazing facilities. Down the road to Cold creek, a distance of some twenty miles, we find some of the finest ranches to be met in the country. Frank Beachman and McMinniman, have both large tracts of fine land under cultivation, and each the possessors of a large number of cattle. We were so sadly pressed for time on our last visit that we found it impossible to visit Cold creek, where are located many other fine ranches. Newark district as a mining location, and Newark valley, as a farming country, is, we believe, unsurpassed in Eastern Nevada.

VALUE OF BIRD'S-EYE MAPLE.—The Green Bay *Advocate* says: "The machine of S. C. Carpenter and Dr. M. E. William, for cutting veneering, which we have previously described is an undoubted success. It does its work smoothly and well. It is a knife shaped like a pencil-sharpener and commences cutting at the end of the log, the log feeding into the knife or the knife to the log, on a common lathe, the veneering coming off in the shape of a scroll. There is a machine for cutting veneering from round blocks, but it is different from this. In that the knife is parellel with the log, and in some kinds of wood the beauty of the grain is lost, while with the knife set at an angle it is preserved. A few words will give an idea of the profit of using a machine like this. A bird's-eye maple log scaling 1,000 ft can be put down at the manufactory for $6 to $8. The machine cuts the veneering one twenty-fourth of an inch thick, and the log would therefore cut about 24,000 ft. Two men, it is thought, could cut the log in half a day. At one cent per foot the veneering would be worth about $240. But this veneering is now worth six cents per ft, or $1,540 for the log."

Cocoa Nut Palms.

The Oriental scene represented on this page shows a group of cocoa-nut trees. These trees are found all over the tropical regions; but generally growing within reach of the sea or salt water, and often taking root on sandbanks or thinly covered reefs almost directly after they appear above high water. The tree rises from 60 to 90 feet in hight and affords food, drink, oil, clothing and shelter to the natives. It has a soft fibrous stem marked out its bark by rings. In hot climates every part of the tree is made use of. The natives chew the root as a substitute for the areca; the stems are used as uprights and supports for houses, and for making many domestic implements; the leaves form a thatch or are made into umbrellas, baskets, buckets and lanterns; their ashes yield potash in abundance. The fibrs from the nut is woven into cloth, ropes, mats, sacking, etc. From the juice of the stem is obtained an oil, also a coarse sugar, and by distillation a kind of an ardent spirit; while the pith, dried, ground and washed forms a farinaceous food similar to sago. The fruit itself is a wholesome food and its milk a cooling beverage and forms the chief aliment of many of the natives. The fibre of the shell is used for brushes; the shell is turned and polished into drinking cups and measures, while the substance of the nut itself when pressed, yields a large quantity of oil which is used for many purposes. The unexpended buds of the tree form, when boiled, a delicate and much esteemed food.

GROUP OF PALM TREES.

A. E. HALLENBACK writes as follows to the N. Y. *Sun*, from Canandagua, Mich., Oct. 5th: On Thursday, October 1st, while scraping out the county ditch on his farm in Seneca township, Lenawee county, Michigan, Oramou Tuttle came in contact with an obstruction that overturned his scraper. On examination it proved to be an immense horn, the remains of some extinct animal. Further digging has developed the other horn, part of the skull, collar-bones, and a number of ribs; also one tooth. The water running back into the pit has put a temporary stop to the digging, but it will be resumed this morning, and measures will be taken to preserve the bones. The animal had evidently died standing up.

I have just visited the spot and examined the bones and the place from which they were taken. A large number of physicians and professors of the Hillsdale and Adrian colleges pronounced them horns and not tusks. They have an outside shell and a distinct pith.

The space occupied by the skeleton is over twenty feet long, and the tip of the horns were about twenty feet apart. The ends of each are decayed, but they now measure eight feet nine inches in length, and must have measured about ten feet when whole. Three feet from the large end they are twenty-two and a half inches in circumference, and they weigh 175 pounds each. Some of the ribs were seven feet long. The tooth secured is a frontal tooth, three inches square and weighs four and a half pounds. They have been viewed by several thousand people, many of whom have seen the tusks of the mastadon, which are quite common in this State, and all those agree that they bear no resemblance to them.

The animal's horns must have measured twenty feet across. His hight was probably about fifteen feet, and length, independent of horns, nearly twenty. The above statement is perfectly reliable. There is no canard about it, and, if you think proper, you are free to publish it.

The Coloration of Metals.

It is possible to color metals rapidly and at very little expense by means of covering their surface with a film of sulphurous solution. In some minutes, by means of this composition, any objects in brass or gun-metal can be given a tint of gold, of copper, of carmine, of maroon, of bright aniline blue, a paler blue, and finally a pinky white, according to the thickness of the film, which, again, depends upon the time during which the metal is plunged into the solution. The colors thus obtained have a beautiful luster, and if the objects have first been subjected to the action of acids or of alkalies, the colors adhere so intimately to the surface of the articles that they will resist the action of the tools used to polish them.

To prepare the solution, 42·5 grammes of hyposulphite of soda is mixed with 450 grammes of water; to this must be added 45·5 grammes of acetate of lead, dissolved in 225 grammes of water. In rising this solution to a temperature of 190 deg. to 200 deg. Fah., it is decomposed, and the sulphide of lead is precipitated in the form of black flakes. If the metal is present, a portion of the sulphide of lead is deposited out it, and the colors, as we have before described are produced according to the thickness of the deposit. In order that they should be uniform it is necessary to heat the objects equally throughout. Iron thus treated takes a steel blue; zinc takes a brown color.

If in the place of acetate of lead an equal quantity of sulphuric acid is added to the hyposulphite of soda, and the operation is carried on in the same manner, but at a slightly higher temperature, gun-metal or bronze becomes a beautiful red, then green, and finally an irradiated tint of green and red, striking and beautiful. This last color deserves remark from the fact that it is durable, which is not the case with all the other colors.

It is possible to obtain most beautiful imitations of marble by means of a plumbic solution thickened by adragant (tragacanth) gum applied to bronze previously heated to 210 Fah. It is treated finally with the ordinary solution of sulphide of lead. This solution will serve for many operations.—*Iron.*

SUBMARINE PHOTOGRAPHY.—Dr. Neubmeyer's plan of a photographic apparatus, designed for the determination of the temperature and currents at the bottom of the sea, is described as follows: "A copper box hermetically sealed is provided with an exterior appendix made like a rudder. A mercurial thermometer and a compass are in the interior, each in a glass receptacle, into which are admitted traces of nitrogen gas. A small electrical battery completes the contrivance. When the apparatus is lowered into the sea, attached to a sounding line, the action of the current on the rudder indicates the set of the flow, by the relative position of the compass-needle and rudder. The temperature is recorded by the thermometer. To fix these indications, a piece of photographic paper is suitably disposed near the glass case containing the instruments. At the proper moment, a current of electricity is established through the gas in the receptacle, causing an intense violet light, capable of acting chemically upon the paper for a sufficient length of time to allow of impressing photographically thereon the images of the compass-needle and of the mercury column. The time required for this register is said to be three minutes, after which the instrument is hoisted the paper removed, and replaced by another for a second observation.

UPWARDS of 500,000,000 eggs were imported into the United Kingdom from France last year.

Rattan.

Rattan comes from the Moluccas—principally from Singapore, Pedang, Penang, Samarang, and St. Simon's Bay. Of all the rattan collected in the East the United States consumes three-quarters of the total product, the imports amounting now to something more than 6,000,000 pounds. There are rattans and rattans, and no less than ten different grades can be found, which vary in price from two cents up to ten cents a pound. The first quality should be of a bright color, of a straw yellow, but in addition must be supple, and not sticky, a trade word, meaning dull and wanting in elasticity. It requires a great deal of experience to decide what is good rattan, or the kinds which will work up best for particular sorts of goods. The very choicest rattan comes from Bassamassing. Both outside and inside have their special uses.

The Calamus Rotang belongs to that particular species of palm which secretes in its cuticle a very considerable amount of silica, while its inside is made up of of tough and fibrous filament. The outside, with the smooth natural varnish, when stripped off by particular machinery, is used for seating chairs. There is a single factory in the United States which turns out daily enough chair cane to cover 20,000 chairs. The inside of the rattan is shaped by machinery either round or flat, and so worked up into innumerable articles. Baskets, brooms, mats, matting, are all made from the inside of the rattan, and an immense quantity of it is worked around demijohns.

Both the inside and outside of the rattan are employed in the manufacture of furniture. This branch of industry we have undoubtedly copied with Chinese accuracy from India. Perhaps even with the addition of our numerous mechanical helps we have but very little improved on the models as to the appearance or solidity. There is an exquisite comfort, a luxurious ease, about a real rattan *chaise longe*, such as is made at Singapore, that we can hardly equal. Split rattan is made up into some half dozen different sizes, and is then sold by the 1,000 feet. The finest qualities of rattan are also used by whipmakers. This large and constantly increasing business may be estimated by the fact that one factory in New England alone employs 1,000 operators, and that the total number of people working in rattan (the schoolmaster excluded) is fully 18,000. The capital used in the manufacture of rattan is about $2,000,000.

NEW NAVAL GUN CARRIAGE.—A new naval gun carriage and platform are to be experimented upon at Woolwich Arsenal. The invention is said to utilise the application of hydraulic power to such an extent that all the work of the gun detachment, with the exception of taking aim, may be dispensed with. A peculiar railway truck, adapted to the purposes of a gun carriage, is also about to be tried. Before going to the expense of making these carriages the principal was tried in a rude way with an ordinary railway truck on the ordinary rails which were level with the ground. A gun was securely fastened to the truck with chains and fired with a 500 lb. projectile and 80 lbs of gunpowder. When discharged the gun and its extempore carriage recoiled about 100 yards along the level line, and Major Maitland R. A., the Assistant Superintendent of the Royal Gun Factories, by mathematical calculations, arrived at the conclusion that by inclining the rails upwards towards the rear at a very slight gradient the recoil of the heaviest gun would be kept within reasonable bounds.

LONG BLAST.—The St. Louis *R. R. Register*, says: The longest blast of a charcoal furnace yet announced is that of the Shelby Iron company's furnace at Shelby, Alabama. It has now been working continuously for three years and seven months, and has made an average of 100 tons per week since it blew in. The greater part of the production has been an excellent iron for car wheel purposes, and its quality ranks it among our very best American irons. The ores used are limonites, yielding, when roasted, about 53 to 54 per cent. in the furnace. The consumption of charcoal has been 130 bushels (of 18½ lb.) per ton of pig iron produced. The lining of the furnace is of fire brick, made at the works from clay found in the neighborhood. The manager, under whose excellent administration these works have been so successful, both financially and metallurgically, is Mr. Walter Crafts.

Good Health.

Importance of Wholesome Beds.

Sleep to the working man is emphatically Nature's restorer—rsinvigorating the physical system, whioh through mnch toil has beoome weary, and keeping up the flow of life and apirits whioh are necessary to the performance of the arduous duty of farm-life. A comfortable bed, as we are all awars. conduces greatly to one's rest. On this subject a recent writer says:

Of the eight pounds whioh a man eats and drinks each dav, it is thoaght that not lese than five poands leaves his body through the skin.

And of these five ponnds considerable percentage escapes during the night while he is in bed. The largest portion of this is water, but in addition there is much *effete* and poisonous matter. This being in great part gaseous in form, permeates every part of the bed, mattress, blankets, as well as sheets, which soon become foal and need purification.

The mattress needs the renovation qnite as much as the sheets. To allow the sheets to be nsed, without washing or changing, three or six months would be regarded as bad honse keeping; bnt I insist if a thin sheet can absorb enough of the excretion of the body to make it nnfit for nse in a few days, a thick mattress, which can absorb and retain a thonsand times as much of these poisonous excretions, needs to be purified as often, certainly as once in three months.

A sheet can be washed. A mattress cannot be renovated in this way. Indeed, there is no way of cleansing a mattress but by steaming it or by picking it to pieces, and thns, in fragments, exposing it to the rays of the snn. As these processes are scarcely practicable, with any of the ordinary mattresses, I decidedly am of the opinion that the good old-fashioned straw bed, which can every three months be changed for fresh straw, and the tick be washed, is the sweetest and healthiest of beds.

If, in the winter season, the porousness of the straw beds makes it a little nncomfortable, spread over it a comforter or two woolen blankets, which shonld be washed as often as every two weeks. With this arrangement, if you wash all the bed coverings as often as once in two weeks, you will have a delightful, healthy bed.

Now, if yon leave the bed to air, with open window during the day, and not make np for the night before evening, yon will have added greatly to the sweetness of yonr rest, and, in consequence, to the tone of your health.

I heartily wish the change could be everywhere introduced. Only those who have thns attended to this important matter can judge of the influence on the gentle health and spirits.—*Maine Farmer.*

Paralysis.—Paralysis is becoming a prime disease. It is not confined to the fleshy, the plethoric, nor to the aged. The fast life of our business young men tells on them. It is a very common thing to see men of 30 and 35, bald headed, feeble-gaited, and walking about with canes, their nnderpining knocked out, with other signs of premature age. These sigos of early weakness develop in paralysie. Sudden deaths from this cause are very common. Several have occnrred in railroad trains, the vibration seeming to predispose persons to the disease. Not long since a gentleman died in one of our churches. He was interested in a case of discipline. He made a report to the church on the case, sat down, laid his head on the back of the seat, and instantly expired. In another case a man not accustomed to pnblic speaking arose to relate his religious experience He was so excited that he could scarcely speak. In the midst of his remarks he was seized with paralysis, and carried to his home. Our young men will have to tone down their style of living if they want to amonnt to anything.

The Neck.—Perfect health demands that the clothing about the neck should be very moderate in quantity, and worn so loose as to prevent the slightest compression. The great error frequently committed in clothing this part of the body consists in wearing snch an amount as to overheat and weaken the throat, and thns render it easily snsceptible to cold, or in wearing it so tight as to retard the circulation of the blood to and from the head. Great care shonld be exercised upon this point, as the arteries and veins leading from the heart to the brain are situated so near the surface in the neck that a slight compression there serves to check the flow of the blood. Many cases of congestion of the brain and headache are caused by too tight collars and cravats.

No Appetite for Breakfast.—No judicious parent would let a child go to school without breakfast. If there is a habitnal lack of appetite in the morning, there is snrely some difficulty behind it, and it will inevitably lead to greater difficulties in the future. No breakfast means a lunch in the forenoon, a lunch means no appetite for dinner, a little dinner means a heerty snpper and no appetite next morning. Insist on a light supper, early rest at night, and allow no studies and no excursion to proceed, unless some food can be taken. The habit will soon be formed, or there is some serious disorder, which needs the co-operation of some good physician.

Washing the Inside of the Body.

There is no cavity in the body which water is not fitted for if you get it in properly. Why, one of the best things yon can do is to wash your blood, and the great folly we commit in going through our lives from childhood to the grave, is that we do not wash our blood as we ought. Infusions of coffee, tea, chocolate, or cocoa, or cider, or beer, do not wash the blood, because with the fluid so taken in, something is carried in also which befouls and defiles the blood. Just let a man say to himself, "It is Saturday night, I have worked hard all the week, and Sunday shall be a day of rest to me. I am now going to give my whole system between this and Monday morning a good thorough washing," So he begins to drink, and drink, and drinks but little at a time, yet between Saturday night and next Monday morning a healthy man can drink without producing any disturbance a gallon of water. Now let this come into and go through his circulation—through his lungs, and skin, and kidneys, and bowels, and waste materials are carried out—and when Monday morning comes, if he jumps out of bed and gives his external skin a good washing, the water that he washes in will be foul. Or if he prefers to test that question even more thoroughly, all he has to do is to take a clean sheet, and then wetting it in good, soft, pure water, be wrapped up in it for forty-eight or sixty minutes, and then have the sheet washed in a tub of water, and it will color that water so it will look dirty. The man has been washed inside—his blood has been washed. When you have washed his blood, tissues, bones, nerve, muscle, sinew, membrane and brain, and everything in him, he can defy all pestilence for that week. The washing of a person's ouside is twice as necessary as the washing of a person's clothes, and yet there are those who are very particular to have their clothes washed with great care, who are not at all particular to wash themselves.

Paragraphs Worth Remembering.—Benzine and common clay will clean marble.

Caster oil is an excellent thing to soften leather.

Lemon juice and glycerine will remove tan and freckles, and will cleanse and soften the hands.

A dose of caster oil will aid you in removing pimples.

Spirits of ammonia, diluted a little, will cleanse the hair very thoroughly.

Useful Information.

Protection of Wood Joists.

Mr. James John, architect, of Chicago, has given a public test of his newly invented method of protecting wood against fire by wire lathing and plaster. A paper of that city speaks as follows:

"Mr. James John gave a public and very thorough test of his new patent concrete filling for the protection of a wood joist and ceiling against fire. A brick building 12 1-2 feet square and 11 feet high, with two windows and a door, and two floors of wood joist, was erected in the vacant lot opposite the City Hall, the joist of both floors being filled with the fire-proof concrete. The entire space inside was then filled with combustible material and set on fire. The fire burned over an hour and a half, reaching a degree of intense heat; but neither of the floors were injured. It is claimed by Mr. John, and this severe test goes to demonstrate it, that brick buildings with ordinary wood joist in the floors, if protected in this manner, will resist the progress of fire even better than buildings erected with iron beams. The fire cannot, it is claimed, communicate from one floor to the other, and the joists remaining in their places, the walls will be left standing. Iron beams, when subjected to intense heat, expand or sag, often bringing the walls down with them; but the concrete filling is said to be absolntely impenetrable and immovable by fire or heat. The cost of such a structore is said to be about half that of iron beams, while the experts present gave their full approval to this style of straoture."

Lime Deposits in Water Pipes.—It has been pointed out by M. M. Fabre and Roche, with reference to deposits of lime in lead water pipes, that wherever there is a joint in the pipes made to connect tin conductors or copper faucets, at such points carbonate of lime is most abundantly deposited. If a piece of silver be placed inside in contact with the lead pipe it will become covered with the carbonate in a very short time. The investigators find that all metals, electro-negative with relation to lead, are thus affected. A voltaic couple is in fact formed, and a veritable chemical precipitation caused.

Wet boots, says an authority on the subject, should not be dried by the fire, as this is a mistake. When the boots are taken off fill them quite full of dry oats. This grain has great fondness for damp, and will rapidly absorb every vestage of it from wet leather. As it takes up the moisture it swells and fills up the boot like a tightly fitting last, keeping its form good, and dries the leather without hardening it. In the morning shake out the oats and hang them in a bag near the fire to dry, ready for the next wet through.

Origin of the Circular Saw.

The origin of the circular saw—an invention which might justly be compared to the locomotive and the telegraph in its importance to mankind—has been of late the subject of considerable discussion, in our own columns and elsewhere. We have an interesting communication on this topic from Mr. S. C. Barton, of Peterson, Minn., who writes: "In a recent issue, under the head 'The Invention of the Circular Saw,' you remark 'the credit of this invention has been given in some quarters to a citizen of Vermont, now deceased.' I think this refers to Wm. Kendall, late of Fairfield, Maine. He died, I think, within the past year. As long ago as I can well remember—perhaps about the year 1825—he built a circular saw mill at Waterville, Maine. His first saw was seven feet in diameter, built of plates of iron, riveted together at right angles, being made thin at the outer edge, but about six inches thick in the middle, where it fitted the arbor. It was made plain on one side and conical on the other, so that the board had to be sprung from the saw as it was cut. It could therefore only be used in cutting thin stuff. The teeth were fitted to the outer edge of the saw, something as the saw-manufacturer, Emerson, now fits teeth. To steady the saw, he built a powerful force pump to throw a very small jet of water on the opposite sides of the saw. He afterwards either rebuilt or enlarged his saw to nine feet diameter. It was driven with a wheel of his own invention with a half cross belt from a drum on the upright shaft. It was not a success. He was a noted water wheel man as well. He took out a patent on his wheel and made considerable money from it; but I think he did not save much. If I am wrong regarding the date of his invention, some of the older citizens of Waterville can put me right."—*Liffel News.*

Adjusting the Harness to the Horse.—Every part of a harness should be buckled up shorter or let out until the harness fits the horse as nearly as a pair of boots that are of the proper size for one's feet. The collar should fit closely, with space enough at the bottom to admit a man's hand. If too large it has the bad effect of drawing the shoulders together. On no consideration should a team or any work horse be compelled to wear a martingale, as it draws the head down and prevents him from getting into an easy and natural position. The check rein may be used, but only tight enough to keep the head in a natural position, and should never be wound around the hames. See that the hames are buckled tight enough at the top to bring the draft irons at the proper point on the side of the collar. If too low, it not only interferes with the action of the shoulders, but gives the collar an uneven bearing. Caution should be taken that the girth is not buckled too tight, particularly on string teams, for when the traces are straightened it has the tendency to draw the girth against the belly and distress the horse.

Cleaning Bottles.—Many persons clean bottles by putting in some small shot and shaking them around. Water dissolves lead to a certain extent, and a film of this lead attaches itself to the side of the bottle so closely that the shaking or rinsing with water does not detach it, and it remains to be dissolved by any liquid with the least sourness in it, and if drank lead poison may be the result; sometimes a shot becomes wedged in at the bottom of the bottle, to be dissolved by wine or cider. Therefore it is better to wash every bottle, as soon as emptied, with warm water and wood ashes, or saleratus, and put the bottles away, mouth open and downward; but be careful to wash again when used, as flies and other insects frequently get into bottles. Clippings of iron wire are a better means of rinsing. They are easily had and the cleaning is rapid and complete. The iron is attacked by the oxyen of the air, but the ferruginous compound does not attach to the sides of the bottle, and is easily removed in washing, besides a little oxidized iron is not injurious to health. It has been found that the slight traces of iron left have no apparent effect on the color of red wines; it has on white wines but very little, and it might be better to use clippings of tin for the latter.

To Make Good Casting.—The carelessness that produces rough castings is most inexcusable. Well mixed facing and care in moulding is the whole of the secret of having clean castings with a fine blnish surface. The foreman who constantly produces casting that require pick hammering to free them of sand that has burned itself to the metal, does not understand a most important feature of his trade. The roughest of all work is rough castings; and yet the remedy is simple—care in moulding and good facing constituts the whole of it—large work as well as small can be made nice and smooth in green sand by attention to these two things, and the amount of after labor that can be saved is no inconsidereble matter. No man is worthy to be a foreman who does not appreciate all that can be done in the way of good foundry work by attention to care in moulding and well mixed facing.—*American Manufacturer.*

Thickness of the Walls of Iron Clads.—The heaviest armor yet attached to the turret of any iron clad in European waters is 14 inches. The thickest American iron clad turret is 15 inches. The Steven's Battery now nearly finished in New Jersey, and belonging to that State is to have a turret with walls of iron from 16 to 18 inches in thickness.

Domestic Economy.

Cooking Eggs.

Eggs bear a relation to other animal food similar to that which seeds bear to other vegetable food. They are the depositories of vitality, stored up to form a new link in the continuation of the species. They are probably the purest form of animal food, though they compare unfavorably with seeds in many respects. They lose their vitality sooner, and they partake more or less of whatever impurities may have belonged to the animal that produced them. They are not so nutritious as some of the seeds, and they require more care in cooking.

Like seeds, one of their principal ingredients is albumen, which is nearly pure in the white; but, unlike vegetable albumen, it coagulates with heat; if the heat is great, becomes so hard as to be extremely difficult of digestion. Hence eggs are more easily digested raw than cooked, and hence also the objection to hard boiling. Dr. Beanmont found bits of hard-boiled egg-white, no larger than a pea, sometimes remained in the stomach after everything else had yielded to the action of the gastric juice. Snch logic is unanswerable. He deduced from it the importance of careful mastication. We women can go a step further and find in it an intelligent reason for so cooking the eggs that they will not require this extra care. Fried eggs are still worse than those which are boiled, both because snbjected to a greater degree of heat, and because of cooking fat into them.

Even in the common method of boiling them rapidly in "three and a half minutes" the albumen next the shell is quite too hard. It should be uniform and custard-like, and this is secured by the method, now becoming quite common, of merely letting the eggs stand from seven to ten minutes in hot water. This should be boiling hot at first, but the cool eggs reduces its temperature somewhat. The exact time required will vary with the relative proportions of eggs, and water with the size of the eggs, with the heat and thickness of the utensil used, with the warmth of the place where it stands, and with the weather also, a little more time being required in dull weather. The cook will soon learn what allowance to make for her utensils; and for the rest she must use her judgment every time. They are not so easily spoiled however, as in boiling. If left in a little too long they can be plunged in cold water for a minute or two. If kept hot until the yolks stiffen, the yolks will not be hard. The yolk should be cooked just enough not to break rapidly when turned out. These are properly speaking, not "boiled eggs," but "curdled eggs."

These curdled eggs make an admirable dressing for many breakfasts dishes—boiled samp, oatmeal mush, cracked wheat, and especially for small hominy. The gentle method of cooking egg may also be observed in making egg-toast. Have the milk almost boiling, in a flat dish, and break in the eggs one by one, cooking a few at a time, and being careful not to let them run together. Sprinkle in a little salt, and let them stand hot and covered until firm enough to take up without breaking. Then have ready some split better biscuit (gems), softened in hot milk and laid on a platter, and when the eggs are done dish them one on each half of a biscuit and serve warm. This is a handsome dish, and though not quite so digestable as hominy dressed with eggs curdled in the shell, it is still far better than fried potatoes and griddle cakes that form the staple of so many breakfasts.—*Science of Health.*

Bread Muffins.—Take four slices of baker's bread, and cut off all the crust. Lay them in a pan and pour boiling water over them; but barely enough to soak them well. Cover the bread, and after it has stood an hour, draw off the water, and stir the soaked bread till it is a smooth mass; then mix in two tablespoonsful of sifted flour, and a half-pint of milk. Having beaten two eggs very light, stir them gradually into the mixture. Grease some muffin-rings; set them on a hot griddle, and pour into each a portion of the mixture. Bake them brown; send them to the table hot; pull them open with your fingers, and spread on butter. They will be found an excellent sort of muffin, very light and nice.

Delaware Biscuit.—Take as much flour as will do and use judgment with regard to the amount of lard. Some folks like more some less. They are neither so light nor good when too greasy. But salt to the taste and rub it all together, then add cold water slowly and as little as will possibly answer. Make the dough so very stiff that you can neither knead nor beat it, with any comfort, until it is set away awhile—some twenty or thirty minutes, when it softens a little. Then beat it until it is very light, make out the biscuits and bake in a quick oven, which had better be too hot than too cold. Cover up the dough when set by to soften. They bake in fifteen or twenty minutes, if not too large, and when done they feel very light.

Spanish Puffs.—Put into a saucepan a teacupful of water, half a teaspoonful of salt, and two ounces of butter. While boiling add sufficient flour for it to leave the saucepan; stir in one by one the yolks of four eggs, drop a teaspoonful at a time into boiling lard, fry them a light brown, and pour white wine and melted butter over them.

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Breaking Propeller Blades.

A cable dispatch states the Pacific Mail steamship company's new steamship, City of Peking, when one day out from New York, on her way to this city lost one of the blades of her propeller, and on the twelfth day out lost another blade. She put into Rio on the 19th inst. Otherwise, all well. She was supplied with duplicate blades, and also a coffer dam to use in replacing her blades, and she may possibly be detained there from ten to fifteen days. She left Sandy Hook on Monday, September 28th, at 8:45 A. M., and with the loss of the blades, as above stated, she made the run to Rio, 5,000 miles, in about 20 days. Mishaps of this character are now so frequent that inventors should turn their attention to the matter with a view of making some practical prevention.

The Panama steamer "Costa Rica" broke her shaft 40 miles from land, 100 miles from San Diego, October 25th, and has been towed to that port by another steamer. This is another case in point.

The cause of breakage of propellers is generally due to "racing" of the propeller, caused by coming suddenly out of the water and again plunging into it with greatly increased momentum. This is unavoidable in a sea-way, even with deeply laden vessels, though it is more apt to happen in those lightly laden. One invention was announced a short time since to remedy this, but whether it has been practically applied or not we are not informed. Trials have been made which are said to have been satisfactory. It consists of a pneumatic air chamber, which communicates with the sea through a sea-valve, and with the throttle valve of the engine, and acting somewhat after the principle of the Westinghouse air-brake on steam cars when the train is broken. This pneumatic governor is simple and instantaneous in its operation, and cuts off the steam from the engines by the transference of pressure the instant a heavy sea begins to lift the screw out of the water. The adjustment is such that when or before the propeller is raised out of the resisting medium, and before acceleration can ensue, the throttle has served its purpose and the shaft been relieved from all tension. If this device is as efficacious as claimed, it ought to do much to prevent accidents of the character spoken of above.

Street Cars.

Horse cars are a necessity in all populous cities, and only truck drivers and people who have private carriages would ever think of doing away with them. Still the passengers as well as pedestrians find considerable to grumble at about street cars, and some of this grumbling is done with a good show of reason. In the first place whenever you want to cross the street and a team is coming rapidly up splashing mud and dirt, it seems as if that inevitable car was exactly on the crossing and in your way. Whereas if you want to take the car, it has just passed or there is none in sight. We do not know that this is always the case, but our experience has shown it to be very often so. There are in this city at most crossings three rows of flags for pedestrians; and the drivers of the street cars have by long practice and experience learned how to cover exactly these three flags with the hind end of the car. This serves to block up the crossing very effectually, by which the driver shows his independence of public opinion. When there is a woman with two or three children, an umbrella and several bundles, all to be taken into the car, the faces of the pedestrians, who await her motions, are a study for a philanthropist. This annoyance could easily be prevented by the companies instructing the drivers to stop at the last flag, as the steps of the car would then be over that flag, leaving the two others for pedestrians to pass behind the car without being interrupted. There is now an order in force by which car drivers must only stop on the second crossing, so as to keep the cars off the crossstreets. If one extra flag were placed on each side of each track just off the crossing, the car could stop beside that flag and the passengers enter without stepping in the mud, while at the same time the crossing would be available. An extra row would not be needed, as one single flag for the special use of the street cars could be laid on each side of and between the tracks at each crossing. We think this suggestion will be carried out some day, as it seems eminently practicable and attended with little expense.

Everybody growls about overcrowding cars, while at the same time everybody persists in doing exactly what they themselves growl about. So part of the fault of this lies with the public as well as with the car companies. If people seem content to stand up inside or on the platforms after the seats are filled, of course we can't expect money making car companies to prevent them. The only way to obviate this, is to adopt the French system of compelling the conductor to show a sign when the car is full and to compel the passengers not to enter the car after the seats are filled. If the companies were fined as the steamship companies are when they carry an overplus of passengers, this reform might be adopted. But some system must be in vogue which will be independent of the control of the indifferent; a compulsory one in fact, as people *will* crowd everywhere.

One of the "growls" which we, individually, want to make, is the absence of ventilation in our street cars. We seldom enter one of our city cars, especially when the public is going home from its daily labor, without thinking of this matter, and wishing that some inventor who is meditating on a new washing machine or patent churn would bring his inventive faculties to bear on an improved system of ventilation for street cars. If the Spring Valley Water Co. sold water cheaper, or the waters of our bay were warmer, or James Lick's projected public bath-house were completed, this question would not obtrude itself so frequently. But it is a lamentable fact that none of these conditions are fulfilled, and that the "great unwashed" is as numerous in this city as elsewhere. And the individual "unwashed," lured by cheap fares, rides in the street car, without the slightest idea that his presence is offensive, or that his more refined neighbor is making a mental calculation as to the date of his last bath. It is sad to confess that these cases are not rare, and that the neglect of personal cleanliness in one person is allowed to inconvenience a car load of fellow mortals. The care are for rich and poor alike, of course, and they ought to be; but while cases like those spoken of above exist, the companies ought to have their cars ventilated in such a manner as to afford more comfort to the better class of passengers. To realize what we have referred to the skeptical need only enter a street car on a winter's afternoon when a crowd is going home from work.

The cars are then damp, uncomfortable, close and unwholesome, and this is so well known that many people prefer to walk in the rain instead of riding. As a means of ventilation we remember reading some time since in an Eastern journal a suggestion to the effect that by taking out the glazed sash which covers the ventilators over the doors and substituting instead one with Venetian slats inclined upward as in an ordinary blind, the cars could be ventilated. By this means the current of air would be directed upward and distributed through the car before it came in contact with the passengers. They would thus be unconscious of its admission and the opening could not be entirely closed, as is now the case. The sash or frame with the slats could be fixed or made to turn. In either case it would be impossible for people indifferent to carbonic acid gas and organic odors to exclude entirely the pure fresh air, which is so necessary to our health and comfort. This idea might easily be adopted by the car companies, as it would entail little expense. With the front and rear ventilators open there would be a constant current of air with little draught, which would keep the atmosphere purer than it is now with every crevice closed up and the car at the same time crowded with passengers.

If we wanted to grumble further we might mention the habit of conductors in a hurry of starting a car so suddenly as to cause the passenger to take a seat whether there was one left or not; that of the driver of stopping as if he had struck a rock; that of the presence of fleas, etc., in the dirty carpets or straw, on the floor; windows which were once open will not shut or when once shut will not open (Query: can't some one invent a car window which is ready to work on all occasions?); allowing very wet umbrellas in the car and not having a stand for them in each corner; but we think we have grumbled enough on one subject for a while. We feel assured, however, that we grumble not alone and that many other people will coincide with us in saying that there are many defects to be rendered in our street car system before it is perfect.

Magnetic Iron Ore in Sand.

About eight years ago it was discovered that there existed on the north coast of Labrador large quantities of magnetic iron ore in sand, but for a long time no one could be induced to seriously take in hand the working of the mineral wealth, whose existence was undoubted. It seems, however, that the time has come at last when those who, for eight years past, have vainly endeavored to find a market for this magnetic ore, which lies in such abundance on the north coast, will see their efforts crowned with success. This species of sand has been known for several years, but to Mr. Lamothe, of Montreal, belongs the honor of having contributed to their working and development. A company was formed, and forges were built at Moisie. These works have been in operation ever since. A short time was sufficient to show that magnetic sand was to be found not only at Moisie, but almost all along the north shore. The richest deposits are, however, at Matashquan, Kegashka, St. John river, Moisie and St. Marguerite. Other deposits are also found elsewhere, but not of such considerable importance. Several experiments have been made to purify this sand in a rapid and economical manner, and to make steel by the direct process. According to *Iron*, both these problems have been solved. The secret of purifying we owe to Prof. Larne, of the Laval University, and the other we owe to Mr. Lahreche Kiger (now deceased), of Montreal.

The black sand deposits of the Pacific coast are known to be large, and if the method employed spoken of above is as practical as claimed, we ought to utilize our deposits. It might not pay to concentrate for the iron alone, but where our miners on the northern coast concentrate this sand for gold, they might save the concentrated iron sand for future use. It might either be shipped or worked here. Of course, at present, the concentrated sand is thrown away as useless, but it ought to be stored away for future use.

Two young gentlemen from Quebec, having great hopes in this new industry, have, according to *Iron*, induced some English manufacturers at Swansea to buy this black sand when prepared. They began in June to put up the necessary houses at a place called Black Point, between St. John's river and Mingan, and 23 men have ever since been constantly employed in preparing the sand, which contains in a rough state 30 per cent., and when prepared 99 per cent. of magnetic iron ore. These men prepared ten tons of it per day last summer, but arrangements are being made by which 30 tons per day can be prepared.

The experiments already tried for the fabrication of steel, and the quality produced, give sufficient security to rely on the success of this undertaking. Quebec has established a factory for the fabrication of steel from this sand, and Messrs. Duval and Michand have already sent up several tons of the ore to that city. At Matashquan, also, an establishment is being put up. The richness of the ore discovered in Labrador excels the similar deposit at Taranaki in New Zealand; and there is a probability that the industry thus developed will rapidly extend and become an important item in the commerce of the province. If these people can make a success of it, now is the chance for some of the people on this coast to reap a harvest also. Our deposits are extensive and claimed to be very rich, but they have never been utilized as yet.

THE proposed tunnel under the channel between France and England is thirty miles long—about twenty miles under the water and five miles on each side, of gradual approach. The long approach is made necessary by the great depth of the tunnel, which will be 200 feet under the bottom of the channel.

A New Antiseptic—Salicylic Acid.

Hitherto salicylic acid has possessed only theoretical interest on account of the occurrence of its methyl ether in wintergreen oil, and because of its close relation to the phenols and benzoic acid. But Professor Kolbe has shown a possibility of its extensive practical application and has at the same time discovered a method of making it cheaply in large quantities. He says: "After many months' trial, I have at last succeeded in gaining the clue which has led me to the discovery of a new, simple, and productive method of making salicylic acid. In dissolving sodium in hot phenol in the presence of a stream of carbonic acid there is always found, besides sodic salicylate, more or less sodic carbonate and phenylate. And I observed that the more of the former salt there was, the less was found of the two latter. I further observed that a product rich in sodic phenylate and relatively poor in sodic salicylate yielded richly of the latter salt when further heated in a stream of carbonic acid."

His attention being arrested by this fact, he began a series of experiments, which resulted in the discovery of the process which he describes as follows: "The method of manufacturing salicylic acid, upon which I finally settled and by which I have already prepared about 50 pounds, is the following: Saturate exactly commercial crude soda lye of known strength with crystallized carbolic acid previously fused, evaporated in a shallow iron vessel. The sticky, dough-like mass is now heated moderately with constant stirring, being finally powdered with a heavy pestle. This dried product is sodic phenylate. It is always a reddish yellow in color, perhaps on account of partial decomposition by the oxygen of the air during the evaporation, is very hygroscopic, and must while yet hot be bottled and kept well stopped. If the sodic phenylate is moist, or contains ether, free alkali or carbolic acid, the results are not good.

"The sodic phenylate thus prepared is heated slowly in a metal retort in an oil or air-bath. When the contents of the retort are about 100 degs. (cent.), begin to lead into the mass a moderate stream of carbonic acid. Let the temperature slowly rise, till after some hours it stands at 180 degs. After further action of the carbonic acid, phenol begins to distill over towards the last in greater abundance. Finally raise the temperature to from 220 to 250 degs. The operation is finished when at this temperature, under the continued influence of carbonic acid, no more phenol distills over.

"When the reaction is finished the residue in the retort is (if the operation has been conducted properly) a grayish white mass of sodic sodium-salicylate. The following equation represents the reaction:

$$\left.\begin{matrix}C_6H_5O\,Na\\C_6H_5O\,Na\end{matrix}\right\} + C\,O_2 = \left.\begin{matrix}H\\C_6H_3O\,O\,Na\end{matrix}\right\} O\,Na + C_6H_5O\,H$$

"The salt dissolves easily in water, to a dark brown fluid. Upon the addition of hydrochloric acid the whole forms a thick paste of salicylic acid, which contains only traces of phenol. It may be perfected by the usual methods." Curiously enough, upon repeating the experiment with potassic hydrate, not salicylic acid, but its isomer, peroxyhenzoic acid was formed.

"Knowing that salicylic acid may be easily made from phenol and carbonic acid, and on the other hand that it is decomposed into phenol and carbonic acid on heating it above its boiling point, I came to suppose that like carbolic acid it would retard or entirely prevent fermentation and putrifaction. Prof. Thiersch and myself having experimented in this direction find surprising confirmation of my conjecture."

To solutions of emygdalin, mustard, grape sugar and beer, was added a small quantity of salicylic acid, and these solutions were compared with others to which none had been added. The results were most satisfactory, fermentation being checked by the addition of a very minute quantity and completely prevented by the addition of a somewhat larger amount. In the preservation of meat, too, experiments were tried with a most satisfactory showing for this new antiseptic agent. After a month's exposure to the air the meat remained perfectly sweet, the salicylic acid with which it was impregnated being not at all disagreeable to the taste. The Professor looks to a probable practical application of that discovery by the South American meat preserving establishments. Furthermore this acid offers a substitute for carbolic acid in surgery as an application for wounds.

Prof. Thiersch reports: "Experiments thus far give good grounds for hoping that salicylic acid has all the good properties of carbolic acid and none of its drawbacks."

A WEALTHY inventor, Charles Clifton, has just died in Jersey City, leaving a fortune of $250,000. He has bequeathed all his wealth to an institution for the teaching of practical mechanics in Manchester, the cotton metropolis of Great Britain.

THE Santa Barbara stage road is being extended to Los Prietos mines.

Improved Heater for Cheese Vats.

Georgo Harris, of Petaluma, Sonoma county, California, recently applied through the Scientific Press Patent Agency for a patent on an improved heater for cheese vats and other purposes. The patent has been granted, and we herewith illustrate the invention. The principal feature is the method of distributiug the water, hoated so that it will give the same temperature at all portions of the vessel within which it is contained. For purposes of economy it is necessary to construct the vessel in which the wator is heated of some substance which is a non-conductor of heat, and within which water can also be boiled. Tho vessel is in this instance mede of wood. For the ordinary purposea of a water hoeter this vessel may be square, or with slightly tapering sides, and whou employed to heat water for a cheese vat it may he sunk below the level of the main part of the tank.

To heat the weter a metellic fire hox is constructed, made probably iu trausverse section, like an ellipae, as shown in Fig. 2. Openings are made in each end of the hox, the opening in one end being large enough for the fireplace to pass without touching the wood at all. At one end the fireplace is left its full diameter, and is provided with a flango which is securely fastenod to the outside of the water vessel, so as to be watertight; thus leaving a narrow space all around the fireplace which prevents the latter from touching the wood. At the front end the firodoor and grate aro placed. The opposite end of the fireplace may be reduced so es to form a floe, for the escape of smoke, and this flue passes through an opening at the other end, also provided with a flange, and so secured as to be watertight. By this arrangement the inventor gains all the advantages of a metallic fireplace, surrounded by water which will be quickly heated, while the containiog vessel is of such material that the heat will be retained for a long time without radiation.

In its use for a heater for cheese vats the vossel forms a part of the whole tank, as shown in Fig. 1 of the engravings. Much difficulty is experienced in keeping all parts of the vat at the same temperature, but in this device this is accomplished by the use of a wooden cover, which fits over the heater portion of the tank and extends to almost the middle of the tank. This cover rests on narrow ledges or strips, which just allow the heated water to pass ont toward the middle of the tank. The vat rests on longitudinal strips on top of this cover, and also upon the transverse strips secured to the remainder of the bottom. This bottom is in a line with the cover, so that the tank is really divided into a heating compartment and a distributing compartment.

Beneath the transverse strips are hollowed ont so that the water as it comes from beneath the cover can pass freely to the opposite end of the tank, while the longitudinal stripa offer no obstruction to its free flow to the end over the heating chamber above the cover. By this construction the inventor is enabled to produce a nniform temperature throughout the vat and at a small expenditure of fuel. When the work is finished, and the whey to be drawn off from the vat through the cock, it is desirable to cool off the vat as quickly as possible. This can be done by drawing off the hot water down to a point below the cover, by means of a cock, and then filling the space between the vat and the sides and bottom of the tank with cold water. But a small quantity of water will be needed for this cooling process, as the vat very nearly fills all the space close to the sidea and bottom of the tank; and the water around the fireplace will be hut little reduced in temperature, so that when necessary the whole can be speedily elevated to any desired temperature again.

A blast of 700 kegs of black powder was fired iu the claims of the Blue Tent Consolidated hydranlic gold mines on the 23d inst. Tho blast waa fired by Farmer's electro-dynamic blasting machine, the first used on this coast for the purpose. The Nevada *Transcript* says thet the amount of gravel thrown down, and the condition of the bank after the blast, has convinced all miners in this section that it is the only true way to blast to get the best results and full benefit of powder used. The bank was 150 ft. high. The main drift was 100 ft. back with three cross drifts, T's or L's. each 60 ft. long—280 feet of drifting in all. The bank was thoronghty shaken for over 60 ft. beyond the extreme back drift. Messrs. Park & Lacy, agents of the Burleigh drills in this city, are introducing thia blasting apparatus on this coast. We will shortly give a detailed description of it, es soon as the engravings can be prepared.

The miners of Ruby Hill and other mining districts have organized a Miner's Union. At the first meeting of the members, held at Ruby Hill on the 19th inst., the following officers were elected: President, M. L. Coady; Vice President, William Faught; Financial Secretary, Morgan Kavenaugh; Recording Secretary, S. S. Ritchie; Treasurer, A. Randolph; Conductor, Frank Birt; Warden, Frank Coyle. The organization promises to he a success.

The coast survey in Humboldt county is nearly completed.

Mechanical Drawing.

At the eascmbly of the students of the University of California on Friday of last week, John D. Hoffman gavo a lecture on "Mochanical Drawing," from which we take some extracts: In speaking to-day about drawiug, said tho speaker, I shall take a strictly professional view of the subject. I shall tell you how you may become practical draughtsmeu, and show that the surveyor eugineer, either civil or mechanical, ought to be a practical draughtsmen.

Drawing is the graphical representation of objects, either real or imagined—imagined in our case expressly for the purpose of being carried out in nature and becoming real. Now let me sketch the career of the draughtsman: His first practice will be free-hand drawing. All first practice is difficult and somowhat irksome. When you take your pencil in haud and find that you cannot do with it what you want to do, you ere apt to feel discouraged and thiuk that to do it requires *special talent*. Disabuse your mind of this idea. All that is required is the conviction that *real work* has begun, end must he carried on with earnest, thoughtful application. Without this apulication the most exalted talent will produce comparatively little. Let us look at some real work, executed for industrial purposes—for instance, the designs on calicoes, wall-paper, designs for carpets, etc. Try to copy them or invent some new ones and you will find that it requires a goodly amount of practice to produce anythiog as good. These designs are mostly produced in the factories by young men and women. By the by, girls make excellent draughtsmen. They have to work expeditiously, and are certainly not paid as artists. The necessity of supporting themselves has made them thoughtful and industrious, and their training rarely cousists in more than the first practice I recommend to you, zealously carried through. To become efficient in your profession, you are required to go through Calculus. Now, I have never met the person who discovered at the outset that he had a special talent for it; still it must be learnt, and you learn it, and ere glad of it afterwards. Drawing, in the same way, must he learnt.

After a little while of intelligent practice you will find that you had more talent thau you supposed at first, and the good opinion of yourself will increase with your progress, and with it the enjoyment in your work. All of you can become good practical draughtsmen, getting more and more expert in proportion as your profession offers you opportunities to execute drawings. The object of frec-hand drawing is to discipline hand and eye, the hand being the most teachable of the two. I will give a few instancea to prove that the eye must he educated to see. When I for the first time came among the negroes of a Virginia plantation, never having seen a colored man, except, perhaps, an isolated specimen in a traveling circus, I could not tell one individual from the other, nor could I distinguish males from females by the features in their countenances. A boy brought up in the city finds it hard to meke individual acquaintances, and has to be reintroduced many times to them before he knows them. A German lady told me when she first visited the United States she thought all the American ladies beautiful, very angels. She saw only the more delicate type of features. After her eye had become accustomed to the new type, educated, she began to perceive the differences in features, and had to acknowledge that there might be a few homely angels.

In your profession you want a keen, observing eye, that will take correct impressions at a glance. The surveyor passes rapidly over an unknown country, but he must see it and observe it. In running the boundary line between California and Nevada over a very rough, difficult country, I had two flag-men. The fore flag-man had to give sights ahead, in a straight line often distent a mile or more. He had to grope his way through gulches, timber, over rocks; but where he set up his flag he was seldom more than ten or fifteen feet off the line. He had an educated, keen eye. The hind flag-man had to set up on the station just abandoned by the instrument. He had plenty of time to study the line before him; but still he would get lost on his way from one station to the other, and had sometimes to be hunted up by others of the party, who found him bewildered and exhausted in some place far away from the line.

When you look now at some piece of machinery, especially if it be in motion, you will find it very difficult to see everything; whereas, when your eye is educated you will perceive the purpose of the construction and understand the thoughtfulness of the arrangements of its parts. The education of the eye begins with that of the hand with your first practice, and therefore I wish to impress upon you that your real work begins therewith. I will now make a few remarks, how you ought to begin and continue your exercises of free-hend drawing. You will understand that I only consider free-hand drawing as the *first practice for the mechanical draughtsman;* at the same time you may rest assured that there is nothing in this practice which will not help you along, if you intend to continue your free-heud drawiug into artistic regions.

You should begin with copying simple forms—contour lines from good drawiogs. I would prefer the forms of nature—forms of leaves, plants, flowers, going from the most simple to the most complicated ones. These will teach you a good deal beside drawing. Copy these forms; correct your copy patiently; end finally, when true, outline them with an even, deliberate line. Drawings of good architectural ornaments, and for advanced scholars, portions of the human frame, and, finally, figure drawing, is excellent practice.

With the brush you will have to practice laying on flat tints in India ink and color—next evenly, graduating from deepest shade to light.

FIG. 1. HARRIS' WATER HEATER AND CHEESE VAT COMBINED.

As soon as you have acquirsd some experience of haud and eye you ought to begin to draw from nature the same leaves and flowers you copy from drawiugs.

In shading take a cobble-stone or shell of uniform color, put it before you end try to reproduce on paper the delicate shading of nature. You will require all your patience and perseverance to vanquish that cobble-stone or shell, but when you have succeeded you will have made great progress in your carcer as a draughtsman,

Fig. 2. Harris' Improved Water Heater.

and your road will become more and more pleasant and enjoyable. Now, many may think that there is no use in drawing even so perfect a likeness of a cobble-stone. Will it do to have it framed and sent home to be hung up in the parlor? I, looking at these things professionally, think it will, and may show more real merit than many a dashiug sketch; and I only hope that I may succeed in converting you to my way of thinking. As you will see, we use drawing only as a means to commit our industrial thoughts to paper, and to have them carried out in the shop. Your conceptions may be bold, your combinations may be new and startling, but your drawing must only be true, simple, neat and clear.

"Heavy Blast.—A blast of from 2,500 to 3,000 tons was made at the mines of the Tomber Brook Mining Company, in Morris county, New Jersey, exceeding in magnitude any ever before accomplished in America."

This item we clip from an Eastern journal. The tons spoken of must refer to the rock, as it is scarcely probable thet they would fire from 2,500 to 3,000 *tons* of powder at once; but at first glance it looks as if they meant that quantity of powder. We do some pretty heavy blasting in this country, but not so heavy as that.

At the time those men were killed at the Justice mine there was much talk of lynching their slayers. Now the Graud Jury refuses to indict them and they are released.

About Addresses at Fairs.

People, somehow, will persist in believing, or in pretending to believe, that everything counected with agriculture must be serious, solemn, and rigidly practical. This error—end it is as great a blunder as the popular mind sver stumblod npon—has done much toward making agricultural journalism the dull, monotonous, unsatisfying stuff that it is.

The farmer is represented es writhing in the grasp of the monopolist. We must approach ths farm-house on tiptoe, as though it were the house of death or hopeless sickness. We should expect to be ushered into the solemn temple of the perseouted worshippers of common sense, by a woful visaged female, who is sinking under the disgrace of heiug "ouly a farmer's wife." The imagiuary farm house is entered, and the hoys and girls—embryo champions of the dignity of labor—are perusing, or pretending to peruse, the driest reading that the publishers of subscription books ever inflicted upon the country. The man of the house, to he consisteut with this newspaper style of farm life, must manifest the sereuity of the martyr, combined with the ferocity of a railroad conductor; no subjects, except such as are connected with crops, should be hroached in his presence; and he is not expected to say much on any subject, only gasping occasionelly, "how long, Mr. Nawspaper Writer, oh how long."

We shall not attempt to depict, in contrest with this, farm life as it is really fouud. Those who "have been there" know perfectly well that it is no more like newspaper farm-life than the social condition of any period is like that picture of it which is given in third-rate fiction. But the present, like all seasons of agricultural fairs, has brought out a point in connection with the error alluded to above, upon which we "rise to explain": it is the character of the addresses at agricultural fairs.

"What can he tell us about farming?" says the guardian angels of agriculture, when some accomplished speaker is announced to deliver an address at some fair. "What we want," they explain, "is plain, common sense; uttered hy a practical farmer." It is not, we repeat, the farmer himself who utters this unfriendly criticism; it is the agricultural flunkey who presumes, in the absence of the farmer, to speak for him on all occasions; and in his presence fawns and cringes, and exerts himself exclusively to convince the farmer that he has no sympathizer nor friend in this naughty world but he, Mr. Agricultural Flunkey.

Now, in our humble opinion, the season of fairs should be nothing more nor less than a great agricultural Sabbath. The farmer's mind needs this, as greatly as his muscles. It is not enough thet he is able to leave for a brief period the plow, the seeder end the harveste tbe mental faculties thet are brought intoreqni; sition in his vocation also demand their season of respite from toil. And especially should he have a few week's vacation from the school where incompetent teachers are endeavering to instill into his mind knowledge which they themselves never could fathom. While the farmer is enabled to flee from the sewing machine agent, the lightning rod man, and the book-canvasser, let him escape the presence of thet still greater bore, the agricultural demagogue, and dispenser of "useful information." Shallow, whining drivelers, who have got some one-sided Utopian idea into their heads, which they desire to "educate our farmers up to," superannuated professional men, who prate about the "dignity of labor." If ever a man had cause to exclaim "save me from my friends," it is the farmer of to day.

We are not afraid of being suspected of a design for leading the farmer astray—farmers are not so leadable as some people suppose—when we beg of him to not jealously withhold his own hardened hand from the more delicate one of the patient, enthusiastic student, the finished orator, nor even from the wealthy capitalist; for you will often find in such a one a true friend to yourself, and an ardent admirer of your calling; and either of these unhardened hands may be as honest as your own. Such men are regular visitors, careful observers, end liberal supporters of agricultural fairs; and when they meet the farmer there the pleasure and benefits derived from the meeting are mutual.

We would not, as a rule, go outside the farming fraternity for materiel for our fair addresses; nor would we wish to be restricted to this circle; and we believe we utter the hearty sentiment of the farming community generally, when we declare that the philosophy, the sentiment, the poetry, and the amenities of farm life, should prevail in these addresses, instead of labored scientific disquisitions, or the details of practical farming.

Let the bow of agricultural labor—mental as well as physical—be unbent for a time. It will be all the more effective when it is brought into service egain.

Prospecting for coal in the immediate vicinity of Verdi has been going on for some time, with fair hopes of success. Specimens have been tested to the satisfaction of the prospectors, and further efforts will be made to develop the ledge. That there is coal in the neighborhood cannot be disputed, for in several localities discoveries have been made that show unmistakable evidences of a regular formation.

About Fruit Drying Processes.

Preserving perishable food is a branch of industry of considerable importance to those suffering from inability to handle their bountiful harvest of fruits and vegetables. Many are endeavoring to solve the question of market and profit, for a dried article, and before canvassing any process of preservation, we offer some items from the Custom House reports. Into the port of San Francisco, for the year ending August 31st, 1874, $100,000 dollars worth of foreign fruit was brought. Just think of it ye fruit producers who ought to have reaped this harvest. In the United States, during the year 1873, over $9,000,000 worth of the same import was consumed.

These figures prove the demand. Why should this amount of money be paid for foreign produce and labor, when it would more than compensate the producers of this and other states, for the care and expense, involved in giving a well manipulated article to the commercial world. There is no reason why we should not use our surplus product to supply this demand; and to meet the necessity of rapid and easy work, comes the inventive power of our American mind. Already we have a number of processes in the field for preserving fruit and the root crops. Foremost in success in this industry is the method known as the Alden, but from its expense it fails to reach the mass of individual farmers, who are the ones to handle this question and reap the benefits. In many sections where co-operative establishments could be formed this is not excelled in its productions. Rider's American drier, however, comes nearer to the want of individuals. It is cheap, easy to handle and yields a fine article, but not in very large quantities. Later in the field comes Lloyd's process, which promises to do more work than either of the others, for the amount of money invested, reaching the farmer, who wishes a small machine for utilizing his own crop, or the capitalist who wishes a good and safe investment. A small farm drier, having a capacity equal to Rider's American will be put in the market at $60, and one carrying about two tons per day of 24 hours, will cost about $500. Fruits average from four to six hours in drying, with the exception of grapes and prunes, which take from 18 to 24 according to temperature. It is claimed that this is the only machine capable of handling hides, fish and meat on a large scale. The latter product, which we have seen, looks very fine, coming back to its original raw state after soaking in water.

A few words of knowledge gained abroad, and of experience here, and we close this article hoping it may benefit its readers with an idea of the demand for preserved food, and furnish some general knowledge of the modus operandi employed to give the present article of food to the market.

Raisins

Have the lead in price and consumption, the best being made from the Malaga. Muscatel or "sun raisin;" *these are dried on the vines*, the stem of each bush when ripe being partially severed and the leaves that shade it picked off. Thus exposed, the grapes soon shrivel by the evaporation of the water they contain, and become sweeter by the consequent concentration of the pulp. These, more than any other sort, retain the freshness and bloom of the fruit, and acquire less of the saccharine deposit which is found on most of the other varieties. Other raisins are prepared by drying the ripe grapes after they are picked, either in the sun or in heated rooms. Those known as the "Lexias," are so called from the lye employed in curing them. Included among these are the the varieties known as the Valencia and Denia. The best of these are hung on lines to dry in the sun, and as they begin to shrivel, they are dipped into weak lye, once or twice, then hung up again to complete the drying. The effect of the lye is to cause a saccharine exudation to take place, which forms concretions upon the raisins, and coats them with a thin varnish. Of Turkish raisins, two varieties, the Sultane and black Smyrnas are the best known. The former are from a small, delicious grape without seeds, and come packed in drums. The latter are also small, but have very large seeds. As a rule, they are free from the sugary concretions which are common to other sorts.

A very important variety of raisins, and one rarely understood to be the fruit of the vine, is the dried currant of commerce. This is a very small sized grape, largely cultivated at Patras, in Zante, Ithaca and Cephalonia. Its name is a corruption of Corinth or Corinthian grapes. They are no larger than peas, and the bunches are three inches long. The importation of raisins averages over $1,000,000 yearly; that of Zante currants about $300,000 yearly.

Prunes.

The best varieties of prunes are made from the Saint Catharine plum and the prune d'Aglue. After being exposed in the air for several days, until they become soft, they are shut up close in a spent oven and left 24 hours. They are then taken out, and replaced after the oven has been slightly reheated on the next day; they are turned by slightly shaking the sieves on which they have been laid. The ovens are heated again, and they are put in a third time. After remaining 24 hours they are taken out and left to get quite cold. This same process of heating the ovens is gone through with twice more; after which they are packed in boxes ready for sale. Can not this process be expedited by some of our American mechanics?

Apples

Our home production of apples comes next on the consumer's list. And in a fine article of machine dried fruit, a very palatable food reaches the public. But we deprecate the mode of bleaching by use of diluted sulphuric acid which though rendering them snowy in appearance robs them of all flavor. In the rapid evaporations which is natural in a drying machine, a fine color of a very pale yellow tint is left, but beware of too white an article, it has no taste.

Peaches

Are prepared in the best manner by putting them into boiling water for a moment, and then into cold, to prevent cooking. After which they will peel with perfect ease and can be dried to look very bright in any machine where artificial heat is applied. Nectarines and plums may be served in the same manner.

Onions and Potatoes

having been recommended as Army and Navy rations, on account of their preventive and curative properties in diseases occasioned by use of too much salt food, will always be staple articles and bring good prices. Onions are 40 cents and Potatoes 14 cents per pound.

Meat

preserved by evaporation without salt or cooking, brings 40 cents also. The method of cooking, by dipping into hot water and then salting to excess, afterward drying in the sun, is too old fashioned to suit the modern palate, which craves a more eatable food, when unable to obtain fresh.

Musk.—Musk is a secretion, and is obtained from the musk deer (*Muschus moschiferus*), a pretty little animal inhabiting the higher mountain ranges of China, Tonquin and Thibet. The musk is found in a small pocket or pouch under the belly of the deer. The hunters cut off this pouch, which becoming dry preserves its contents and in this state the best article reaches our markets. Musk, when moderately dry, is an unctuous powder of reddish brown color! It gives out a powerful odor, of a warm, aromatic character and most wonderful persistency. Blending well with almost every other scent, it discovers but little of its own peculiarity in compounds in which it is an ingredient.

Genuine musk is very costly, being worth when separated from its sac and all extraneous matter, from $25 to $35 to the ounce. Its great strength compensates in a measure for its price. One part of musk, it is said, will scent more than 50 tree thousand parts of inodorous powder.

A correspondent of the *Times*, writing from Alexandria, facetiously remarks: "Fancy mutton fattened on ancient Egyptians! The other day at Sakhara I saw nine camels pacing down from the mummy pits to the bank of the river laden with nets, in which were femora, tibia and other bony bits of the human form, some 200 weight in each net on each side of the camel. Among the pits there were people busily engaged in searching out, sifting and sorting the bones which almost crust the ground. On inquiry, I learned that the cargoes with which the camels were ladened would be sent down to Alexandria, and thence to be shipped to English manure manufacturers. They make excellent manure, I am told, particularly for Swedes and other turnips. The trade is brisk, and has been going on for years, and may go on for many more. It is a strange fate—to preserve one's skeleton for thousands of years in order that there may be fine Sonthdowns and Cheviots in a distant land. But Egypt is always a place of wonders."

Progress in China.—As an evidence of the progress evident in the East we learn that a Chinese Polytechnic Institution and Reading Rooms have recently been organized at Shanghai, China, with the object of bringing the sciences, arts and manufactures of Western nations in the most prominent manner possible before the notice of China. When the wants of the enormous population, as well as the immense, but hitherto almost latent resources of that country are taken into consideration, it is easy to see the great advantages that an institution of this kind is calculated to confer both upon the natives generally and upon European manufacturers and merchants. Shanghai being the great center of foreign commerce with the Chinese, is manifestly the most suitable locality for its establishment.

Phosphoaized Iron.—One per cent. or less of phosphorus so far modifies cast iron that it will resist the action of concentrated sulphuric acid to a greater degree than when entirely free from phosphorus; and those who separate silver and gold by the sulphuric acid process find that some cast iron vessels are destroyed in a few weeks, while others will last for years. Phosphorus modifies also the physical properties, imparting to the iron more fidelity when in a melted state and furnishing more compact castings.—*Iron.*

The average cost of a ton of coal, as purchased by the London gas companies in 1873, was £1 4*s*. 6·14*d*., the total outlay being £1,753,715. In 1862 the average was 17*s*. 6·15*d*. per ton; in 1871, 15*s*. 9·92*d*.; in 1870, 16*s*. 3·74*d*; and in 1869, 16*s*. 3·75*d*. Accordingly, these figures show between 1869 and 1873 a rise of 50 per cent. in the price of coal as purchased by the London gas companies.

Prof. Agassiz on Specialists.

In an address to the students of Penikese Island, he said, among other valuable suggestions: "You have been told here that books are of little use. Ours is a tirade against compilations, and not against original works, which you will find of use for reference. You have here for teachers men who are not only specialists, but each an original investigator in his branch or department. In order to know the animal kingdom right, method is more important than the study of a number of species; indeed a very few specimens are needed to illustrate the study of natural history. An eminent botanist said, he could teach botany, all he knew on the subject, from nine or ten specimens; so I can count on my fingers the whole number of specimens thoroughly known. Natural history is so vast a subject that if we would accomplish anything, we must be specialists."

We may add to this that the same may be said of all other branches of study; physics, medicine, chemistry, etc., have each become so vast a domain of research, that it has become almost impossible to be equally well informed in the whole field, so it has come to pass that among physicists there are electricians, opticians (we do not mean the traders in specs, who call themselves such), etc.; among physicians there are oculists, aurists, dentists, and special practitioners for special diseases, and for every separate part of the body except one. In chemistry we have metallurgists, also those who make paints or dyes a separate study; others who do the same for vegetable or for animal chemistry, etc. In fact in this nineteenth century all sciences have become so extended, that their branches form separate sciences by themselves, each of them sufficient to command so much attention that a whole life may be devoted to the study and advancement of a single branch.—*Manufacturer and Builder.*

Soavengering in Paris.—The *Debats* gives an account of the scavengering of Paris, the efficiency of which might serve as hints to the authorities of our large cities. The superficial area of the streets is eleven million metres, and to cleanse this before the traffic of the day begins, operations have to commence about 3 A. M. The staff employed musters in brigades at certain points of each quarter, and is then dispersed over the various streets. Beside them may be seen the nocturnal philosophers who pry into the filth and rubbish deposited near the curb. The two classes are on very friendly terms, the scavenger facilitating the *chiffonier's* search, and assisting him, if necessary, to obtain a good harvest. In addition to sweeping by hand, more than forty machines are at work, something like those used in the city of London. The driver, who must keep an eye on his horse, manages a spring which raises or lowers the sweeping cylinder. These are principally used for boulevards, avenues, wide streets, and squares, and are at work nearly all day. In bad weather they traverse the most frequented streets and sweep away the mud or snow. Sweeping by hand is very active the whole morning in the vicinity of the chief markets, where masses of rubbish of all kinds are found. Between six and ten o'clock scavengers are there hard at work, and heaps of rubbish are carted away.

Transit of Venus.—The Astronomical Commission deputed by the Mexican Government to observe the transit is composed as follows: Francisco Diaz Covarrubias, Sub-Secretary of State in charge of Public Works, chief of the expedition; Francisco Jimenez, Ingeniero Geografol, second astronomer of commission, Manuel Fernandez, topographical engineer and computer; Auguetin D. Barroso, computer, naturalist and photographer; Francisco Bulnes, computer and chronicler. The Commission is composed of good material. All those comprising it are gentlemen well qualified by general and special scholarship for the task before them. The party left for Japan on the "Vasco de Gama" last Monday, and expect to take up a position near Nagasaki or Yokohama. This makes the 16th party in the field to observe the transit of Venus.

Heavy Blast.—A mouster blast of 1,815 kegs of powder was fired in Pond & Constable's claim, at Todd's valley, on the 16th inst. It cost the company over $6,000, and was a perfect success. The discharge was made by electricity.

Gold in the Dutch West Indies.—The gold diggings in French Cayenne having proved remunerative, the Stadtholder of the Dutch West India colonies has sent out an expedition to the Maryone river in the hope of equally favorable results.

As an illustration of the extent of the jute manufacture, it may be stated that 100,000 tons of the fibre have this year been imported into Dundee alone by direct shipment from Calcutta.

Placer County miners are briskly engaged preparing for the season's work. If water should be plenty next year, an immense amount of gold will be taken out of our gravel banks.

A controlling interest in the Oak Grove quicksilver mine has just passed into the hands of Wm. A. Stuart. It is situated between the Ida Clayton mine and Pine Flat.

It is estimated that 10,000,000 boxes of sardines are annually sent away from the coast of Brittany to all parts of the world.

Gas on Railway Cars.

On one of the railways in Prussia the cars have been lighted by gas for about a year. The experiment has been so successful that there is little doubt of the ultimate exclusion of all kinds of oil lamps on the railways of Germany. The gas is manufactured expressly for this purpose from oil, being a richer hydrocarbon than common street gas. It is compressed to six atmospheres in cylindrical reservers five feet long, and from 16½ to 20 inches in diameter. If more than two receivers are to be connected, the connecting tubes are of one-fourth inch bore, very strong. A regulator is introduced intermediate between the burners and the receivers, in which the requisite low pressure is maintained so steadily that all the tremors and shock to which the cars are subject produce no perceptible effect upon it. This regulator consists of a cast-iron circular vessel 10 inches in diameter and six inches in hight, the open top of which is closed gas tight by a flexible membrane loosely stretched. The middle point of the membrane is armed with a metal disk, connected with a lever acting on the supply valve communicating with the gas holder. The weight of the membrane and its connections is made sufficient to furnish all the pressure needed to maintain the efflux at the burner. When the supply in the regulator is low, the supply valve is opened by the depression of the membrane. As the gas streams into the regular the membrane rises, and the supply valve is gradually closed. The illumination is thus maintained even more steadily than the gas jets in the cities, though the pressure in the gas holders of course gradually falls off. A single holder of six to nine cubic feet capacity will supply a burner for 45 to 67 hours. The intensity of the light, by photometric determination, is equal to that of ten candles, while that of ordinary coal gas, burnt at the same rate and under similar circumstances, is but about 3½ candles. The burners in actual use give about seven candles light; the Argand lamps usually employed give a light of only four candles. The whole apparatus, except the burners and their protecting lanterns, is placed beneath the cars. There seems to be no possibility of danger from its use, except such as might result from explosion.—*R. R. Register.*

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Hints to be Remembered.

A note dated on Sunday is void.

A note obtained by fraud, or even from one intoxicated, can not be collected.

If a note be stolen it does not release the maker—he must pay it.

An indorser of a note is exempt from liability, if not served with notice of its dishonor within twenty-four hours of its non-payment.

A note by a minor is void.

Notes bear interest only when so stated.

Principals are responsible for their agents.

Each individual in partnership is responsible for the whole amount of the debts of the firm.

Ignorance of the law excuses no one.

It is a fraud to conceal a fraud.

The law compels no one to do impossibilities.

An agreement without consideration is void.

Signatures in lead pencil are good in law.

A receipt for money is not legally conclusive.

The acts of one partner bind all the others.

Contracts made on Sunday can not be enforced.

A contract made with a minor is void

TRUCKEE, CAL., July 10, 1874.

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Health of the State.

In August last the Stete Boerd of Health ssued a circular signed by Dr. Thomes M. Logar, Secretery, for the purpose of obtaining ee much as possible of the information which mey have accrued since the American occnpetion of California respecting the effects of settlement, cultivation, drainage, irrigation, mining operetione, equeducts, reservoirs, forests and tree culture—eepecielly the *Eucalyptus Globulus*, or Australian gum tree—upon the eanitary condition of the inhabitants. This information ie desired more particularly with a view of discovering some means of controlling —or at least of modifying the influence of malaria in the prodnction of fevers, and also of determining by the vote of ropresentative men both in and ont of the medicel profession, the prevalence of consumption in each section of the State, in its reletion with soil moisture, nneffected by immigretion or emigietion, likewise the best climetee and locelitiee for the amelioration of its epecial types and stages.

We mentioned this eubject at the time of receiving the circnlar and now speak of it again for the purpose of reminding our readers that answere to the qnestions, when properly compiled, will be of greet value to the State at large. Dr. Logan solicite answere to the qnestions printed in the circular, end stetes that extended answers, striking exemplee in illnstration of theoriee, topographicel description of places represented, or a monograph on any subject, germene to these inquiries, provided it is written in a compect manner, would be gladly received. The blanke are arrenged in such a menner as to be readily filled out with little trouble. They can be procnred by addressing Dr. Logan at this office, where we have a cupply.

The Early Rain.

Mr. Croeker expresses a characteristic feeling of disgust at the recent rains: He deolaree thet they are quite out of time; and hes notified ns thet a dry winter must inevitably follow. With the exception of Mr. C., however, the copions showers, several in nnmber, which we heve had of late, have been thankfully received. The farmer says it will expedite the inangnration of the plowing seeson—a very desirable point—it will do something towards opening the dairy season at en earlier date, and will eave cnred feed.

The city people are also glad. For—thanks to the beneficent powers thet are not influenced by discrimineting newspeper twaddle — the rain, and its gladdening consequenoes, falls upon the city as well as npon the country. It ie confidently hoped thet the price of butter will eoon come down in consequenoe of the rain. It is now nearly ont of sight, and beyond the reach of poor people. These realistic canses are snfficient to make the people of the city rejoice at the approach of the rain, bnt they have roesons of a still finer texture. They want to eee the hille in the suburbs of the city oovered with the green mantle of winter; and they anticipete with pleasure a generel freshening np of field and garden, shrubs and flowers.

There ie something about the loug deferred rain which is refreshing to the heart, even; and to geuge the appreciation of onr late reine by eny estimate of dollars end cents, wonld do injustice to the people who mako it a topic of conversation.

The Pioneer Wagon Factory.—A correspondent sends ns the following items abont the firet wegon manufectory in the city of Sen Francisco: John Lewton, a pioneer from Troy, New York, soon after his arrival in this city in the "spring of '50," concluded he would "dig for gold in wegon hube end eich." Accordingly he started bnsiness on Kearny street, near Sacramento. At that time the only building standing between Kearny and Dupont wae an old adobe house, occupied by the "tall woman." In those deys Kearny etreet wae a sandy trail and Montgomery was planked only to California etreet. Here he built the first truck ever construoted in Sen Francisco. It was made for John Lay, who paid $500 for it. In 1853, Lewton moved hie shop to Bush etreet, near Kearuy, where the Californin Theater now stends. In 1860 he removed to Market street, between Montgomery and Kearny etreets. In 1862, heing ronted hy fire, he opened again on Merket street, between Sutter and Powell; thence he removed to Nos. 20 and 22 on Seventh street. This prospering business is now carried on by the sons of the now aged pioneer, under the namee of Elhurton and G. Webster Lawton, in their own speoious two-story building, 50x120 feet in eize. Their boss hlecksmith, Enoe W. Berber, is a "'49er," from Rnode Ieland, and the carriege painter, Louis Smitten, ie from New York. The establishment ie vigorously at work on new and old cerriagee, wheele, etc., giving employment to from 15 to 18 hands. They did a business last year of $21,000, aud this year will exceed $25,000.

A fire whioh occurred at the Black Diemond Coal Company's worke on Saturday night, destroyed the splendid new engine and other property of the company, causing a total loss of over $50,000. The mines of the company are situated in Contra Costa county, abont six miles south of the San Joaqnin river.

General News Items.

Brutal Assault.—A brutal assault was made upon the person of Mr. P. H. Sumner, at Oekland, on Monday evening lest, while going to his place of residence. He was knocked down with a sand bag, brutally kioked and left for dead. He eurvived, however, and was taken home by a neighbor, bnt at lest accounte was nnable to communicete any particulars. Robbery wes evidently not the object of the assent. Some think it due to the interest he hee taken in the temperance movement in Oakland. Othere sey that he haa received threatening letters since he took an active pert in turning the Rev. Parshall out of his church. It is hoped that the whole affair will be brought to ligbt when Mr. Snmner has sufficiently recovered.

A Dangerous Rock in Mid Ocean.—The discovery is announced of a dengerous rock in the middle of the Atlentic Ocean, and in the direct track of Europeen steemere. It projects about 18 feet out of water at low tide, and is only about 3,000 feet long by 30 or 40 wide. It wae formerly eet down in the charts; but hae latterly been omitted in the supposition that it had no reel existence. It is thought that its presence may account for the mysterions disappeerance of the "President," "City of Boeton," "Pacific" and meny other vessels which have been lost withont leaving the elightest trace of their fate.

A war olond seems to hang over Europe jnst at this time, growing out of the apparent nnfriendly relations between Rnesia and Germany. If a war should break ont between these two countriee, not only Frence, bnt most likely several other continental powers, would beoome involved. The repeated assurances of the "Great Powers" of the prospects of long-continued peace, while differences and annoyar cee are known to exist, only eerve to create still greater nneasiness.

A Fatal Affray occnrred at Porterville, Tulare county, on the 22d instant, between J. A. Floyd and employees of the Queen circus troupe. Floyd wes shot and seriously injured, and Frank B. Holton was etebbed aod instantly killed. The Coronor's jury justified Floyd. Holton recently lived in Stockton. His father lives in Sacramento. He was a nephew of Generel Ben Butler.

Making for the Hills.—The Gilroy *Advocate* of the 24th says that the squirrele, gophers, tarantules and other creeping thinge thet burrow in the ground, are all leaving the valleys, and taking up their line of march for the hills. It is said they go in droves, and are seemingly anxious to get into winter quarters ae soon ae possible.

The situation in Louisiana can be pretty well nnderstood, when it is stated that the tax levy this year for State purposes foots np 7¾ per cent. Thie does not inclnde the tax in cities for municipel purposes. Can any one be surprieed thet the people are dissatisfied? This rate of taxation is in excess of the nsual interest in most of the States of the Union.

The Carlists.—Now that Alfonzo, brother of Don Carlos, hae got ont of the way of harm, and the Don's fighting General Dorregaray is safely held hy the French anthorities, and small bodies of Carliets ere making epeciel terms for themselves with the Spanish authorities, it would seem that the rebellion mnst be well nigh cloeed ont.

The "City of Peking," when one day out from New York, lost one of the blades of her propeller, and eleven days after loet another, in consequence of which she wae obliged to put into Rio de Janeiro, to replace them. She was supplied with extra blades and a coffer dem to uee in replacing them.

Grain Exposed.—It was eetimated just previous to the etorm of Sundey that there was at leest 25,000 eacks of grain exposed to the weather on the line of the narrow-gange, between Monterey and Salinas City, to say nothing of the amonnt on the depot gronnde at the latter plece.

The salmon lew expires with October. The prospect of a lerge catoh is extremely good, but the prices in this market will be a little uppish for the first month or six weeks. Fifteen cents to two hits a pound will be about the figure.

The Parents of Charley Ross.—The Boston *Globe* hae information thet the mother of Charley Rose, the abdncted child, is becoming insene over her grief, and that the father hes heen reduced to a bed of eicknese, from which it ie doubtfnl if he will ever arise.

A San Franoisco prodigy, "General Dot," the rival of Tom Thumb, is creeting a sensation in Peris. Hie real name is Leopold Kohn, and he wes born in San Francieco, his parents being both of full size. Dot weighs eighteen pounds.

Incease of Population.—There have come into California by sea and land, in the nine months ending September 30th, some 60,500 persons. The departuree in the eame time were 27,700; showing a gain of 32,800.

"Sixteen Killed" and meny seriously injured is the reported result of the explocion of the boiler of the steamer "Brooklyn," on Detroit river on Wednesday last.

Mining in Napa.—It is estimated that there are 300 men engaged in active mining pursnits in Napa connty.

Just What Ails California.—Recently two boxes of applee came to ue from Oolfex, weight in all 80 ponnde, R.R. freight 10 ots. for the lot. Transfer from R.R. depot to 224 Sansome street, S. F., 50 cts.—three times what it ought to have been. Express to Oaklend by slow ronte, 50 cents. From O.P.R.R. depot, Sen Francisco, to Franklin street, Oakland, $1. Onr citizens are outrageouely cherged like this for nearly all the little accommodatione needed, and it makee living so high that manufacturing and other industriel pureuits, which give so much life and progress to Eestern Stetes, are impracticable at present here. Let us have reform from the bedrock.

Slight Damages by the Rain.—The latest accounts of the effects the late rains ehow thet in some ceses they were slightly damaging. In some localities—in the Russien river region for instance—where the hervests ere always late, the nnthreshed grain was injured to some extent, end at Watsonville and some other pleces where a portion of the hay wes unproteoted, this crop was also damaged by wetting.

Nena Sahib.—A person calling himself Nena Sahib, the chieftein who took a moet prominent pert in the Cawnpore maseacre, has been arrested in Britieh India. He deniee, however, that he committed the atrocitiee attributed to him. There are grave donbts ae to his identity; and some time after his arrest he said he made the confeseion while in a state of intoxication.

A Cool Robbery.—About the coolest robber that Boston has seen for a long time is a men who went to the Public library building, and borrowed tools from eome workmen, removed the copper lightning rods, laboring several hours, and heving loaded his spoils upon a wagon, rode off. Tho workmen supposed he wae acting nnder orders from the city.

Von Arnim.—The London *Standard* says the examination of the archives of the German legation at Paris hes feiled to lead to the discovery of any weighty evidence against Count Von Arnim. The letest telegraphio dispatches eey thet the Count has been set at liberty, but will not be allowed to leave Germany.

The great cotton case now before the U. S. Snpreme court iuvolves from $12,000,000 to $15,000,000. If the case is decided favorably it will throw this vast amount into the hands of a few individuele, who have bought np the cleims for a mere aong—'and that's the wey the money goes."

Lecture on California.—G. A. Johnson, editor of the Santa Barbara *Press* lectured at Cooper Institnte, New York, on Tuesday and Wednesday eveninge lest, on Southern California, or "New Itely," ae he calls it. The lecture was well received.

Adrift.—The "Costa Rica," on her wey from Panama, became disabled about 100 milee from Sen Diego, and wes towed into that port by the "Newbern." A steemer has been sent from this city to tow her np. She has thirty peesengers.

A Woolen Mill for Santa Rosa.—Prominent men in Santa Rosa feel certain of the snccessfnl establishing of a woolen mill during the coming year; $35,000, in enms of from $5 to $1,000, have been promised by responsible perties.

A Woman Sentenced to be Hung.—Mrs. Johnson, who was convicted of murder in the first degree for poisoning her huebaud in May last, will be hung at Mayville, New York, on Friday of this week, nnless Governor Dix interferes.

Saved by her Corsets.—Jamea Bowering hes been convicted in Toronto, Ont., for attempting to kill a youog lady who had rejected his addresece. The ball from hie pietol struck the steel ribs of her corset, which saved her life.

Increasen Mail Service.—The Post Office Department on the 26th instent ordered the mail service between Soledad and Los Angelee, via Santa Barbara, California, increased from six times per week to deily.

Oakland Terrifien.—Incendiaries appear to be holding a cernival at Oakland. No less than seven fires occurred there within the 30 houre ending with Mondey lest. A number of other fires have occnrred since.

The Bakersfield and Lone Pine etage company are now completing arrengements to put on a tri-weekly line of stagee between Bakersfield and Panamint.

The Fermers' Bank of Wheetland has filed erticlee of incorporation. The capital etook is $125,000, divided into 1,250 shares of $100 each.

A temperance crnsade hes been inangurated by the women of Liverpool; the werfare, however, to be strictly confined to temperance halls.

Loss of Life by Fire in England.—A cotton mill in Chester connty, England, wes burned, together with operetives.

Pursuit of Hostile Indians.—Col. Buell has destroyed 475 Indian lodgee on the Salt Fork of Red river.

The Trains Free.—The gamblere have been driven from the traine passing through Nevada.

Damage to Cotton.—The rain has done much damage to the unpioked cotton crop.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Oct. 27th, 1874.

For Week Ending Oct. 13th, 1874.*

Process of Manufacturing Products from Animal Fats.—Geo. Bloom Van Brunt, S. F., Cal.

Gang Plow.—Robt. N. Howes, Wm. A. Dorr and J. B. Webeter, Stockton, Cel.

Sun Dial.—David B. Scofield, Auburn, Oregon.

Reissue.

Shingle Machine.—Frank A. Hnntington, S. F., Cal.

Trademark.

Hair Restorative.—Tilton & Cammet, S. F. Cal.

*The patents are not ready for delivery hy the Patent Office until some 14 days after the date of issne.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent bnsiness for Pacifio coast inventore transacted with perfect security and in the shortest time possible.

From an Inventor.

The following letter, which was recently received from an old client of Dewey & Co., now residing in one of the Eestern States, speeks for itself, and will do more, perheps, to convince inventors of our cepacity for bnsiness than eny number of locel complimente. We extract ee followe:

Gentlemen: It wee throngh yonr house that I secured my first patent, and although I have eince done bueiness here in the Atlentic Stetes with the ablest patent solicitors—gentlemen who have done me justice—yet I have often regretted that yon were too far off to advise with me in my ceses. It has teken a longer time with every patent I heve taken out since I left California and oeme Eest, than in the ceses yon prepered for me in San Francieco, which ie certainly very creditable to yon.

By the wey, one of my patents has passed the ordeal which is the esaential test of a patent'e valne. I mean that of a trial in the courte, and it stood the bettling of one of the best lawyers in the country. The specifications and claims were completely made ont and there wae a perfect comprehension of its principle during the trial. Since giving it thie test we thought that we would make it even etronger, if possible, and eubmitted it to one of the best patent solicitors for advice. After a careful examinetion of the ceee he edvised ue to let it elone ae it etood, seying that whoever mede np those papere nnderetood their business. I then informed him that they were drewn np by Dewey & Co., of San Francisco, and he replied thet he knew yon well by repntation. * * * * * Very truly youre,

L. L. Sawyer.

Meriden, Conn., May 16, 1874.

The Cerson river hae risen considerably since the recent rains, and the quertz mills are ell nnning to their full cepecity.

The Bidwell Bar nining claim, Butte Co., wes last week sold to Geo. C. Perkins for $18,000.

Female proepectors are hnnting for qnicksilver in Sonoma county.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to eend none bnt worthy men.

L. P. McCarty—Generel Agent.
W. H. Rattenberry—California.
Chas. W. Otis—Contra Costa County.
Chas. T. Bell—Alameda, Santa Clara and Santa Cruz Counties.
J. W. Anderson—Orange and Santa Ana, in Los Angeles County, Cal.
Hoon Alston—San Lnis Obispo, San Bernardino and San Diego Counties.
Jas. Kearney—Amador, Calaveras, Tuolumne and Mariposa Counties.
B. Goodwin—Sacramento Connty.
S. G. Crawford—Nevada, Sierra and Plumas Counties.
J. G. Kelley—For Washington Territory.
B. W. Crowell—California.
F. B. Alderson—Nevada.

FROM AN INVENTOR.

Placerville, October 3d, 1874.

Messrs. Dewey & Co.—*Gentlemen:* Yesterday I received from you my Letters Patent for my Hydraulic Mining Lamp, and I herewith tender you my grateful acknowledgements for the energy and promptness which you have displayed in working said invention through the Patent Office for me; and shall in the future, as well as the past, recommend all parties having new inventions, to go direct to the office of Dewey & Co., and ask for Mr. Boone, in the Patent Department, and if he cannot procnre a patent for them, they will find it useless to try further. Yours Respectfnlly, C. B. Bnown.

Campo, San Diego Co., Cal., Jnly 3d, 1874.

Messrs. Dewey & Co.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked throngh the patent office for me, for which please accept my best wishes. The chances are that I will have another application for yon to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. Gass.

Fourth Year of the Pacific Rural Press.

The publishers of this journal design making its weekly issues during its fourth year (1874) still more acceptable and valuable than those of the past.

A Farmer's Paper Always.

The RURAL PRESS—established Jan., 1870, has been thoroughly a farmer's paper—" first, last, and always." Its success in popularity and rapidly increasing circulation has exceeded that of any other weekly on the coast.

Neither Politics or Creeds.

We refer with satisfaction to the independent, chaste and useful character of our reading matter and the absence from our columns of questionable and demoralizing advertisements.

We shall strive to make it an ever welcome visitor to those who desire to constantly

Improve the Heart and Mind,

And shall give a larger space to our HOME CIRCLE department, which from the first has been a popular feature of the RURAL.

Our aim is to gather information from all reliable sources, in the varied forms in which it is to be obtained. Our work is to divest our gleanings of all superfluities; condense such information as is of most importance to our special class of readers—give it to these in the plainest and lowest words possible,—saving *their time by our labor.*

Our Leading Departments

Will be continued under the following heads:

The Home Circle,	The Horse,
Young Folk's Column,	The Swine Yard,
Short Stories,	Sericulture,
Home and Farm,	The Vegetable Garden,
Useful Information,	The Flower Garden,
Domestic Economy,	The Vineyard,
Good Health,	The Orchard,
The Dairy,	Tropical Fruits,
The Apiary,	Small Fruits,
Poultry Notes,	The Cereals,
Horned Stock,	Pasturage, etc.,
Sheep and Wool,	Fertilizers,
Goats,	Miscellaneous.

Practical Farmers

Know how important it is that the above subjects should be treated from a local standpoint—that generally the farming tactics of the East will not do for this coast; that agriculture, in its infancy here, can derive greater benefits from an exchange of experience through the columns of the press than in older fields. Constantly observing and studying developments in the special field we represent, we can be expected to give truer information on agricultural subjects, than more general writers at home or abroad.

Our Traveling Correspondents

Will do much service by gathering a large amount of interesting information from various parts of the Coast, which, but for their research and practiced observation, might never be placed on record or reach the eye of the reading public. Of our many

Local Correspondents

We have particular reason to be proud. No paper on this Coast—old or new—has ever been so highly favored with volunteer contributions. They are talented, reliable, independent and generous representatives of an intelligent and enterprising people, noble types of good humor, unselfishness and true progress.

Short Stories,

Original and selected, will hereafter appear in each number. Their selection, we trust, will be such as to render them popular and unobjectionable to all. In addition to a large number of

Fine Engravings,

Representing Choice Stock, Farm Products, Scenery, Remarkable Productions, Improvements in Farming Implements and Machinery, Works of Art and the Beautiful in Nature, we shall from time to time present the modest

Faces of Prominent Farmers

Who, as pioneers in the development of agriculture on this Coast, or as active laborers in the "Farmers' Cause," are worthy of the distinction they enjoy, and the favor with which they are looked upon by our many readers at home and abroad.

Engravings (costing thousands of dollars originally) are inserted in our columns during a single year. They afford instant and perpetual impressions often more perfect and real than words can convey.

Patrons of Husbandry.

We shall continue to give our weekly summary of matters connected with the interest and progress of this growing and important movement. We shall aim to give information as fresh as possible in this department. Its readers are aware that the RURAL has been in the lead in calling farmers to organize. We shall continue to work zealously with the Granges for the noble objects of the Order.

The present is an

Important Period

In the history of our Coast. The coming 12 months promise greater developments in its agricultural progress than have been experienced in any previous year. Agriculturists are alive to improvements in every direction, and those who would keep up with the spirit of the times should certainly read the RURAL PRESS.

The S. F. Market Reports

Will receive greater attention in the department of DOMESTIC PRODUCE than that of any other weekly journal. We shall spare no pains to render the reports as reliable and complete as possible. By the employment of our special reporter we hope to make this very important part of our paper one of its best and most satisfactory features.

Kind Words and Acte

Have done much to build up in this isolated and sparsely settled coast so large and complete an agricultural journal as the PACIFIC RURAL PRESS. We commence the new year with a regular circulation of

Over 5,000 Copies,

A far greater issue than that of any weekly on this Coast, independent of a daily publication. If our friends will continue to "help us help ourselves," we hope to reach a circulation of 8,000 this year, and do a correspondingly greater service of good. While we have the greatest advantages and can make by far the best weekly for

Agriculturists on This Side of the Continent,

We cannot expect one-half so large a circulation as journals in older and more populous districts. Consequently readers cannot rightly expect such a paper here at Eastern rates.

No Premiums But a Good Paper

Do we offer. A flashy chromo (or cheap map), with an ill suited paper, will hardly satisfy the farmers of this Coast, whose time is too precious for trifling. To many of you the benefit of a reliable and valuable paper should reach a hundred fold its cost, while to all a poor journal would be dear at any price.

Sample Copies Furnished Free

On receipt of stamp for postage.

Agents are Wanted

Who will do more or less active canvassing. To such we will furnish free samples and pay liberally for their services.

Terms of Subscription:

One year (payable in advance) $4.00
Six months 2.25
To Granges and Farmers' Clubs, furnishing club lists, $3 per annum.

DEWEY & CO., Publishers,
Office, No. 224 Sansome street, San Francisco

METALS.

WEDNESDAY M., Oct. 28, 1874.

American Pig Iron, ₩ ton	—	@	42 00
Scotch Pig Iron, ₩ ton	42 00	@	46 00
White Pig, ₩ ton	—	@	42 00
Oregon Pig, ₩ ton	—	@	44 00
Refined Bar, best assortment, ₩ ₤	—	@	3½
Refined Bar, good assortment, ₩ ₤	—	@	4
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9¾	@	—
Norway Iron	8	@	—
Rolled Iron	6	@	—
Other irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Brazier's	31	@	32
Copper Tin'd	45	@	—
O. Nail's Pat	50	@	—
Sheathing, ₩ ₤	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₩ box	13 00	@	14 50
Plates, I C Charcoal	12 75	@	14 50
Roofing Plates	11 50	@	14 00
Banca Tin, Slabs, ₩ ₤	31	@	33
STEEL.—English Cast, ₩ ₤	20	@	22
Anderson & Woods' American Cast	10	@	17
Drill	18	@	22
Flat Bar	18	@	22
Plough Points	16	@	17
ZINC	—	@	11½
Zinc, Sheet	—	@	—
NAILS—Assorted sizes	5¾	@	8
QUICKSILVER, per ₩	—	@	1 45

GENERAL MERCHANDISE.

WEDNESDAY M., Oct. 28, 1874.

BAGS.

Eng. Stand Wht.—	—	@	12
Detrick's Machine			
Sewed, 22x36 E..12	—	@	12¾
do 22x36, do E W—	—	@	13¾
do 20x40, do A...—	—	@	13½
Flour Sacks ¼s..	9¾	@	11½
" ⅛s.	6	@	7
Stand. Gunnies..			
double seam	15	@	15½
single seam	13¾	@	14
" Wool Sacks	60	@	67½
Barley Sacks 24x36	—	@	14
do 23x40	—	@	14½
do 24x40	—	@	15
do 28x36	—	@	16
Cal Bags, 24x40	16	@	16½
do 28x36	—	@	17
Hessian 10-in. cds	9½	@	10
do 45	10½	@	11
do 60	—	@	15

CANNED GOODS.

Asst'd Pie Fruits			
in 2¼ ₩ cans	2 75	@	—
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	2	@	3 50
Sardines, qr hoxl	85	@	—
do hf boxes	3 25	@	—

COAL—Jobbing.

Australian, ₩ ton	10 50	@	11 00
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11—
Cumberl'd, cks	—	@	18 00
do bulk	16 00	@	17 00
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11—
West Hartley	9 50	@	10 00
Scotch	10 00	@	11 00
Scranton	—	@	13 00
Vancouver's Isl	11 00	@	11 50
Charcoal, ₩ sk	75	@	—
Coke, ₩ bbl	—	@	60

COFFEE.

Sandwich Island	—	@	22
Central America	19	@	20
Costa Rica per ₩	19	@	21½
Guatemala	18	@	20½
Java	—	@	27
Manilla	19	@	20
Ground in cs	—	@	27
Chicory	9	@	10

FISH.

Pac. Dry Cod, new	5	@	—
cases	—	@	7
do boneless	11	@	12
Eastern Cod	—	@	—
Salmon in bbls	9 00	@	9 25
do ½ bbls	4 50	@	4 75
do 2½ ₩ cans	3 00	@	3 00
do 2 ₩ cans	2 65	@	2 75
do 1 ₩ cans	1 75	@	—
Do Col. R. ½s	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Scs. Sm'k Herr'g	40	@	50
Mack'l, No. 1, ½ bbls	8 00	@	8 50
" Extra	—	@	9 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½ bbls	—	@	12 00
Sm'k Herr'g, bx	50	@	60

NAILS.

Assorted size, ₩ ₤	4 37½	@	7 50

OILS.

Pacific Glue Co.			
Neat F't No. 1	—	@	90
Pure	—	@	—
Castor Oil, No. 1	—	@	1 75
do do 2	—	@	1 60
Cocoanut	60	@	65
Olive Plagniol	5 00	@	—
do Possel	4 75	@	—
Palm ₩	—	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in cs	82½	@	88
Sperm, crude	—	@	1 40
do bleached	—	@	2 00
Coast Whales	60	@	—
Polar, refined	50	@	55
Lard	1 15	@	30
Coal, rafined Pet	37½	@	—
Cliophine	20	@	23
Devoe's Brilt	25	@	28
Long Island	20	@	23
Eureka	—	@	—
Devoe's Astral	20	@	23
Barrel kerosene	20	@	23
Oliva	4 00	@	9 50
Downer Kerose'e	—	@	37½
Gas Light Oil	—	@	26

PAINTS.

Atlan. W. Lead.	6	@	10¾
Whiting	—	@	2
Putty	4	@	5
Chalk	—	@	2½
Paris White	2¾	@	—
Ochre	2	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10

RICE.

China No. 1, ₩ ₤	6¾	@	6¾
do 2, do	5½	@	5¾
Japan	—	@	5¾
Siam Cleaned	5½	@	—
Patna	5¾	@	5¾
Hawaiian	7¾	@	8
Carolina	10	@	10½

SALT.

Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	22 00
do coarse	16 00	@	—

SOAP.

Castile ₩ ₤	10	@	11
Local brands	—	@	8

SPICES.

Cloves	45	@	50
Cassia	26	@	27
Citron	—	@	30
Nutmegs	1 20	@	1 25
Whole Pepper	18	@	19
Pimento	—	@	15½
Gr'nd Allsp'ce	—	@	12½
do Cassia	—	@	50
do Cloves	—	@	50
do Mustard	—	@	20
do Ginger	—	@	00
do Pepper	—	@	00
do Mace	—	@	00

SUGAR.

Cal. Cube per ₩ ₤	11½	@	—
Pariz' Pro. Cube			
hbl or 100 ₩ hxs	—	@	11¾
do in 50 hxs	—	@	12
do in 25 ₩ hxs	—	@	12½
Circle A ornshed	—	@	11½
Powdered	—	@	11¾
Granulated	—	@	11
Dry granulated	—	@	11½
Hawaiian	8	@	10½
California Beet	—	@	—
Golden C	—	@	—
do Rey'g grade	—	@	—
Cal. Syrup in ½s	—	@	70½
do in ½ hls	—	@	67½
do in kegs	—	@	75
Hawaiian Molasses	25	@	27½

TEA.

Oolong, Canton, ₩ ₤	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moynna	60	@	90
Ounpo'der, Cant	30	@	42½
do Pingsuey	50	@	90
do Moyane	65	@	95
Y'ng Hy., Canton	28	@	40
do Pingsuey	40	@	70
do Moynna	65	@	85
Japan, ½ chaste, hulk	30	@	75
Japan, lacquered bxs, 4½ and 5 lbs	45	@	67
Japan do, 3 lb bxs	45	@	90
do ½ lb bx, 4½ lb	50	@	90
do ¼ ₤ lb paper	30	@	55

TOBACCO—Jobbing.

Bright Navys	50	@	55
Dark do	50	@	55
Dwa f Twist	65	@	70
12 inch do	60	@	70
Light Pressed	65	@	75
Hard do	50	@	60
Plug, Wrapper	35	@	40
Pann. Wrapper	20	@	45
Ohio do	15	@	20
Virgi'a Smok'g	45	@	75
Fine ot she'g, gr	8 50	@	25
Fine cut chewing, huc'ts, ₩ ₤	75	@	90
Ganner fine cut	9 00	@	9 25
Eureka Oula	—	@	9 00

TURPENTINE.

Eastern	65	@	70

LEATHER.

WEDNESDAY M., Oct. 28, 1874.

City Tanned Leather, ₩ ₤			26@29
Santa Cruz Leather, ₩ ₤			26@29
Country Leather, ₩ ₤			24@28
Stockton Leather, ₩ ₤			25@28
Jodot, 8 Kil., per doz	850	00@	54 00
Jodot, 11 to 19 Kil., per doz	66	00@	90 00
Jodot, second choice, 11 to 18 Kil. ₩ doz	55	00@	72 00
Cornellian, 12 to 16 Ko	57	00@	67 00
Cornellian Females, 12 to 13	63	00@	67 00
Cornellian Females, 14 to 16 Kil	71	00@	76 50
Simon Ulmo Females, 12 to 13, Kil	60	00@	63 00
Simon Ulmo Females, 14 to 15, Kil	70	00@	72 00
Simon Ulmo Females, 16 to 17, Kil	73	00@	75 00
Simon, 18 Kil., ₩ doz	61	00@	63 00
Simon, 20 Kil. ₩ doz	65	00@	67 00
Simon, 24 Kil. ₩ doz	72	00@	74 00
Robert Calf, 7 and 9 Kil	35	00@	40 00
French Sheep, all colors, ₩ doz	3	00@	1 75
California Kip, ₩ doz	40	00@	6 10
French Sheep, all colors, ₩ doz	8	00@	15 00
Eastern Calf for Backs, ₩ ₤	1	00@	1 25
Sheep for Lining, all colors, ₩ doz	9	00@	13 00
Sheep Roans for Linings, ₩ doz	5	50@	10 50
California Russett Sheep Linings	1	75@	4 50
Best Jodot Calf Boot Legs, ₩ pair	5	00@	5 25
Good French Calf Boot Legs, ₩ pair	4	00@	4 75
French Calf Boot Logs, ₩ pair	4	00@	—
Harness Leather, ₩ ₤		30@	37½
Fair Bridle Leather, ₩ doz	48	00@	72 00
Skirting Leather, ₩ ₤		32@	37½
Welt Leather, ₩ doz	30	00@	50 00
Buff Leather, ₩ foot		17@	22
Wax Side Leather, ₩ foot		17@	23
Eastern Wax Leather		—@	—

SECOND EDITION—REVISED AND ENLARGED.

The Explorers', Miners' and Metallurgists' Companion.

Comprising a Practical Exposition of the Various Departments of Exploration, Mining, Engineering, Assaying, and Metallurgy.

Containing 672 Pages and 83 Engravings

BY J. S. PHILLIPS, M. E.,

Of California, a Practical Operator for Thirty-four Years; Explorer, and Resident in the Pacific States and Territories for the past Eight Years.

PRICE, bound in cloth, $10.50; in leather, $12. Forwarded by mail for 60c. extra, at the MINING AND SCIENTIFIC PRESS Office, by

DEWEY & CO.

THE GREAT MEDICAL SUCCESS OF THE AGE.—Leading druggists who have been in business for half a lifetime state that they have never known a medicine to enlist the entire and universal confidence of the public as rapidly as *Hale's Honey of Horehound and Tar.* Although it has only been a few years in use, it has already taken precedence of all other medicines advertised as remedies for Coughs, Colds, and incipient Consumption, and its annual sales are without a parallel in the history of this class of preparations.

Pike's Tooth-Ache Drops—Cure in one minute.

FOR STATE OF NEVADA.—We have appointed Mr. F. B. Alderson our special agent and correspondent for the State of Nevada. He will visit our friends and patrons there soon.

Designing
and
Engraving
at
This Office.

We are prepared to do fine Wood Engraving for illustrating Landscape Scenery, Buildings, Machinery, Works of Art, Manufactured Articles, Trade Marks, Seals, Etc. We have a first-class

Machine for Engraving

A portion of the work, which can be finished thereby more perfectly than by the eye and hand alone. Our patrons can depend upon first-class work always, and at reasonable prices. Samples can be seen at our office.

DEWEY & CO.

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874,** provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.

June, 1874.

Mining and Other Companies.

Black Mountain Coal Mining Company—

Location of works, Santa Cruz County, State of California. Location of principal place of business, City and County of San Francisco, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 28th day of August, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bankhead, H	30	100	$5 00
Burroughs, C B	25	25	1 25
Burroughs, C B	31	25	1 25
Forrester, J	35	50	2 50
Parshley, W H	32	25	1 25
Parshley, W H	33	25	1 25
Ramsey, Peter	62	10	50
Smith, Geo H	26	25	1 25
Smith, Geo H	34	75	3 75
Names.	No. Certificate.	No. Shares.	Amount.
Strader, W	3	1000	50 00
Strader, W	37	14	70
Strader, W	43	150	7 50
Strader, W	44	10	50
Strader, W	45	10	50
Strader, W	46	10	50
Washburn, C A	19	3000	150 00
Washburn, C A	20	1000	50 00
Wnch, Valentine	55	10	50

And in accordance with law, and an order of the Board of Directors, made on the 28th day of August, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said Company, No. 402 Montgomery street, Room No. 23, San Francisco, on the second day of November, 1874, at the hour of 12 o'clock M., of said day, to pay delinquent assessments thereon, together with costs of advertising and expenses of sale.

F. H. WELLS, Secretary.

Office—No. 402 Montgomery street, Room No. 23, San Francisco, Cal.

Cincinnati Gold and Silver Mining Company.

Principal place of business, San Francisco, State of California. Location of works, Kelsey Mining District, El Dorado County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 25th day of September, 1874, an assessment of two and one-half cents per share was levied upon the capital stock of the corporation, payable immediately, in United States Gold and Silver coin, to the secretary, at the office of the Company, No. 531 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the second day of November, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday the 24th day of November, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

WM. SMALL, Secretary.

Office—Room 1, No. 531 California street, San Francisco, Cal.

Confidence Mining Company---Location of

Principal place of business, San Francisco, California. Location of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 19th day of September, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
James Bell	38	338	$101 40
H. Hampton, Trustee	2	562	168 00
H. Hampton, Trustee	5	225	67 50
H. Hampton, Trustee	6	225	67 50
OLD ISSUE.			
William Sell	36	100	67 50
William Sell	37	100	67 50

And in accordance with law, and an order of the Board of Trustees made on the 19th day of September, 1874, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the Company, 217 Sansome street, San Francisco, California, on the 16th day of November, 1874, at the hour of two o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale.

W. S. ANDERSON, Secretary.

Office—217 Sansome street, San Francisco, California.

Land Purchasers' Association—Office, No.

331 Montgomery street, Room 7, San Francisco, Cal.

Notice is hereby given, that at a meeting of the Directors or Trustees of this corporation, held on the 28th day of October, 1874, an assessment of ten dollars per share (being the 42d monthly installment on the subscription to the stock) was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at No. 331 Montgomery street, Room 7 San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 30th day of November, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on the 24th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

C. S. WRIGHT, Secretary.

Office, No. 331 Montgomery street, Room 7, San Francisco, California.

The Orleans Mining Company—Principal

place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of October, 1874, an assessment (No. 1) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United states gold coin, to the Secretary at the office of the company, Room 8, 315 California street, San Francisco.

Any stock upon which this assessment shall remain unpaid on the 2 th day of November, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 15th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. NESMITH, Secretary.

Office—Room 8, No. 315 California street, San Francisco, California. oc24

The Orleans Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Grass Valley Township, Nevada County, State of California.

There will be a special meeting of the Stockholders of the Orleans Mining Company, on Tuesday, the 10th of November, 1874, at 1 o'clock, P. M., at the office of the company, room 8, No. 315 California street, San Francisco, California, to take into consideration the disposal of the company's reserve stock, and transaction of such other business as may come before the meeting.

By order of the Board of Trustees.

J. F. NESMITH, Secretary.

Stanislaus River Mining Company—Lo-

cation of principal place of business, San Francisco, California. Location of property and works, Stanislaus River, Tuolumne County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 4) levied on the 23d day of September, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D F Verdenal	145	61	$12 20
Wallace Everson	65	225	45 00
Wallace Everson	134	34	6 80
James Dunn	26	100	20 00
Thomas Derby	29	200	40 00
Thomas Derby	55	100	20 00
Thomas Derby	114	45	9 00
T Greenwood, Trustee	148	60	12 00
T Greenwood, Trustee	156	200	40 00
F M Berryman	17	1000	200 00
F M Berryman	18	500	100 00
F M Berryman	108	225	45 00
Walter Turubull, Trustee	96	100	20 00
R F Bunker, Trustee	141	15	3 00
S J Smith	44	100	20 00
S J Smith	128	30	6 00
S J Smith	149	50	10 00
James Ross	150	50	10 00
Frank Clayton, Trustee	80	500	100 00

And in accordance with law, and an order of the Board of Directors, so many shares of each parcel of such stock as may be necessary will be sold at public auction, at the auction rooms of Maurice Dore & Co., 326 Pine street, San Francisco, on Friday, the 13th day of November, 1874, at the hour of one o'clock P. M., of such day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale.

WILLIAM STUART, Secretary.

Office—113 Leidesdorff street, San Francisco, Cal.

Machine Builders.

THE RISDON
Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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Wm. Norris, Wm. H. Taylor, J. B. Haggin,
James D. Walker.

WM. H. TAYLOR.....President
JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
24v17-qy

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Foundry and Iron Works.

HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
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Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size

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☞ The highest price paid for Scrap Iron.

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CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
Dunbar's Patent Self-Adjusting Steam Pieton PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
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IRON FOUNDERS.
IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the Hepburn Rolling Pan and Callahan Grate Bars, suitable for Burning Screenings.
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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch
☞ PRICES MODERATE. ☜
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MARYSVILLE, - - - - - - - - - - - - CAL.
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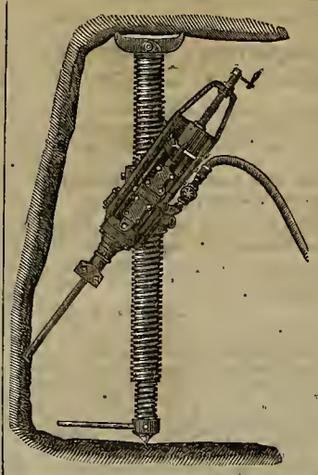
LIGHT AND HEAVY CASTINGS,
of every description, manufactured, 2av16qr



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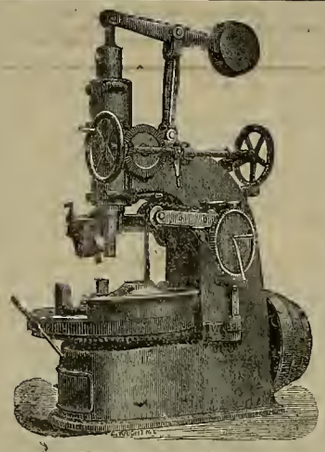

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We have the best and most complete assortment of
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In the Country,
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SCREWS
QUALITY AND FINISH UNSURPASSED.
7 & 9 S. JEFFERSON ST. CHICAGO.
SCREWS FOR ALL PURPOSES. MADE TO ORDER.
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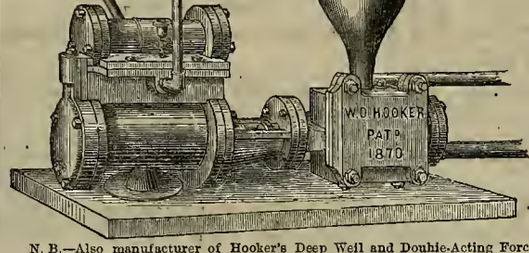
Hooker's Patent Direct Acting Steam Pump.



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Cor. Fremont & Natoma streets, S. F.,
Sole Proprietor & Manufacturer for the Pacific Coast.

SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.
The Best Pump in Use.

☞ SEND FOR CIRCULAR

N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump. Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco. 18v27-2am3m

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MANUFACTURERS OF ALL KINDS OF
Machine Bolts, Bridge Bolts, and Ship or Band Bolts,
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BIRCH, ARGALL & CO.,
Builders of QUARTZ, SAW AND FLOUR MILLS
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Miners' Foundry and Machine Works,
CO-OPERATIVE,
First Street, bet. Howard and Folsom, San Francisco
Machinery and Castings of all kinds.

Glasgow Iron and Metal Importing Co.

Have always on hand a large Stock of
Bar and Bundle Iron, Sheet and Plate Iron Boiler Flues, Gaeand Water Pipe, Oaet Steel, Plow and Shear Steel, Anvils, Cumberland Coal, Etc.
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Machinery.

THE
AMERICAN TURBINE WATER WHEEL

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ½ 69.64; ¾ 78.73; ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emmerson says: "These are the best average results ever given by any Turbine Wheel in my experience."

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to
TREADWELL & CO.,
SAN FRANCISCO, CAL.
Sole Agents for the Pacific States and Territories.
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BALL'S
SWEEPING DREDGE,
A NEW AND VALUABLE
CALIFORNIA INVENTION,
Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a basis of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

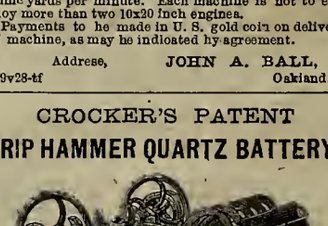
I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

Address, JOHN A. BALL,
9v28-tf Oakland.

CROCKER'S PATENT
TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

G. D. CROCKER,
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San Francisco Boiler Works,

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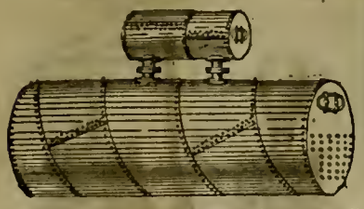
E. I. CURRY.

(Late Foreman of the Vulcan Iron Works,) Proprietor



High and Low Pressure Boilers of all Descriptions.

SOLE MANUFACTURERS OF THE CELEBRATED

SPIRAL BOILER.

SHEET IRON WORK of every description done at the Shortest Notice.

All kinds of JOBBING and REPAIRING promptly attended to. 17v25-3m

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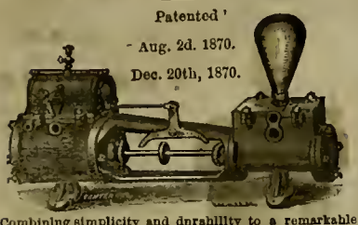
DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

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STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

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EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)

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STEEL SHOES AND DIES

FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability, and Economy*

Die.

Shoe.

Will wear three times longer than any iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.

All orders promptly filled.

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Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

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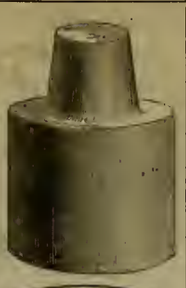

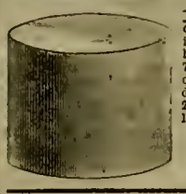

To Superintendents of Quartz Mills and Mining Men Generally.

We guarantee these SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent cheaper. They are gradually coming into use in all of the principal mills on this coast.

Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.

Address all orders, with dimensions, to

CAST STEEL SHOE & DIE CO.,

Room 1, Academy Building, San Francisco.

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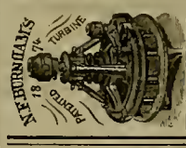
McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st., between Fremont and Beale, San Francisco



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The best in the Market, and sold at less price than any other first-class Wheel. Send for a Pamphlet and be convinced.

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Electro-Depositing Works,

Nickel Plating,

Silver Plating,

Gold Plating,

Copper Plating,

IN THE HIGHEST STYLE OF THE ART.

MINING PLATES

—OF—

EXTRA QUALITY AT LOW PRICES.

Old Plated Ware Re-Plated

GOOD AS NEW.

Works, 134 Sutter Street, S. F.

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BLACK DIAMOND FILE WORKS.

TRADE MARK

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Manufacturers of Files of every Description,

Nos. 39, 41 and 43 Richmond street,

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Sold by all the principal hardware stores on the Pacific Coast. 13v25.1y

California Assay Office—J. A. Mars & Wm. Irelan, Jr., Chemists and Assayers, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

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MANUFACTURERS OF

HYDRAULIC PIPE

AND

Artesian Well Pipe.

Having the Latest Improved Machinery, we can make it an object to

Mining & Water Companies

OR

WATER WORKS,

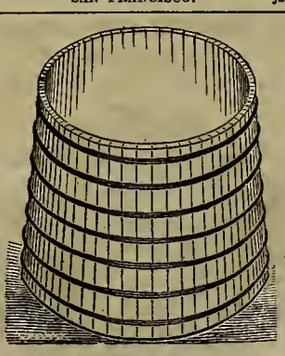
TO CONTRACT WITH US FOR

SHEET IRON PIPE.

ALL SIZES MADE AND ALL WORK GUARANTEED.

OFFICE AT 112 BATTERY ST.,

SAN FRANCISCO. ja3-tf



WATER TANKS of any capacity, made entirely by machinery. Material the best in use; construction not excelled. Attention, dispatch, satisfaction. Cost less than elsewhere.

WELLS, RUSSELL & CO.,

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SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

Standard sizes of railroad Car Wheels, with special patterns for Mining Cars. These small wheels are made of the best Car Wheel Iron, properly chilled, and can be fitted up with the improved axle and box—introduced by this company, and guaranteed to outlast any other wheels made in this State.

All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

Diamond Drill Co.

The undersigned, owners of LESCHOT'S PATENT for DIAMOND POINTED DRILLS, now brought to the highest state of perfection, are prepared to fill orders for the IMPROVED PROSPECTING and TUNNELING DRILLS, with or without power, at short notice, and at reduced prices. Abundant testimony furnished of the great economy and successful working of numerous machines in operation in the quartz and gravel mines on this coast. Circulars forwarded, and full information given upon application.

A. J. SEVERANCE & CO.

Office, No. 315 California street, Rooms 16 and 17. 24v26-tf

NONPAREIL OIL.

140 Degrees Fire Test, for Family Use.

OWNERS OF MILLS AND MANUFACTORIES, your attention is particularly called to this beautiful and safe ILLUMINATING OIL. Its use is urgently recommended by the New York Fire Commissioners and Insurance Companies. For sale to the trade in lots to suit,

A. HAYWARD, 224 California St. 19v28-3m

Metallurgy and Ores.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

ASSAYERS' MATERIALS

Chemical Apparatus and Chemicals,

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PHOTOGRAPHIC GOODS, ETC.,

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We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

ASSAYERS' MATERIALS

—AND—

Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

7v25-tf JOHN TAYLOR & CO.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco

Nevada Metallurgical Works,

21 First street.....San Francisco.

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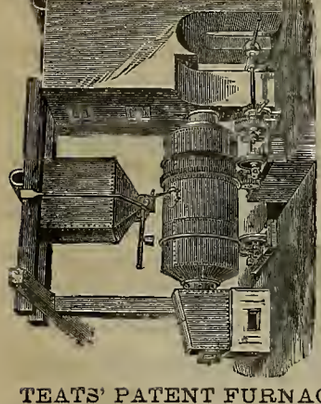

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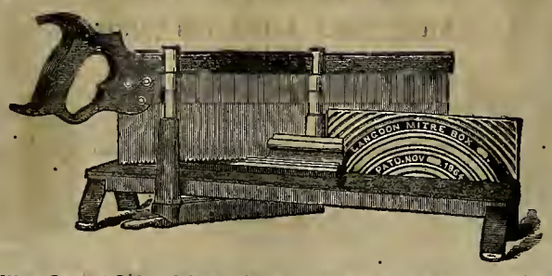

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SCIENTIFIC PRESS.—The attention of our resdere is called to an interesting articls on the Mining Interests of Northern Sierra, on tha first page of this issua, from tha SCIENTIFIC PRESS, San Francisco. Thia is the ahlest, most instructive and influential Mining Journal published in the Great West, and should he liberally patronized by all our mining friends.—*Mountain Messenger*, April 25.

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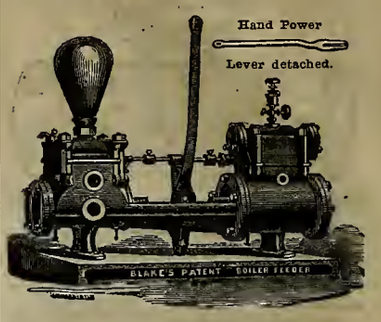

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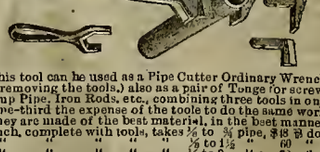

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The MINING AND SCIENTIFIC PRESS, San Francisco, Cal., Dewsy & Co., is a rich *placer*, wherain golden information may be found, valuable to any searcher after knowledge.—*Newark Manufacturer*.

MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, NOVEMBER 7, 1874.

VOLUME XXIX Number 18.

Purifying Quicksilver.

We give on this page the process employed at New Almaden for purifying quicksilver from the soot and other foreign matter which becomes intermingled with it during the condensing and reducing process, or that may become intermingled with it in any other way. The blast or draft which draws off the mercurial fumes into and through the condensers from the furnace where the ore is roasted, also carries with it a mechanical mixture of fine dirt, particles of unconsumed carbon, some ash, some undecomposed cinnabar, and various other impurities and minute particles of the metal. This combination of matter is deposited in the condensers in a condition resembling lamp black or paste, it having become moistened by the steam introduced from the fuel and ore, and, as a consequence, it becomes intermingled with the quicksilver.

James B. Randol, superintendent of the New Almaden mine, and Charles W. Wright invented and patented the method herein described of purifying the mercury when in the state referred to. To do this, the quicksilver, intermixed with soot or other extraneous substances is placed in an iron tank marked *A*, to which water heated to the required degree is added, and the substance intimately mixed. Wood ashes or other suitable alkali are added for the purpose of still further cleaning the quicksilver, which is then drawn off through the pipe, *G*, into the vessel, *H*. The apparatus for supplying hot water is simple. A boiler or heating apparatus is placed under the tank; *E* being the fire door and *F* the ash pit. The cold water supply pipe, *D'*, has a float ball, *K*, attached to the valve, so that the tank gets the requisite supply without attention. The cold water pipe, *D*, feeds the boiler with water which on being heated passes into the tank, *J*, through the hot water pipe, *C'*. The water in the tank, *J*, is kept at the boiling point, and is drawn into the soot tank, *A*, as required through the hot water pipe, *C*.

When the soot and ashes are put into the tank, *A*, the hot water is shut off. A man mixes the soot, ashes and hot water thoroughly with a shovel, and thus separates the soot from the metal, allowing the quicksilver to pass off clear and pure through the siphon, *G*, into the vessel, *H*. The shaded lines in the tank, *A*, represent the water and soot, the darker part showing the position of the soot. This apparatus can be kept running continuously and is very effective. The process has been in use at New Almaden for over a year, and is also in use at the Great Western mine. The Kellogg Furnace Co., at Knight's Valley, have also purchased the right to use it. All the quicksilver is saved from the soot by this process, which has worked satisfactorily at the mines where it has been in use.

DROWNED OUT.—The Stanislaus river mining company, operating in the Stanislaus river at the old Central Ferry, have been unfortunate again this season. The company is a live one showing good pluck and energy with a determination to see the bottom of the river, which promises to yield a good amount of the precious ore. Last year the claim was brought to working condition when the waters rose and stopped operations before any returns were obtained. The *Union Democrat* says that this year promised better, a short time ago everything was ready, rich gravel was being taken out when the storm came, the water rose, saving of lumber, pumps and other appliances became the necessity of the hour. We learn nearly all the appliances were saved. It is too bad the company has been so seriously impeded by the elements.

THE cinnabar and silver fever has extended to Modesto. A company has been formed with the view of prospecting claims in the Coast range, east of Grayson. Many men are already at work in these mountains, and some excellent croppings of silver have been discovered.

ALL the mills and mining companies are getting in stores for winter.

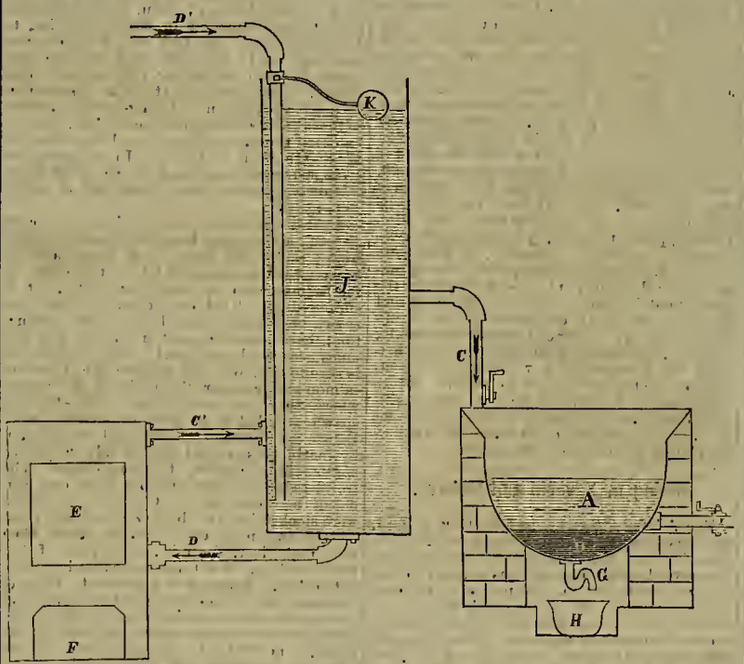
Patent Nonsense.

It is really amusing to read some of the criticisms of the daily press on our Patent Law. The following article we clip from the *Daily Evening Post* of this city, dated Nov. 2d.:

"When the United States grants letters patent to an inventor it declares only that the invention if new and original is one which can be patented. The inventor no doubt believes that he is the first inventor, but in nine cases out of ten where an invention is useful it turns out that some one has previously invented the same thing, though he has failed to bring it into public use. Inventors and purchasers of new patents often do not find this out until they have invested large sums of money in procuring, perfecting and working the patent. The knowledge of this fact enables speculators to get hold of new and valuable inventions by ransacking the archives for forgotten inventions of a similar character, purchasing them for a song, and then frightening owners of meritorious inventions into giving away half or three-fourths of their interest to save the balance and avoid litigation. It is now seriously urged by some of the Eastern Press that the patent laws should be changed, and that the search for prior inventions should precede instead of following the issue of the letters patent. In the patent office are the only full records of United States patents. Their number is great, and is increasing rapidly every week, but as they are classified, experts could in a reasonable time make the necessary search. It is suggested that it would be well even to increase the fees if necessary, for the inventor could better afford to pay $160 to his agent for a patent which, like any United States patent for a portion of the public domain, would be unassailable and irrevocable, than to pay $40 for a patent which proves nothing, not even that somebody else had not two years before received a patent for identically the same invention."

The writer of this above article evidently did not know that a corps of seventy-one examiners are constantly employed in the United States patent office, examining into the novelty of patent applications *before the patents are granted*. If he had ever made an application for a patent he would have learned that his application had to pass through an ordeal of examination previous to its allowance by the office that would astonish his innocent ignorance. Ten to one he would find himself rejected on references that would require a wonderful stretch of mechanical imagination to discover any similarity between them and his invention. Yet with all this strictness of examination before granting patents, duplicate patents are sometimes issued; and that such is the fact is no wonder, when we consider the multitude of patents which have been issued from the office, and the number requiring to be examined daily in order to keep the work of the office from running far behind.

The trouble, we apprehend, is with the patentees themselves. It is too often the case that when an inventor improves some old machine



RANDOL & WRIGHT'S QUICKSILVER PURIFYING APPARATUS.

and secures a patent for his improvements, that he either through ignorance or wilfully represents that his patent covers the entire machine, whereas it only covers the improvements. In such a case the trouble complained of by the *Post* would certainly occur; but our system of examinations and granting and issuing patents is correct, and our Government always sustains a patent when it is possible, for all that it covers.

A SOUTHERN extension of Colonel Wilson's coal mine, at Lincoln, has been opened at Cook's ranch, where a wide stratum of fine coal abounds. Another vein has been discovered at Whisky Diggings, ten or twelve miles farther east, an old pioneer mining locality where considerable gold was taken out about 18 years ago. The last deposit is of the anthracite character, and is likely prove of value.

A PARTY of several persons employed at the Butte Flume and Lumber company, made boxes for boats and came down the flume one day last week. They started at 4 P. M., and arrived at 12 midnight, making the trip in 8 hours; distance, about 40 miles.

COAL has been discovered on Patrick Nicholas' ranch near Benicia. Although only surface ore, and mixed with conglomerate, it ignites readily and burns steadily, furnishing a good degree of caloric, and with little apparent waste.

LAKEPORT is excited over quicksilver discoveries at Clear lake.

A NEWSPAPER will soon be published in Pauamint.

Academy of Sciences.

The regular semi-monthly meeting of the California Academy of Sciences was held on Monday evening last. The donations to the museum were as follows: A collection of ores and minerals from different donors. John Edwards, of Thompson Flat, three miles north of Oroville, Butte county, presented fossil teeth and a leg bone, found in a hydraulic mine in that locality, at a depth of thirty feet, in a stratum of sand, close under a layer of pipe clay, and about two feet above the bed rock. Many other bones were unearthed at the same time, but they were much broken up by the hydraulic piping, and washed away.

W. G. W. Hartford presented a large specimen of the cuttle-fish, from the island of Santa Rosa. G. Larkin, of the California market, presented a similar specimen.

Dr. W. H. Dall, of the United States Coast Survey, presented a collection of small shells from the Soloman islands.

General Colton presented unusually fine specimens of fossil fish, from the Church Buttes, Wyoming Territory.

J. Begg, of Gilroy, presented specimens of the enormous cone of the Saberriana, from Southern California. Mr. Begg is engaged in the construction of a large pyramid, artistically designed, containing all the varieties of cones found in Californoia, for exhibition at the Philadelphia Centennial.

W. H. Ford presented through Barry & Patten specimens of the caddis worm, found in Nisgara creek, near the summit of the Sierras, Tuolumne county.

Henry Edwards read the tenth paper of his series on Pacific coast Lepidoptera.

Dr. Harkness described a recently extinct volcano which he discovered in the course of a recent trip in portions of Lassen and Plumas counties. He also described a lake as large as Donner, which he had discovered near the volcano, at an elevation of 7,330 feet above the level of the sea. We will give Dr. Harkness' description of these curiosities in full, shortly.

Dr. Behr made some remarks on the Encalyptus globulus, or blue gum tree. He stated that he had been recently informed by an Australian correspondent that the wood of this tree made most excellent shingles, by reason of its non-inflammable characteristics. It was a common joke in Australia to hand new comers an ember from the fireplace of this wood, by which to light their pipes. It would go out as soon as drawn from the fire. Made into shingles it furnishes a first-rate fire-proof material for buildings.

LATE advices from Cape of Good Hope report that new gold discoveries have been made in that section, causing great excitement. As soon as the reports regarding the new diggings reached the settlements, hundreds flocked thither. The discoveries are said to be rich and extensive, and yielded well.

THE Portland Boiler Works, of this city, have just finished a new smokestack for the steamer "China," 10¼ feet in diameter, 40 feet long and weighing 7 tons.

THE waters of Great Salt Lake, according to the monument of Black Rock, have receded several feet in the past six months, through evaporation and other causes.

THERE was coined at the Carson Mint, during October, $541,000 in gold and silver, the largest amount ever coined in that institution in a single month.

THE Panamint operators must have faith in that country. They will have put out probably half a million dollars before they get anything back.

SENATOR JONES is spreading his mining operations as far north as Oregon.

GALENA has been discovered in Kern county, near the railroad.

THE Humboldt reduction works resumed operations on Wednesday.

Mining in Colorado.

A remarkahly open and pleasant autumn is drawing to a close, and parties who have spent their summer in working or prospecting in the ontlying districts, are returniug to the mining center for the winter, thereby increasing the number of laboring men in our community, where they will find abundant employment. For ns here the season has been one of uusual activity in mining. In many mines, for years idle, work has been reeumed, and nonproductive mines have been converted into productive ones. Our gold and silver bullion shipment from this county will foot up three millions of dollars this year, one-eighth of which will be silver from our gold ores, obtained mainly in smelting. More miues are today worked with profit than duriug any previous period of our history. Formerly, when ores ran down as low as five ouncee of bullion per cord, work was discontinued, because it did uot pay. At the commencement of the year there were a great nvmber of mines in whicb a vast quantity of low grade ores was known to exist. In these mines and the portions of rich mines where low grade ores existed, people have entered and successfully solved the question of working them to a profit. A large portion of our bullion shipments has been derived from this source, and yet they have in every instance been worked with profit. In many mines, where at the beginning of work only low grade ore was in sight, the comparatively barren ground is passed, and rich ore in large quantities is being raised, thus showing that, though poor oree do exist in most mines, they also alternate with rich ores. While the low grade ores have paid, the rich ones yield immense profits.

Work this year bas been prosecuted almost exclusively by private enterpise, and this too in many inetances where the operations of companies have resulted in failure. Roberts & Co. have paid a high royalty to the owners of the Ophir mine, and yet have been growing rich. For years they have worked on tribute, and have always made it pay. Meesrs. Kimber & Co., on the Gnnnell, are another example of the same sort. As an element in the present success, the reduction of wages is not to be overlooked, $2 50 per day being the current rate of wages; as much as $3 was paid last year. The half dollar gained from this source is alone enough to change the balance from the debit to the profit side of the account, nor does it appear in the least degree probable that wages will again advance in price. Wages are far too low in the East; too many working men are idle there, and the cost of passage from the East here is too low, having fallen to $35 for immigrant fare from New York here. These facts are known alike to the employer and employed. The cost of living here is greatly reduced from the standard of a few years ago, and is destined to be still lower. While year after year our forests disappear, and thus the source from which our fuel so far as it consists of wood becomes so remote, yet the price bas not risen, and the vendors of coal are now prepared to lay it down at our mines and mills cheaper than wood can be furnished. The success of the past year is such that the amount of work performed during the year that is gone will be greatly in excess of that of the year passing away. Already the work of resumption has received an immense impetus. The first of January will bring consolidation to a host of mining interests at present disjointed, and while the production of the country with its six thousand inhabitante will reach nearly or quite three millious this year, it promises to be increased from 24 to 50 per cent. for the year to come. To secure the greatest success, several changes and additions to present facilities are necessary. We need still cheaper living. We must have greater economy in personal and business expenses. Our people from the wealthiest to the poorest wear too expensive clothing and eat too expensive food.

Less expensive articles in both lines would afford greater comfort and better health, and would secure greater prosperity.

Above all, we want water, in snch quantity as to create water powers in so close contiguity to our mines as to afford a sufficient supply for our mills, domestic use and security against the ravages of fire. There can no longer be a doubt that as a private enterprise and investment of individual capital, it will pay. In many instances, the greatest expense attendant on the raising and reduction of ore is the hauling. While no scheme bas so far ripened as to present even incipient fruit, there is still good reason to believe something will be accomplished within a twelvemonth.

Looking over the entire field and taking all its incidents and bearings into consideration, the prospects for the future were never so good as now, and this is conceded to be the case by everybody, whether mining or not.—*Colorado Register.*

Buying the Right of Way.—The right of way has been obtained by the Spring Valley mining company through the lands of parties living west of Bigge', for the purpose of digging a canal to carry off the water and earth sent down from the mines, and also the large volume of water that comes in this side of Cherokee from the different ravines during the winter season. The company are doing all in their power to save these lands from destruction. They have bought a great many farms along Dry creek, and this step is now taken to save the rest.

Montana Mining Matters.

The *New Northwest* says: The yield of the placer mines of this county the present season will not vary much from eight hundred thousand dollars. This is a decrease of at least one-third below the yield of last year, according to the judgment of the bankers of this city. The falling off is due partially to the short mining season of 1874, the scarcity of water in many of the camps and to the additional fact that the rich mines of Pioneer and that vicinity have not paid in their usual tribute. Some of the old mines which have steadily poured out their golden treasures for the past four years, are becoming worked out, or at least the richest streaks have been mined. Much prospecting has been done during the summer and not without beneficial results. New and valuable strikes have been made, and are now being developed, both in the lower and upper ends of the county, that will next year give a new impetus to the placer gold yield of this section. The introduction of new hydraulic mining machinery, with greater capacity for mining large breasts of less than wages diggings by the old process, will also materially assist to increase the yield. We refer to the introduction of the Little Giants, the superiority of which has been so successfully proven the present season. The silver and gold yield from quartz, although not brought so prominently to notice, will be far greater this year than last. This yield will be largely, if not almost wholly, from shipments of ore to San Francisco and Swansea, Wales, for reduction or sale in the rough; for humiliating as it may be, it is an indisputable fact that our mills are still incompetent to successfully ornsh ores, and our mill men have not yet satisfactorily to themselves, even, solved the question as to the most economical and successful method of treating the various grades of ore found in the different quartz districts. Although the progress of milling operations has been much slower than had been anticipated, still some improvements have been made, and the appliances for reduction are gradually becoming more perfect. Few shipments have been made during the season that have not paid the shipper a handsome profit on his venture. Owners in the Vipond and Bryant silver districts, though not within the bounds of this county yet properly figuring with the yield of this side, have shipped largely this season and, having thoroughly demonstrated the wisdom of such a course, will next year increase their shipment by many hundred tons. The Philipsburg quartz interests, lying stagnated on account of complicated litigation, in part, and the lack of capital to develop, are now apparently placed on the road to good results by the investment in and the working of the Trout mine by the heavy capitalists of the Northwest company. The rich Cable mine is surely, if slowly, unwinding itself from the legal network which the courts have built around it, and may be looked upon as no distant aid to the annual gold yield. Taking a general survey of the mining prospects of Deer Lodge for 1875, the indications are all favorable to an improvement upon the present season.

Mining in Yavapai and Mohave.

The *Arizona Citizen* learns from Gov. Safford, who has recently visited Yavapai and Mohave counties, that the mining interest thereaways has never looked so prosperous as now. From $10,000 to $15,000 in gold per week is being sold at Prescott. It is mostly taken from ore crushed in arrastras, and men who had little or no means own these arrastras. Notably among the successful ones in quartz mining are Fredericke & Co., and the owners of the Gen. Crook lode. Fredericks & Co. have paid the expenses of opening their mine from its proceeds and purchased thereby machinery for reducing the ores, and the owners of the Gen. Crook have a large quantity of very rich ore in sight. A. O. Noyes has a fine mill ready to run; C. C. Hitchcock has a number of men at work at Big Bug, and his prospects are very flattering. Jackson & Co. have been troubled a good deal for want of water to run their mill, but their mines never looked better. No work has been done recently on the Tiger, but the company have 700 tons of ore at the dump that assays over $100 per ton, and the lode is from 15 to 35 feet thick and glistens with native silver. Smith's mill below Wickenburg is doing very well. It daily crushes from 15 to 20 tons of ore, which pays well.

In Mohave county several new and rich discoveries have been made, principal among them being the Owen lode, which promises to be one of the most remarkable ever made on the Pacific coast. Thousands of tons are found on the surface, which will assay $100 per ton and upwards. In Cedar district the Hope, Arnold, Billy Ingle and Echo are showing very well, and considerable work is being done on them. At Mineral Park the Keystone company is sinking a shaft on its lode, which is now down 180 ft., at the bottom of which they find 4 ft. of ore worth from $100 to $500 per ton. The Lone Star company, a short distance above the Keystone, is working with good prospects. Near Cerbat, the "'63" company is taking out very rich ore and shipping it to San Francisco, and work was about to commence on the Little Tiger.

The Savage mining company intend to put in a monstrous engine, erect new buildings, and sink a shaft 4,000 feet into the bowels of the Comatock lode

Salmon Hatching.

John Muir, the mountaineer geologist, has made a tour this year through the foothills of the Sierra, and his wanderings having brought him to the McCloud river, he writes an interesting account of the fish breeding establishments there. In 1873, one and a half million of eggs were procured and shipped; this year 5,752,500 eggs were obtained and distributed over the United States, while 25,000 eggs were sent to New Zealand. Of the operations Mr. Muir writes as follows:

Toward the end of August the McCloud river salmon are ready to spawn, and are then seen pushing their way up toward the sources of the river to deposit it. Mr. Stone has constructed a salmon dam at this place which stretches across the river from bank to bank. In front of this dam the salmon collect in great numbers, and keep up a constant plashing in their efforts to leap over it. Most of them are unsuccessful, and fall back wearied and glad to rest in the first slow-currented eddy. This eddy is a few yards below the dam, and here the tired salmon are captured, and the eggs stripped from them into suitable vessels. The eggs are then impregnated by pressing the milt of the male salmon upon them, and stirring them gently, so as to bring every egg in contact with it. The eggs, thus artificially spawned and artificially fecundated, are then placed in troughs through which a stream of pure water, carefully filtered, is kept flowing. The eggs measure about ¼ of an inch in diameter—are pink in color, and look like ripe currants. After they have been in the hatching-troughs about 16 days the eye-spots of the coming salmonets begin to appear, and they are now ready for shipment. They are packed in boxes, in layers spread upon mosquito netting, between layers of green, living moss, and these boxes are packed in crates with ice, to keep them cool. In this way, with adequate care and skill in handling, they may be sent safely by ship, wagon or rail, to great distances. After arriving at their destination, they are replaced in hatching-troughs similar to those from whence they were taken, and the hatching process continued until the young fry break the shell and swim. In procuring the 5,752,500 eggs mentioned above, about 5,000 salmon were taken, more than half of which were males.

Thus it will be seen that the berry-like eggs or seeds are stripped from the salmon like peas from a pod. The empty fish husks average about fifteen pounds, and fall to the share of the Indians, who dry them for winter. It is supposed that all salmon die after yielding their spawn even in the natural way. This destruction, therefore, of so many handsome fish legumes need not be deplored. Here the question is sure to rise, Why not capture the breeding salmon and transport them alive to the waters where they are wanted, and allow them to spawn and hatch in their own natural way? Before the discovery of artificial fecundation by Jacobi, this method was the only one known and is still in practice to some extent. The trontless streams that rush out from cool cañons of the Sierra in the Owen's river valley were stocked last year by a German, who packed trout in cans on the backs of mules from the King's river, Yosemite, over a pass of 12,000 feet hight. But this more natural method is too slow. Nature does not seem to think of hatching more than one or two in a hundred of the eggs that are spawned, whereas Mr. Stone hatches more than ninety-five per cent. by the artificial method. In every hundred, Nature gives one to the frog, one to the mink, one to the snake, and one to the water ousel, etc., and hatches one into a salmon. In like manner the nut-eggs of pine trees, contained in burrs, are sufficient for the food of many a bird and squirrel as well as for the wants of reproduction.

Artificial destruction has made lakes and rivers as barren as deserts, so far as fish-food is concerned. Prior to the gold period the Tuolumne abounded in salmon, but the mud of mining destroyed them, or drove them away. The Connecticut was also a salmon stream until obstructed by dams, and poisoned by those strangely-complicated filths for which our civilization is peculiar. When fish-ladders are constructed over dams and the sewage of towns and factories is consumed upon the land instead of being poured into the water, leaving paths from the ocean to the spawning grounds free and clean, then our migratory food fishes, such as the shad and salmon, will again become abundant, and that ere long, provided artificial destructions be compensated by artificial reproductions.

Fish may be tamed, and many engage in their culture for the novelty of the thing, or for a natural love of playing and choring in an ichthyological atmosphere, but Stone and his fishy co-workers mean bread and business, and their practical success, considering the infancy of the piscicultural art and the magnitude of the obstacles which had to be overcome, is truly remarkable.

Besides the hatching and distribution of McCloud salmon ova, Commissioner Stone brought shad, bass, whitefish, eels, horn pouts and oysters from the East mostly for the fructification of California waters. The first aquarium car destined for this State tumbled through the railroad trestlework into the Elkhorn river with all its precious fry, much to the discomfiture of Commissioner Stone, who had not the slightest intention of thus casting his shad upon the waters, though some may grow and be found again after many days.

Nearly a million of the eggs taken here this season have been fully hatched and turned into the McCloud river, from whence they were derived, and for this host of wriggling fry the State of California pays the Commission $1,000.

The eggs hatch out into finned fishes in about fifty days, more or less, according to the temperature of the water. When they break the shell they seem eager to try life, and immediately ply their fins. They are then only half an inch long, frail and semi-transparent, and utterly incapable of gaining an independent living; but nature makes that all right by providing each youngling with a bag of provisions big enough to last six or seven weeks, and at the end of this period they are grown sufficiently strong to shift for themselves. Their provision sacks are twice as heavy and bulky as their bodies, and they cannot swim far with them at a time. In resting they frequently lean back or lie down upon their provisions, just as mountaineers do when weary and heavy laden. Long may McCloud salmon swim.

Steel for Cannon.—The *Revue d' Artillerie*, published by order of the Minister of War, in France, contains the report of Major Bobillier, of the artillery, on the experiments made last year, at Creusot, in steel for the construction of cannon. The object of M. Schneider was, of course, to produce a metal that should be free from the faults both of cast iron and bronze, and according to the report this object has been obtained, for in the words of a communication made by General Morin to the Paris Academy of Sciences on the last day of August, "On the one hand accidents like those which caused the Russian government to reject a whole material of artillery from the famous establishment of Essen are not to be feared with the soft steel tried at Creusot; and, on the other, the three pieces of 78 m. 6 mm. (310 inches), experimented on supported without reaching the limit of their power of resistance, and without being deformed nearly as much as bronze would have been under the same circumstances, the most severe trials, and to which guns of that calibre are never submitted in ordinary service." The experiments are still being pushed, but General Morin told the academy that it might be safely asserted that the establishment at Creusot possessed the necessary elements for the production of cannons in steel with all the qualities demanded for artillery, namely, resistance against fracture and deformation.

South Mountain.

To-day the first consignment of base bullion from South Mountain mining district, Idaho territory, arrived in Winnemucca. It consists of 30,300 pounds, and was brought down by G. W. Baker, who has been engaged extensively in the freighting business from Winnemucca to Idaho for several years, and whose teams were the first to enter South Mountain district with large freight wagons. From Mr. Baker, who arrived in town yesterday direct from the mines, we learn the following relative to South mountain. The district is situated thirty-five miles south of Silver City, Idaho territory, and 150 miles north from Winnemucca, in a direct line between the two places. There is considerable timber in the immediate vicinity of the mines, and thirty miles from the district the supply of that indispensable article is practically inexhaustible. Three months ago the South Mountain Mining and Smelting company was incorporated in San Francisco for the purpose of mining and smelting in the district. The company went to work with a will, and within ninety days had a furnace in full blast on ore from the Bay State mine, and over 15 tons of bullion at the depot in Winnemucca. The capacity of the furnace is sufficient to produce on an average 7,000 pounds of bullion daily. Two more furnaces of greater capacity are now in course of erection, and the quantity of ore in sight is sufficient to run them for an unlimited length of time. Our informant says that experienced mining men from Salt Lake and Eureka who have examined the mines are confident that they are equal in richness and extent to the famous mines of those localities. He is also of the opinion that when the district is more thoroughly developed, and the furnaces now being built are in full blast, every pound of freight for Idaho territory will leave the railroad at Winnemucca, as teamsters will always have back freight from South mountain. The success of this smelting enterprise, which is now practically demonstrated, will add greatly to the prosperity of Winnemucca, and to its importance as a shipping point for the whole northern country.—*Reese River Reveille.*

The two furnaces erected by C. A. Luckhardt for the California Borax company, at Sulphur Banks, Lake county, are proving quite a success. They produce daily from the lowest grade ore twelve to fifteen flasks of quicksilver. Mr. Luckhart is about to erect some of his furnaces at the American and other quicksilver mines.

Quicksilver.—The quicksilver prospectors in the coast range of this county, says the Stanislaus *News*, are still sanguine. Many are taking the necessary steps to locate and prove up on their claims in accordance with the laws of Congress. This done, we may expect to hear of work being done to develop and improve claims.

SCIENTIFIC PROGRESS.

Singular Effect of Great Heat—Fire Proof Construction.

Before entering upon the consideration of what arrangements of buildiug are best calcnlated to resist fire, it is advisablo to give some further data of the actions of fire npon other snbstancos than those mentioned in onr la t issno.

After the great fire at Hamborg some 30 years ago, Dr. Zimmerman, an accnrate and truthful observer, wrote an accoont of the effects prodnced by the great conflagration npon various materials. He says, "There were bricks, the snrfaces of which were fnsed and thns coated with enamel. Lime had become brittle and loose, and re-acquired its caustic property. Pieces of granite bnrst into fragments, and the surface of many square stones separated into thin layers. The bells were partially fnsed, at the same time becoming oxidated and forming a slag and red copper ore.

A portion of the fnsed metal broke through tha vaults and entered the sepulchers, coating and filling the skulls and bones with metal. The bell metal nnderwent a partial refining, the tin being separated by fnsion and the copper left behind in a porous state. Steel became soft and condensed by flowing into a thick mass. Iron, after being fnsed, formed a slag and changed into a graphite-like substance, or even into magnetic ironstone which was found in the shape of crystalline octahedra. Glass was frequently fused into a kind of enamel, bnt sometimes it was only fritted and received a crystalline appearance. A magazine of blue paper was entirely destroyed, bnt the smalt was left behind without nndergoing any change and fonnd afterwards fnsed together into a lump. The greater part of the large store of minerals belonging to Messrs. Abel, the great manufacturing chemist, was destroyed, being fused or fritted, especially the metallic minerals. Cobalt alone was able to resist the intense heat, and the smalt had partially become harder and bright in snch portions where it was glazed or changed into a black carbonaceous sabstance. The sparry iron ore had preserved its crystalline form; bnt was transformed into brown iron ore; the green iron ore had undergone the process of fnsion, but still preserved its peculiar color. All the magnesian minerals resisted the red-heat; garnets and opals remained unchanged; the iron garnet however, lost its brightness and assnmed a yellow-brown color. The diamonds were either entirely bnrnt or had become opaque and smaller. Black mica and chlorite schist became of a golden yellow and silicious standstone was changed into opal; clay into porcelain jasper; flints became white-fused with iron into a breccia or were coated with a green enamel. A remarkable circnmstance was that the footpaths and roofs covered with asphalte did not ignite, and that the gronnd underneath the smouldering rnins, for a whole fortnight —in some instances for eight weeks, or even three months—was so little affected by the heat, that an ice cellar was found filled with undissolved ice."

This last, apparently incredible, circnmstance is endorsed by another able writer.—*Architect.*

VARIABILITY OF THE SUN'S DIAMETER.—The disagreement in the observations of the diameter of the snn, made by different astronomers, has thns far been ascribed to faults in the instruments or errors by the observers; but P. Rosa, assistant at the observatory of the Roman College, after having corrected those discrepancies which were the results of errors, finds that different observations with instruments which give for the diameter of the moon a constant quantity, give different diameters for the snn at different times, while the errors of observers or instrnmenta are easily determined by comparing the simultaneons observations made in different localities. When comparing the observations made from 1750 to 1870, it becomes evident that the sun's diameter is really variable, and the qnestion arises: Is it the photosphere which changes its size or form, or is it the influence of the solar heat in the instrnmenta? The last supposition P. Rosa thinks highly improbable, and he adheres to the first—the reality of a variation in the sun itself. Even as our little moon exerts an influence on our ocean, by prodncing the tides, and thus changes the shape of the liquid of our terrestrial snrface, so the large planets Jupiter and Satnrn cause a kind of tidal wave in the gaseous photosphere, and probably even on the liqnid nucleus of the snn, and in altering the form may contribnte somewhat in elongating and shortening some of its diameters.—*Ex.*

TRIUMPHS OF SCIENCE.—A candle 13,000 ft. distant shines with a light 20,000 times more brilliant than do some nebulæ. Yet the constitution of these nebulæ have been determined; and are found to consist of hydrogen and nitrogen. We know the nature of worlds situated at distance inconceivable! And the relative ages of the stars we know. The white stars are the hottest and youngest. The yellow stars, including our sun, are older; while the colored stars are not so hot, and are still older.

A NEW LAMP.—A new lamp has been patented for taking photographs at night, in which bisulphide of carbon is burned on oxide of nitrogen. It is said to be eqnal to sunlight in its effects and intensity.

Purification of Water by Contact with Iron.

Almost all large water pipes are of iron, as tax payers well know when they are called upon to replace the old rusty mains with new ones every few years. Bnt, according to good chemical authority, the iron has an advantage with its defects. Professor Medlock proved by analysis, several years ago, that iron by its action on nitrogenous organic matter produces nitrous acid, which Mnspratt called "Nature's scavenger." The latter chemist found, as a general result, that, by allowing water to be in contact with a large surface of iron, in about 48 hours every trace of organic matter was either destroyed or rendered insoluble, in which state it could be purified effectually by filtration. Medlock found, on examining the water at Amsterdam, which smelt and tasted badly, that the sediment charred on ignition, and was almost consumed, showing that it consisted of organic matter. He also found that water, instead of taking iron from the service pipes, before entering them contained nearly half a grain of iron to the gallon; while in the water issuing from the pipes, there was only an unweighable trace. Before entering the reservoir, the water holding iron in solution formed no deposits; while the water coming from the pipes, and freed from iron gave organic sediment above mentioned. He then made analysis of water brought in contact with iron, and water not in contact, with the result that the water which had not touched iron contained 2.10 grains of organic] matter, and 0.96 grain iron; the other gave only a slight trace of both, showing plainly that the organic matter in the water was either decomposed or thrown down by contact with iron; and this water, when filtered, was found to be clear, of good taste, with no smell, and free from organic matter. It is not stated in what shape the iron was held in solution, but it was probably in that of carbonate, the usual iron salt of springs, since carbonic acid is so common in water in general.

These facts may be made useful in certain places and ways in effecting the purification of water rendered injurious and offensive by the presence of organic substances. And if the interiors of iron mains could only be kept from rusting by a swabbing with nitric acid, or by a paint of charcoal and plumbago, so much the cheaper.—*Ex.*

WHITWORTH STEEL.—Some idea of the solidity of compressed castings of Whitworth metal may be gleaned from the fact that, five minutes after the application of pressnre—about twenty tons to the square inch—a column of fluid steel becomes shorter by 12.5 per cent., or 1¼ inches to the foot. Sir Joseph Whitworth, as a writer in *Iron* states, holds the proportion that for certain purposes a metal must be used having a certain ductility. Hence the metal cast at the Whitworth works is classified according to its possession of these qualities, and arranged for convenience in four groups, distinguished by colors, red, blue, brown and yellow, and by numbers, No. 1 of each group representing the most ductile metal, and No. 3 the least so. Various samples of Whitworth steel tested gave from 36 to 72 tons tensile-streogth, and from 33·3 to 14 per cent. elongation. There is shown a singular relation between the tensile strength and ductility of metal, the one generally increasing as the other decreases, a circumstance which, it is suggested, may possibly deserve investigation.

THE VIBATORY NOTE.—It ia well known that in order to enable processions to safely cross large suspension bridges, it is necessary that they should break step in order to insure safety; and it is told, in illustration, that when the first suspension bridge was built in England, a fiddler offered to demolish it with his fiddle. Striking one note after another, he eventually hit the vibrating note or fundamental tone, and threw the structure into extraordinary vibrations. It is said that a bridge once went down in France under the tread of a regiment of infantry who neglected to break step on entering it, and that many persons were drowned. The experiment of breaking a tumbler or other glass vessels by frequent repetitions of some particular note of the human voice belongs to the same class of phenomena.

A NEW AMERICAN BAROMETER.—At the August meeting of the American Association at Hartford, a paper was read by Prof. B. S. Hedrick, describing "An Improvement on Descartes' Barometer;" referring to an instrument containing mercury and heavy petroleum, which boils at about 300°, the tube being enlarged above the position of the mercury, so that the light liquid on top exhibits all changes very readily, and is plainly visible even at some distance.

PUTREFACTION.—Meat does not oxidize or putrefy in compressed air, though it undergoes changes of color, texture and flavor. Certain fermentations may be arrested by oxygen at a high pressure. Wines may be prevented from undergoing the acetous fermentation by the action of compressed air.—*M. Paul Bert, in Les Mondes.*

PYROMETERS.—It appears from a report of a committee of the British Association of Science charged with examination of the above instruments, that, by means of the Siemens electric electric pyrometer, changes of resistance amounting to about 1-10,000 of the quantity of heat to be measured can be detected without much difficulty.

MECHANICAL PROGRESS.

Greasy Water in Steam Boilers.

This subject was recently discussed before the Society of Engineers in Aix-la-Chapelle. Lamberts remarked in the course of the discussion that in hundreds of cases the use of greasy water has caused a corrosion of the plates of iron used in constructing the boiler, and that it ceased at once on feeding the boiler with fresh well water. On that ground the construction of heaters in which the water come into direct contact with the exhaust was inferior to the indirect acting through a metal diaphragm. In the first a great part of the oil employed for lubricating the cylinder got into the boiler.

Boecking laid stress on the fact that in innumerable cases no injury could be proven to have been done by the condensation water at least. Buettner was of the opinion that the action of the grease was due to its adhering to the metal and isolating it from the water, so as to expose it to overheating on the side exposed to the fire, since the chemical action of the fatty acids was too weak to be injurious. If we undertake to saponify the fat with soda, we have the disadvantage that the water foams a great deal, and the steam produced carries a great deal of water with it. Dr. Stahlschmidt declared that from a medical standpoint the various undoubted proofs of the injurious effects of grease are a riddle. In the distillation of paraffine, kettles are employed which are in contact with fatty acids from year to year, and yet they last a long time. It is desirable that scientific experimenta be made on real steam boilers to explain this phenomenon.

Lamberts remarked that the injurious effect of greasy water was experienced to a greater extent in South Germany, where the water frequently contained magnesia, which substance is contained to a much slighter extent in waters of the Rhine. The fatty acids form with magnesia a totally insoluble soap. By making the experiment on a small scale a white powder will be seen floating on the water, and on putting the finger into the water, this powder envelops the finger and protects it from being wetted. Magnesia, even when the water is not greasy, has an injurious effect, as experience has proven in the case of waters which contained much carbonate of magnesia.

G. Piedbœu, on the contrary, claimed that without any grease the carbonate of lime and magnesia did no injury. As soon, however, as any grease gets in it, a precipitate is formed, which attaches itself to the sides of the boiler, and prevents the water touching it, thus exposing it to the destructive action of the fire. In such cases the evil is at once overcome by taking the water direct from a well or spring, no matter how much magnesia it contains, provided it is free from fat and oil. In a steamship boiler, worked with a surface condenser, after a week's use, both fire-lines collapsed simultaneously, although there was plenty of water present. New York engineers had attributed the accident to a want of circulation in the water, and altered the construction of the boiler to that end; but on the return trip the very same thing happened again. To help this soda has been employed, thereby preventing injury from the grease, but producing a violent boiling over. Finally, sea water was principally used for feed, and the boiler was no longer injured by the deposit of grease, but was destroyed by incrustations.

Silica has a totally different effect from the carbonate of lime and magnesia. This, now and then, produced injury in perfectly pure water, especially in mountain streams, by hastening the oxidization of the iron. Von Gizycki stated that after the introduction of surface condensers in ships' engines, they were soon compelled to mix with the distilled and greasy water, from time to time, a small quantity of sea water, and that at first sea water alone should be employed until a protecting crust had been formed. A ship's boiler, where this precaution had been neglected, was destroyed after four weeks' use, and was found to be covered with a deposit of oxide of iron. Another means that has been employed with good results is to frequently let out the boiler water from the surface condenser.—*Ind. Zeit. and Am. Art.*

THE first duty of an engineer, when he enters his boiler room in the morning, is to ascertain how many gauges of water there are in his boiler. Never unbank nor replenish the fires until this is done. Accidents have occurred, and many boilers have been entirely ruined, from neglect of this precaution.—*The Locomotive.*

A 6,000-TON STEAMER FOR THE MISSISSIPPI.—Parties in New Orleans are proposing to build a new style of boat, of iron, three hundred feet long, of six thousand tons capacity, able to run twelve miles an hour either way, with a consumption of less than one hundred tons of coal in a round trip from St. Louis.

IT is not alone in the United States that steel rails are growing in favor to the exclusion of iron. All of the contracts lately given out by the Belgian government for the State lines are for steel. These amount to no less than 29,000 tons.

Portable Fire Walls.

While a thousand plans are being devised as safeguards in time of great conflagrations, the following suggestion from the Chicago *Manufacturer* commends itself as sensible:

What we need, in addition to our other fire apparatus, is a portable fire wall. This wall must be easily transported to a point of exposure, readily erected and thoroughly efficient when placed. The value of such a wall is beyond estimate, and its cost comparatively light. Sheets of iron stiffened with iron frame backs, about 6 ft. wide by 20 ft. long, are hinged together at their sides in such a manner that they will fold right and left and make a compact load, such as would ride snugly upon an iron wagon, like those used for hooks and ladders. Nine of these sheets so joined would form an iron curtain, when extended, 20 ft. wide by 50 ft. high. When needed, say among our highest buildings, several teams, each with such a curtain, would drive rapidly to the point of exposure, and draw up in front, not of the building burning, but of the one exposed. Two of the men in charge would go to the top of the building, and throw down the end of a rope, and draw up and put in place two hooks, like a painter's roof hook, holding tackle blocks, through which would run wire ropes coming from similar blocks below; the lower blocks would then be attached to the upper side of the curtain, and the two horses would be enough to raise the curtain in front of the building. If more than 50 ft. in hight are required, a second curtain could be hooked to the bottom of the first. By the side of the first, others overlapping could be raised until the exposed front was covered. The whole could be braced and ganged. Behind this curtain, separated from it by a wide air space, the building would stand securely while the opposite side of the street or alley burned down; and it would not be even defaced or blackened, or have its glass cracked; nor would the firemen, in keeping it cool, break the windows and deluge the goods within.

To use this fire wall among the lower buildings, lumber yards, mills, etc., an apparatus should be furnished capable of holding it, at the required hight. I prefer a tripod constructed of gas pipe. This would be light to transport and erect, and yet, if well set at the bottom and firmly gauged, it would stand the strain demanded.

I will not occupy your space by dwelling upon details. But if my suggestions seem worth attention, I shall be glad to explain them at length. I am confident that, with such a portable fire wall, fires may be always confined to the spot where they begin; and if, unfortunately, they extend further, this wall will enable the fire department to make a successful stand at any point selected.

SIMPLE AND INGENIOUS DEVICE.—The liability of water-pipes to burst from the effect of frost is one of the most prolific sources of discomfort and expense both in households and in manufacturing establishments, and no effectual safeguard from the evil has hitherto been found. An English inventor now proposes a method which has certainly the merit of ingenuity, and seems well adapted to attain the object aimed at. The increase in bulk of water, in freezing, is about one-twelfth, and the expansive force thus exerted is so powerful that no pipe or vessel yet made can resist it.

But this inventor adroitly avoids the difficulty by passing through the water pipe an India rubber tube of such dimensions that the space inside of it is a little more than the increase in the volume of water in freezing. The rubber tube is kept full of air, its supply being acted upon by the water pressure in such a way that the equality of tension is automatically preserved. When the water in the pipe freezes and expands, the rubber tube simply yields to it and thus gives space for the necessary expansion.

A NEW MECHANICAL SEPARATOR.—A new form of mechanical separator for the removal of fine particles of iron that become mixed with turnings and filings of copper and brass from workshops, has recently been devised by M. Varin, of Paris. Two superposed hollow cylinders turn in the same direction, and upon them the material to be separated is scattered through a hopper. The surface of the cylinders consists in bands of soft iron which are kept in a magnetic state. The particles of iron are attracted to these cylinders, and at a certain period of revolution are brushed therefrom into a receptacle, while the scraps or other metal fall to the bottom of the apparatus. The machine is said to be capable of separating 1,100 pounds of material per hour. It has also recently been employed by M. Mangon, for detecting titanic iron in arable earth with remarkable precision, the iron, in such small quantities as 15 or even 7 grains in 22 pounds of earth, having been readily separated.

THIN SAWS.—It is claimed by some saw makers that there is a great waste of both power and timber in using the thick saws so commonly run, that a saw to cut in the roughest timber should never be heavier than eight gauge, and for walnut and poplar not more than ten or twelve gauge. It is true, doubtless, that sawmill men are generally of the opinion that a thin saw cannot be successfully run; but whether this is due, as is asserted, to a vicious education, fostered by saw makers who had not the ability to make a thin blade, is a question which has two sides probably. At any rate, the advocates of the thin blades say those who test them are satisfied of their superiority.

Obituary.

It becomes onr painful duty to record the desth of onr late ssociate and friend Mr. W. Wadsworth, who died in Sacramento city on Sunday last, after a long aod most painful illness of several months' duration. His disesse was bone cancer at the outlet valve of the etomach, by which that organ wss grsdually closed to all possibilities of performing its appropriate functions, and onr friend was literally starved to death by inches.

Mr. Wadsworth was well known throughout the State as a sterling, energetic business man, and he has passed away at the ripe sge of sixty-three. He was a native of Dnrham, Conn., and although never a politician he was elected, when but twenty-one years of age, a member of the Legislature of his native State, in which cspacity he served two years. His principal record there was the anthorship of what has since become famous as "Wadsworth's Bird Bill." This bill has never yet been erased from the etatnte book of that State, snd was, we believe, the first ever framed in America for the protection of small birds; and of all the acts of his long and useful life none seemed to be reviewed by him with more satisfaction tban this. It has formed the baeis of nearly all the similar bills which have been passed in otber States. Immediately after the expiration of his second term, he removed to Monroe, Michigan, .wbere he entered upon the active dntiee of farming. In going West he took with him all the improved systems of farming, and was the first to introduce into that, then a new country, improved varieties of fruit, suitable for that climate—none but seedlings having previonsly been known there. He also took with him improved farming tools, and soon had the best cnltivated farm in all the "far West."

Just before leaving Michigan for California some twenty years ago, he took the State agricultural premium for having the best cnltivated farm in Miohigan. He reached California at too early a date for entering npon his favorite occupation; and soon after his arrival repaired to Placerville, where he took the editorial charge for a while of the Placerville *Herald*, and aleo acted as engineer in laying out some of the early mining canals in that county. After leaving that locality he returned to this city, where he continned his editorial career for a while on *Hutchings' Magazine*, but chiefly as editor and joint publisher, with Bacon & Co., of the *California Cnlturist*, a mssazine of sterling merit, and one which did much to initiate the trne spirit of farming among the people of California.

He eubsequently went to Sacramento, where he was among the first to point out the possibilities snd importance of sugar beet culture in thie State. He was sent to Europe to pnrchase the machinery for tbe Sacramento sugar beet msnufactory; and if the management of that institution had been permanently kept in his hands, the nnfortunate mistakes which impaired the early history of this important industrial enterprise would never have become a mstter of record.

In November, 1871, Mr. Wadsworth wss invited to a chair in the editorial rooms of the RURAL PRESS, which he continued to fill most acceptably nntil he was compelled to retire by reason of the insidions disease which began to make itself seriously felt about seven months ago. He was one of the ablest writers on agricultural matters in the United States, and it is largely to his pen that the RURAL PRESS owes its popularity and usefulness. As a companion and sesociate, as well as a writer, his loss is most keenly felt in this office. He was a devoted hueband and father, an honorable gentleman and a kind friend to all. He died the death of a Christian, and in his demise the State has lost a most valuable oitizen. During the four or five years past he has made the beet sugar business a specialty, and his knowledge of it was beginning to be justly appreciated. He and his family were largely interested in the factory at Sacramento, and just previons to the last months of his life, some three or four different parties were applicants for his services in the establishment of beet sugarics in as many different portions of tbe State.

Words of onrs will scarcely add to the regret which the friends of Mr. Wadsworth will feel on learning of his death, and we oan only press our sentiments of sorrow for the loss of a kind and generous friend, an able writer and a nseful citizen.—*Pacific Rural Press.*

PANAMINT.—A gentleman just from Pansmint reporte the district in a fever of excitement. The mines a:e developed sufficiently to warrant; the helief that the are very rich. He says that the camp now contains some 700 miners, and more are arriving every day, eome from the Bakersfield route, but most oome by the San Bernsdino route, as it is the cheapest and quickest. Meals can be procnred in Panamint for 75 cente. The town ie filled with saloons, afid gamblers are doing a big business. Building lots command a high price, from $500 to $1,000, and considerable numbers are changing hands at that figure. New bnildings are going up rapidly.

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
Belmont M Co	Nevada	4	1 00	Oct 9	Nov 10	Nov 30	C H Bogart	402 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	R Wegener	414 California st
Daney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Empire M & M Co	Washoe	16	50	Oct 24	Nov 27	Dec 21	G R Spinney	320 Cal fornia st
Golden Charriot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaplan	Merchants' Ex
Rube & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball	419 California st
Ida Ellmore M Co	Idaho	14	1 00	Sept 21	Oct 27	Nov 14	W Willis	419 California st
Independent G M Co	Butte Co Cal	7	50	Oct 5	Nov 5	Nov 26	G T Grimes	240 Montgomery st
Julia G & S M Co	Washoe	20	2 00	Oct 30	Dec 4	Dec 23	A Noel	419 California st
Knickerbocker M Co	Washoe	10	1 50	Oct 30	Dec 5	Dec 24	H Boyle	Stevenson's Bldg
Lady Bryan M Co	Washoe	3	50	Sept 18	Oct 20	Nov 9	F Swift	419 California st
Mahogany G & S M Co	Idaho	14	2 00	Nov 3	Dec 10	Dec 31	C H Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 28	Thomas Derby	326 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	J H Gager	507 Montgomery st
Original Hidden Treasure	White Pine		1 00	Oct 12	Nov 14	Dec 9	D A Jennings	401 California st
Pine & Panaca S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	H P Bush	Merchants' Ex
Pauper M Co	Idaho	3	50	Oct 26	Nov 30	Dec 21	D Wilder	M rchants' Ex
Piotou M Co	Washoe	6	25	Oct 24	Nov 26	Dec 16	S Phillips	408 California st
Raymond & Ely M Co	Ely District	6	3 00	Nov 3	Dec 4	Jan 1	D W Colburn	418 California st.
Sander on C M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Liedesdorff s
Silver Hill M Co	Washoe	4	2 00	Oct 28	Nov 30	Dec 22	W E Dean	419 California st
Utah S M Co	Washoe	6	1 00	Sept 21	Oct 26	Nov 16	W E Dean	419 California st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Buena Vista Petrolenm Co	Cal	23	75	Oct 5	Nov 16	Dec 14	L Hermann	330 Pine st
Chance S M Co	Cherry creek	1	50	Oct 7	Nov 18	Dec 14	J Marks	414 California st
El Dorado Water & Deep Gravel Co	Cal	6	10 00	Oct 26	Nov 27	Dec 17	H Eliss	416 Montgomery st
El Madre Quicksilver M Co	Cal	2	6	Oct 27	Dec 4	Dec 28	A Halsey	312 Montgomery st
Equitable Tunnel & M Co	Utah	8	20	Sept 16	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Excelsior G M Co	Tuolumne Co	Cal	14	15	Oct 20	Nov 25	Dec 19	E Chattin 442 California st
Excelsior G M Co	Tuolumne Co	Cal	14	15	Dec 20	Nov 25	Dec 19	E Chattin 442 California st
Gold Mountain G M Co	Cal	2	1 00	Sept 10	Oct 15	Nov 10	J P Castellier	513 California st
Great Blue Gravel Range Co	Cal	6	10	Sept 23	Oct 28	Nov 20	W H Watson	302 Montgomery st
Gold Run M Co	Nevada Co	Cal	8	15	Oct 14	Nov 16	Dec 3	C C Palmer 41 Market st
Green M Co	Placer Co	Cal	1	50	Oct 7	Nov 9	Nov 30	W R Townsend 330 Pine st
Guahal M Co	Sonoma Co	Cal		5	Sept 29	Nov 5	Nov 25	James R Martin Larue's Wharf
Los Prietos M Co	Santa Barbara Co		1	25	Sept 29	Nov 2	Nov 20	S H Smith 6 Montgomery Av
Mount Savage M Co	Utah		1	10	Oct 16	Nov 18	Dec 10	D F Verdenal 409 California st
North Belmont M Co	Nevada		2	10	Sept 30	Nov 2	Nov 18	D L Thomas 419 California st
North Fork M Co	Plumas Co	Cal	6	2 00	Oct 24	Nov 20	Dec 4	A Martin 520 Washington st
Omega Tnbe M M Co	Cal		2	25	Oct 15	Nov 23	Dec 14	D Wilder Merchants' Ex
Oneida M Co	Amador Co	Cal	9	75	Oct 8	Nov 11	Nov 30	L Kaplan Merchants' Ex
Phœnix Tnnnel & M Co	Uah		6	25	Sept 6	Oct 17	Nov 7	Chas S Healy Merchants' Ex
Quintero M Co	Nye Co	Nev	3	10	Sept 30	Nov 2	Nov 18	H G Kibbe 419 California st
Starr King S M Co	Nevada		8	25	Oct 3	Nov 6	Nov 30	L Kaplan Merchants' Ex
State of Maine M & M Co	Cal		7	5	Sept 17	Oct 24	Nov 10	J M Buffington Merchants' Ex
St John G M Co	Kern Co	Cal	2	5 00	Oct 2	Nov 5	Nov 23	W R Townsend 330 Pine st
Tecumseh G S & C Co	Cal			25	Aug 1	Sept 5	Sept 30	J W Clark 428 California st
Tolman & Miller M & M Co	Cal			30	Oct 9	Nov 12	Nov 28	J L Trask 306 Montgomery s'
Victoria & Imperial T & M Co	Utah		3	10	Oct 7	Nov 11	Dec 5	W H Watson 302 Montgomery st
Wm Shakspeare G M Co	Butte Co	Cal	1	1	10	Sept 23	Oct 26	Nov 12	W R Townsend 330 Pine st
Wyoming G M Co	Nevada Co	Cal	4	40	Sept 30	Nov 2	Nov 23	W J Gunn 410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Challenge Cons M Co		W E Dean	419 California st	Annual	Nov 19
Confidence S M Co	Nevada	R Wegener	414 California st	Annual	Nov 13
Cosmopolitan M Co	Nevada	D L Thomas	419 California st	Special	Nov 28
Kearsarge Quicksilver M Co	Cal	J McHaffie	408 California st	Annual	Nov 21
Lady Washington M Co		Called by Trustees	419 California st	Special	Nov 7
Mount Savage M Co	Utah	Called by Trustees	409 California st	Special	Nov 10
San Marcial S M Co	Mexico	Called by Trustees	409 California st	Special	Nov 17
South Mountain M Co		W Willis	419 California st	Annual	Nov 16

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st,	30	July 17
Belcher M. Co.	Washoe.	H. O. Kibbe,	419 California st.	3 00	Oct. 7
Chariot M. & M. Co	Cal.	Frank Swift	409 California st	50	Oct 15
Consolidated Virginia M Co	Washoe	D T Bacley	401 California st	3 00	Oct 12
Crown Point M Co	Washoe	O E Elliott	414 California st	3 00	Oct 12
Diana M. Co.		N. C. Fassett.	229 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

Business during the week under review has been confined almost exclusively to the Comstocks. Last week was marked by a steady and severe decline throughout the list, with the exception of Con. Virginia and neighboring mines, which stood up pretty stiffly. The canse of the falling off in prices is understood to be the apprehension which onteide holders had that the market wonld break on or before the 3d inst., the day of the Nevada elections, a story having been circulated that certain stocks said to be carried by Mr. Sharon wonld be then pnt upon the street. The rush to realize cansed a momentary weakness, from which the market hse since recovered. News from the mines continnes very favorable, and is accepted as having good foundation in the facts. The prospects of the Comstock never looked brighter, and although lower figures are looked for a few months hence, the present indications point to a rise.

The Ophir and Con. Virginia ore body proves even richer than wss anticipated. The connections made by the California company are eo far advanced that the extraction of ore will soon commence in earnest. It is expected that in the course of a few months there will be no less than five dividend-paying mines among the Comstocks as long as the Belcher and Crown Point bonanza holds out. The Best and Beloher company have purchased a valnable tract of ground from Gou'd & Curry, to be paid for in a stock dividend. The capital stock of the Best & Belcher company is now 100,800 shares. Of this 48,000 shares are due the Gonld & Curry company for 321 feet of the r gronnd; 50,400 shares will be issued to the holders of Best & Belcher stock, in the proportion of 2¼ shares of new stock for each and every share of old stock eurrendered—to wit: 22,400 shares by 2¼ equals 50,400—and the remaining 2,400 shares will belong to the Best & Belcher company and will be nsed for a working capital

There has been a considerable movement in Overman and cognate stocks. The latest upheaval will probably be in Baltimore Consolidated, a mine which was once a favorite, but which has latterly been neglected by buyers. The stock is very firmly held and is steadily advancing.

Ae intimated, bnt little attention has been turned to Pioche, Eureka, Idaho and California stocks, and they have suffered accordingly. It is noticeable that outside mining districts attract but little speonlation while an excitement in Virginia and Gold Hill exists.

We give a table of sales made one week ago, by which to compare present qnotations.

New Incorporations.

The following compsnies have filed certificates of incorporation in the County Olerk's Office, San Francisco:

THE CARSON HILL M. CO.—Oct. 30th. Location: Carson Hill, Calaveras county, California. Directors are H. D. Bacon, Thomas Brown, Chas. T. Botts, Wm. Irvine and Robert Irvine. Capital stock, $2,000,000, divided into 20,000 shares.

COMSTOCK S. M. CO.—Nov. 3d. Location: Pansmint Mining District, Inyo county, California. Directors: James A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and Joseph McGillivray. Capital stock, $6,000,000, divided into 60,000 shares.

LITTLE BLUE S. M. CO.—Nov. 3d. Location: Panamint Mining District, Inyo county, California. Directors: James A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and Joseph McGillivray. Capital stock, $6,000,000, divided into 60,000 shares.

SILVER BELT S. M. CO.—Nov. 3d. Location: Panamint Mining District, Inyo county, California. Directors, James A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and Joseph McGillivray. Capital stock, $6,000,000, divided into 60,000 shares.

ESPERANZA S. M. CO.—Nov. 3d. Location: Panamint Mining District, Inyo county California. Directors: James A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and Joseph McGillivray. Capital stock, $6,000,000, divided into 60,000 shares.

SUPERIOR CANON TOLL ROAD CO.—Object, to build a toll road in Surgise valley, Panamint district. Directors: James A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and Joseph McGilliwray. Capital stock, $1,000,000, divided into 10,000 shares.

EUREKA VENTILATION CO.—Nov. 3d. Object, to manufacture and sell ventilators. Directors: Charles J. Smith, Joseph E. Smiley, John D. Cusbeon, George E. Carter and Edwin W. Woodward. Capital stock, $300,000, divided into 3,000 shares.

BLACK HAWK COAL M. CO.—Oct. 2d. Location: Murray township, Alameda county. Directors: John P. Jones, W. A. Bechtel, A. D. Kiborn, John Keyer and C. L. Manning. Capital stock, $2,000,000, divided into 60,000 shares.

LIVERMORE G. & S. M. & M. CO.—Oct. 3d. Location, Calaveras county. Capital stock, $2,600,000, divided into 26,000 shares of $100 each. Principal place of business, Oakland, Alameda county. Trustees: A. A. Moore, J. A. Neal, Hiram Bailey, Newton Ingram and W. M. Mendenhall.

MARIPOSA LAND AND MINING CO.—The objects of the Association are to acquire the land and appurtenances known as Los Mariposas, situated in Mariposa county; to irrigate the same; to lease and convey the same in parcels or otherwise; to develop and work the mines and lodes of precious and other metals and minerals known to exist there, and generally make such property useful and productive. The principal place of business will be San Francisco. Directors: E. W. Burr, of San Francisco; S. Heydenfe dt, of San Francisco; William H. Patterson, of San Francisco; Chauncy Vibbard, of New York; and Mark Brumagim, of New York. Capital stock, $15,000,000, divided into 160,000 shares of $100 each.

San Francisco Stock Market.

November 5—Morning Sales.

1460 Ophir.....65@63
50 ....830.....64½
850 G & C.....16@17
50 ....b 30.....18½
1548 B & Bel.....15½@16
165 Savage.....75@74
140 Obollar.....59½@59
50 ....b 30.....60
60 80
165 H & Nor.....48@49
10 ....b 5.....44
810 C Point.....68½@67
100 ....b 30.....66
360 Jacket.....91@93
483 Imperial.....10½@10⅝
50 ....b 5.....11
280 Empire M.....10@9¾
290 Kentuck.....16½@17
100 Alpha.....16
558 Belcher.....57¾@57¼
150 ....b 30.....58½@58
50 Gouldence.....23½
100 .....b 30.....24
790 Con Vir.....127@129
130 ....b 30.....129@128
50 ....b 5.....128
1250 Sierra N.....87½@88
345 Daney.....2@2¼
63 Excheq.....18¾@180
65 Seg Bel.....122½@125
820 Overman.....58@59
100 ....b 30.....60
20 ....b 5.....59
110 Justice.....29¼@28
30 Succor.....27½
300 Lady B.....36@37
200 ....b 30.....3
225 Julia.....3¼@3½
120 Caledo.....2½@2⅝
50 Knicker.....4½
835 Globe.....1½@1⅝
205 Bnlt Con.....1 9¾@2
220 Bullion.....15½
100 Utah.....4@3¾
975 California.....63@64
30 ....b 30.....64½
30 ....b 5.....64½@63½
420 S H M.....6¾@6⅝
20 Eclipse.....8¼
325 Dayton.....5¾@6
100 Dardenel.....18½
110 N Y Con.....3¼
35 U Con.....20½@20
740 Woodville.....2
400 Indus.....1½@1¾
60 Kosmtb.....2¼
400 Leo.....1¾
750 Andes.....1¾@2
100 Pacific.....9c
100 N Carson.....2¼@2⅜

Afternoon Sales.

210 Meadow Val.....6¼@6
100 .....6¼
300 Raymond & Ely.....14¼@14½
25 Eureka Con.....12¾
30 ....b 5.....12¾
100 Wash & Creole.....11¾@11¾
165 Belmont.....17½@17¾
100 Newark.....50c
195 Rye Patch.....3¾@3¼
50 ....b 5.....3¾
520 K K Con.....2¼@2
100 Watson.....15c
100 Quintero.....15c
900 Prussian.....4¾@4¾
100 N Belmont.....15c
100 St Patrick.....1¾
150 Chariot Mill.....10@9¾
300 ....b 30.....11
50 ....b 30.....10
160 Crown Point.....56@55½
120 ....b 30.....56
100 California.....64¼@66
205 Imperial.....10¾
630 Yellow Jacket.....58@96
50 ....b 30.....96
120 Best & Bel.....16@15¾
100 .....b 30.....18
800 Ophir.....64½@64¾
250 Overman.....60@59
20 ....b 5.....59½
740 Could & Curry.....16¼@15¾
100 Caledonia.....2 1@2⅛
90 Seg Bel.....130@127½
50 Con Vir.....128@127¾
50 b 5.....127½
30 ....b 30.....127¾
210 Chollar-Potosi.....56@58
90 Kentuck.....17¾@15½
20 Empire M.....9¾
185 Confidence.....25@24

October 29—Morning Sales.

130 Alpha Con.....16½
685 Belcher.....57@56½
94 .....do.....b 5.....58½@57
110 .....do.....b 30.....57@57½
1040 Best & Belcher.....29¾@30
50 .....do.....b 30.....30
775 Baltimore Con.....9½@9
50 .....do.....b 5.....9½
128 Bullion.....13½@13
420 Chollar-Potosi.....8@8¼
50 .....do.....b 5.....8¼@8
245 California.....59¼@60
65 Crown Point.....51@58
20 .....do.....b 10.....57½
30 .....do.....b 5.....57½
100 .....do.....b 30.....58
40 Con Gold Hill Quartz.....62
210 Confidence.....21@21¼
145 Con Virginia.....108@110
10 .....do.....b 30.....110½
385 Caledonia.....81½@2
260 Dayton.....6¾@5¾
50 .....do.....b 3.....6
50 .....do.....b 5.....5¾
150 Dardanelles.....17½
120 Daney.....1¾@1¼
520 Empire M. & M.....9½@9¾
175 Eclipse.....7¼@7¾
20 .....b 30.....7¾
1055 Gould & Curry.....29@27½
2475 Cpbir.....56½@59½
60 .....do.....b 30.....60
1000 Rock Island.....2
150 Lee.....1¾
50 Pacific.....50
670 Overman.....66@64
50 .....do.....b 30.....66½
1895 Belcher.....58¾@57½
1044 Chollar.....64½@63
9405 Y Jacket.....94@92½
1000 Ophir.....59¾@58¾
150 .....do.....b 30.....59½@58¾
50 Gould & Curry.....28½@28
420 Cons Virginia.....112@112
70 Savage.....74@73
345 Crown P int.....58@57½
68 Confidence.....22
50 California.....60½@59¾
20 .....do.....b 30.....61
745 Imperial.....105¾
80 S Belcher.....13¾@125

Afternoon Sales.

.....do.....b 5.....1⅞
850 Indus.....1½
705 Kosmtb.....2⅜@2½
100 C G Hill.....1¾
50 Lee.....1½
50 Pacific.....50
670 Overman.....66@64
30 .....66½
1895 Belcher.....58¾@57½
1044 Chollar.....64½@63
9405 Y Jacket.....94@92½
1000 Ophir.....59¾@58¾
150 .....do.....b 30.....59½@58¾
50 Gould & Curry.....28½@28
420 Cons Virginia.....112@112
70 Savage.....74@73
345 Crown P int.....58@57½
68 Confidence.....22
50 California.....60½@59¾
20 .....do.....b 30.....61
745 Imperial.....105¾
80 S Belcher.....13¾@125

MINING SUMMARY.

THE following is mostly condensed from journals pnb lished in the interior, in proximity to the mines mentioned.

California.

AMADOR COUNTY.

LIVERMORE COAL MINE.—*Enterprise*, Oct. 31: We have seen a sample of the recent vein of coal which was struck on the drift at 125 feet from the main shaft. It has a very black and glossy appearance and is more compact and heavy than the sample we had here some weeks siuce. The stratum from whioh it was taken is about 15 inches in width and dipe from sonth to north, and has every indication of being near the main vein. The snperintendent and workmen feel confident of reaching the main vein within 25 feet. Considerable coal has already been taken out, and Mr. Harris thinks he will be able to supply the local demand in a few days. The work is progressing finely and the owners are determined to push matters.

CALAVERAS COUNTY.

FAIR YIELD.—Calaveras *Chronicle*, Oct. 31: Fifty-seven tons of quartz, taken from the mine of Lewis, Smith & Willet, at Mosquito, yielded 42 ounces of retorted gold. Richer rock has been crushed, of course, but we call that a pretty good averse yield for nnassorted quartz. It shows, also, that the upper conntry is alive and productive, a fact that is worth telling in these times. The rock was milled at Garland's.

DITCH BAOKE.—The Mokelnmne Hill Water company's canal broke, Monday last, a short distance below the dam across the river where the water ie taken out. The inconvenience consequent npon the "break" was of short duration, however, as damages were speedily repaired. There ie now an abundant supply of water all along the line of the ditch, from inlet to outlet.

West Point District.—A splendid body of ore has been struck in the Josephine. The quartz shows considerable free gold and is said to be five feet thick. Work on the new tunnel at the Good Faith is being pushed lively. The superintendent of the Mina Rica is busily engaged at rebuilding the old Belcher mill. The battery will consist of 8 stamps, 2 Wheeler pans, a large Hepburn settler and other appliances for the manipulation of the rich sulphurets for which the Mina Rica is noted. The milling machinery will be driven by a large overshot wheel; the whole to be in running order by the 1st of December. The company intend to erect a 20-stamp mill early next spring. About 1,500 tons of milling ore ready for stoping in the mine; 200 tons on the dumps. The tunnel of the Valentine shows in its face 18 inches of fair milling ore. Sinking shaft. Miller & Co. are erecting a new mill at the old Oro Plata mill-site to crush the ore from their mine at Anderson's Flat. Two tunnels are being run on the Pancho.

EL DORADO COUNTY.

The Big Blast.—*Mountain Democrat*, Oct. 31: Last Friday afternoon many of our citizens gathered in the vicinity of the Excelsior claim, Coon Hollow, to witness a blast of 170 kegs, 4,250 pounds, of black powder. This powder was placed in a 60-ft. tunnel, with a 30-ft. "T," making a total distance of 90 ft. from the face of the bank, which in the center is about 130 ft. high, of which about one-third is a lava stratum, overlaid with mountain gravel, and a cement of volcanic origin. The fuse was lighted at precisely five o'clock, and in just 15 minutes the blast exploded, producing but little sound, though a large section of the face was thrown down, and the entire hill seamed and lacerated up for a considerable distance. In proportion to the quantity of powder used, it was the most successful blast of the kind that we have ever witnessed. We have seen blasts in which 300 kegs of powder were used, and in far less tenacious ground, and the execution was not to be compared with that of the Excelsior blast of last Friday. We very much doubt whether, even with the complete hydraulic apparatus which they possess, the El Dorado water and deep gravel mining company will be able during the entire winter to pipe off the dirt thrown down and loosened by this single blast. We should like to see an experiment with a shaft to the lava stratum and a blast of nitro-glycerine in the Excelsior claim. We are confident that it would be more thorough in its pulverization.

NAPA COUNTY.

Chiles Valley Iron.—Napa *Register*, Oct 31: C. B. Sharp says he will soon commence building a road on which to haul the ore taken from the iron mine on his place in Chiles valley, expecting to commence the hauling of some two hundred tons that is to be delivered this winter, in about three weeks.

On Monday last eight bars of silver, from the Calistoga mine, passed through here in charge of W. E. Robinson, Wells, Fargo & Co.'s messenger, which were estimated as being worth $10,000.

NEVADA COUNTY.

Providence Mine.—*Transcript*, Oct. 31: In the 600-ft. level of the Providence mine the ledge is supposed to be of the usual width. A cross-cut has been run about 20 ft. on the ledge and no foot wall found. The ledge on the upper levels is from 40 to 50 ft. wide, and it is probably the same in this level. The twenty stamps at the mill are kept at work steadily, night and day, on the ore raised. The sulphurets works recently erected are kept busy and work to a charm. Everything around the mine is in a satisfactory condition.

Empire Mine.—Grass Valley *Union*, Oct. 31: This mine has been improving in underground appearance during the month. The yield in gold has been about $14,000, with a splendid prospect of doing better in the future, and for an indefinite period.

Howard Hill Mine.—We understand that the Howard Hill mine, near this place, is soon to be worked again.

Perrin's Mill.—Perrin's mill, engaged in crushing rock from the Slate Ledge mine, broke a pinion four days ago and has been idle since then. Everthing will be repaired by Monday morning next, and the stamps will then be set at at work.

The Omaha Mine.—This mine is making a fine showing at the present time. Thursday last very fine specimen rock was taken out of the bottom of the shaft at a depth of about 280 ft. on the incline. The ledge at that depth is over two feet thick, is strong and solid and is between beautiful walls.

At Moore's Flat, says the *Foothill Tidings* of the 25th, the Illinois company, after a six weeks' run, cleaned up $12,000, and the Blue Bank cleaned up nearly $12,000 after a short run. Others have done well.

At Willow valley, the Blue Ledge, a recent location, and the Montana are being prospected, with favorable symptoms of becoming valuable mines.

The Oriental, a custom quartz mill near Nevada, has worked about 1,000 tons of rock the past summer, from the various prospect claims in the vicinity, and the average value per ton has been about $25.

An accidental discovery of a quartz ledge, while washing surface dirt, now known as McCormick ledge, near Nevada city, has turned out 160 tons of rock during the season, which worked about $25 a ton.

The Murchie mines will both be turning out rock for the mill soon and it is thought keep it running. The Lone Star is now furnishing good rock but the Independence has not yet recovered from the effects of a cave which took place about three months since.

Cheap Mining.—It costs a heap of money sometimes to break up and throw down an acre of gravel banks. The heavy rains of Monday and Tuesday had the effect to soak and cave off about an acre of the Manzanita ground on the west side of the claims, tumbling it down nicely, ready for hydraulicing when sufficient water is in the ditches.

PLACER COUNTY.

Rich Strike.—Placer *Herald*, Oct. 31: Just now, while the Booth, the Julian, the Crater, the Green and the St. Lawrence mines are running on a good sound basis, with good results, or encouraging prospects, we hear of the discovery of another ledge, which, so far, promises to equal the best. Last week Charles Robinson, an old quartz miner in this section, discovered a ledge below Auburn, so rich, our informant tells us, that they pounded out about $200 in less than a day, with a hand mortar.

The St. Patrick.—The Crater Hill mine of the St. Patrick company is looking much better than it has recently, and work is progressing favorably under Greenwell, the new Superintendent.

Iowa Hill.—Cor. *Argus*, Oct. 31: Every one is busy fitting up their claims for winter, with the expectation of the coming season being the most prosperous one that this community has seen for many years and from present indications it certainly will be. The Mountain Gate company's main tunnel at Damascus is at present over a mile in length, and the farther they advance into the main divide, the richer the gravel becomes. The monthly dividends, which have been large, keep steadily increasing and a man that owns a share in the claim at the present time is considered fortunate. The Iowa Hill Canal company have been pushing their work to completion, and although they will not finish the present fall, enough has been done to insure a good supply of water the coming winter.

The Julian Mine.—*Herald*, Oct. 31: Mr. C. H. Schnabel, the owner, has recently erected a fine 20 stamp mill near the mine. Since the completion of the mill he has had a force of about 15 men in the mine extracting ore. They have now a few tons of ore, but the mill will not be set in motion until a sufficient force can be obtained to take out rock enought to keep the mill running.

SONOMA COUNTY.

The Mines near Windsor.—Petaluma *Argus*, Oct. 30: We learn from J. L. Dinwiddie that work on the Olive Gold, Silver and Copper Mining company's mine is being rapidly pushed ahead. The mine is located about five miles from Windsor. On Saturday last some ore was taken out that will assay 80 per cent. copper. The vein is about four feet wide and well defined. About 10 tons of rock are now upon the dumps, and the work will be continued during the winter. The company will erect a smelting furnace in the spring.

Occidental Mine.—We have received from James E. Fowler some specimens of cinnabar from the Occidental mine, in Green Valley, three miles from Bloomfield. They were taken out fifteen feet below the surface, and contain 2½ per cent. of quicksilver.

STANISLAUS COUNTY.

Catching the Fever.—Stanislaus *News*, Oct. 30: At last the cinnabar and silver fever has extended to Modesto. We understand that a company has been formed in this place with the view of prospecting claims located by members of the company, in the Coast Range east of Grayson. Many men are now already at work in these mountains, and some excellent croppings of cinnabar have been discovered. If mines are discovered it will certainly be a great addition to the wealth of the county.

TULARE COUNTY.

Smelting Works.—Tulare *Times*, Oct. 31: Mr. J. W. Brown, of Antioch, left this place last Thursday morning for the Mineral King mines. Mr. Brown is highly pleased with the specimens from there, and he is now visiting the district with the intention of erecting smelting works. It is the calculation to haul the machinery as far as possible this fall, on wagons, and transport it the rest of the way on sleds, on the snow, during the winter.

TUOLUMNE COUNTY.

New Claims Being Opened.—Tuolumne *Independent*, Oct. 31: Messrs. Nelson, Trout and others are about to start in the old San Juan tunnel in Table Mountain, to work the Nelson ground. About 200 feet of the old tunnel is good and the remaining portion badly caved.

Mons. Mounefoi & Co. are re-opening the tunnel ground between the "Empire" and the "Buckeye," T. M., and expect large results.

On Monday the water company commenced to clean up the Columbia Gulch flume, employing from 10 to 24 men each day. As it was expected to take but four or five days, the job is probably completed.

Mine Mining Improvements.—The Golden Gate company are making arrangements for an addition of ten more stamps. Superintendent Gleason has let a contract to sink another fifty feet in the tunnel shaft—which, when completed, will be at a depth of 150 feet. The company are determined to develop this mine in good shape.

Flume Fell Down.—The flume of the Shaw's Flat ditch crossing Wood's creek below Saw Mill Flat, fell the early part of the week during the storm. There is a talk, it will be replaced by an iron pipe.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Gold Hill *News*, Oct. 29: The face of the north drifts in advance of the ore breasts on both the 1,300 and 1,400-ft. levels are still in rich ore. The ore breasts and stopes on the 1,300 and 1,400-ft. levels are yielding the usual amount of rich ore. The south cross-cut on the 1,500-ft. level has penetrated the ore vein a distance of 90 ft. without reaching the east wall, the face still being in rich ore. The middle cross-cut on this level is in 87 feet, the face in rich ore. The north cross-cut on the California line is still pushed vigorously ahead, but has not yet reached the ore vein. The north drift on the 1,500-ft. level of the Gould & Curry is still steadily advancing through the same rich body of sulphuret and chloride ores, the assay of car samples of which averages over $600 per ton.

Ophir.—The ore breasts and stopes in all the ore bodies on the 1,300 ft. level are yielding the usual amount of rich ore. The ore body in the south winze between the 1,300 and 1,465-ft. levels is opening out finely. On the 1,465-ft. level the ore stopes in the west cross-cut on the north ore body are showing better as the opening advances.

Crown Point.—The ore breasts on the 1,400-ft. level are opening out splendidly and promise a goodly yield of rich ore. The ore breasts on the 1,500-ft. level are also opening out fully as well as those of the 1,400. The south drift on the 1,500-ft. level has reached to within about 40 ft. of the Belcher line, the face still in rich ore.

Sierra Nevada.—The drift in the ore body recently opened in the old Sierra Nevada tunnel is being enlarged, and cross-cuts are being made in the ore body which show it to be of greater width and extent than was at first expected. Daily yield, 65 tons of ore.

Julia.—The water has been drained sufficiently to admit of the resumption of work in the drifts on the 1,000-ft. level.

Imperial-Empire.—The bottom of the south winze on the 1,850-ft. level is still in rich ore, as is also that of the north winze on the same level.

Mint.—During the past week a fine body of quartz was encountered while sinking the shaft. This quartz vein was struck at a depth of 372 ft., and is of a very promising character. Assays from the bottom ran as high as $17 per ton, mostly silver.

Rock Island.—The flow of water has been reduced sufficiently to resume work in the face of the main west drift.

Leo.—The work of raising the main shaft is progressing well. North drift still in very favorable material.

Phil. Sheridan.—New shaft 150 ft. deep. The ore bodies of the Sierra Nevada mine, adjoining it on the south, doubtless run into the Phil. Sheridan. New hoisting works are soon to be erected over the shaft.

Yellow Jacket.—Sinking an incline below the 1,740-ft. level has been commenced. The sinking of the north winze is being continued.

Dayton.—The south drift at the third station level is running through fine ore, following the red ledge toward the Kossuth line. The ore breasts on both levels are looking and yielding finely.

Woodville.—The ore breasts on the 200 and 300-ft. levels are all looking well and yielding splendidly. The ore vein in the winze below the 300-ft. level shows considerable improvement during the week. The mill is kept steadily running.

Nevada.—The ore dumps are completed, and the extraction of ore from the breasts on the level of the old upper tunnel has been commenced.

Hale & Norcross.—Sinking the main incline below the 2,100-ft. station is being pushed ahead.

New York.—The ore vein in the north and south drifts from the main drift on the 260-ft. level, is looking very promising and some of the assays of the ore run very high, in both gold and silver.

Savage.—Sinking the main incline below the 2,100-ft. level is being pushed with all the vigor possible.

Overman. — The prospects are still very encouraging for the development of a paying mine. Sinking the main shaft is making good progress.

Utah.—The prospecting drifts both north and south on the 400-ft. level are still in quartz of a fine character.

Belcher.—The ore breasts on all the different levels are yielding splendidly. Daily yield, 550 tons of ore. The mills are all running up to their full working capacity, and the mine promises a rich return for many months yet to come.

Lady Bryan.—The west cross-cut at the 250-ft. station is in 32 ft., the face in fair working ground.

Sutro Tunnel.—Work going ahead as usual in the main header, 80 ft. being added to its length since last report. Total length of main tunnel, 7,600 ft. Rock in face of header hard, but blasts well.

Bullion.—The north drift from the 1,700-ft. station of the Imperial shaft is still pushed vigorously ahead, following the west wall of the ledge, with steadily increasing prospects of ore developments.

Globe Consolidated.—The ore body in the north cross cut, from the main west drift, on the 400-ft. level, is still showing finely.

Justice.—Work has been resumed on the Waller Defeat shaft, with increasing ore prospects on the lower levels.

California. — The north drift from the Ophir, on the 1,500-ft. level, has encountered some fine looking quartz, which gives low assays, but is supposed to be a spur from the main ledge. The entire face of the north drift, from the Virginia Consolidated shaft, on the 1,500-ft. level, is in fine ore.

Caledonia. — Sinking the shaft below the 1,076-ft. level for a camp, is making good progress, notwithstanding the extreme hardness of the rock.

Chollar-Potosi. — Daily yield, 75 tons of ore, the assay value of which is $29 per ton.

Kossuth.—The ore vein in the south drift, on the east side of the ledge, from the west cross-cut, is looking finely and promises a fine development.

Silver Hill.—Everything in and about the mine is working finely and the prospects of yet striking bodies of paying ore on the lower levels are growing more favorable.

Original Gold Hill.—Some water and fine ore indications encountered at the 340-ft. level.

Senator.—The ore streak found in the west drift at the 400-ft. level, is showing a steady improvement in both looks and quality.

Occidental.—The up-raise from the lower tunnel level is up 94 ft., the face in fine ore.

Arizona.

Cave Creek District.—Cor. Arizona *Miner*, Oct. 23: In making up your mining news, you could very properly speak of some leads located and now being worked by Mr. Rowe and others. The Cave creek district, in which they are situate, is about twenty-five miles northwest of here. They have a number of leads located, some in which silver predominates, although there are several others very rich in gold, with a sprinkling of baser ores.

Mr. Rowe and two other men are engaged at present arrastraing from a spur of the principal lead in the hill—the Lion, and are well recompensed for their work, although their mode is the most primitive, and they labor under many disadvantages. Three miles east of their mine is an excellent, living stream, named Camp creek, capable of turning a water-wheel. They project building a trail to it shortly, and doing work on a larger scale.

Colorado.

White Cloud.—Colorado *Register*, Oct. 28: B. P. Haman and Joe Walker commenced work to-day on the White Cloud lode, near the head of Russell gulch. They have leased the property for a year, and propose sinking the 60-ft. shaft to a depth of 100 ft., before running levels. The surface quartz from this lode gave exceeding rich returns in 1863-'64, on the strength of which the property was then sold to a New York capitalist for $36,000.

Moses Hall and Henry C. Merrill are working one of the 100-ft. levels of the old Alps lode, in Leavenworth gulch. Their last run of ore yielded $60 per cord, returning them about $12 per cord, net.

The lessees on the Clifton silver mine, Willie gulch, have been notified to suspend work under their lease, in view of the anticipated immediate arrival of the English owners of the property. This, we understand, points to a prospective resumption, at an early day, of extensive operations in this valuable mine by the Clifton company.

Wm. Lyon, L. P. Miller and E. A. Lynn, are still working the Buckley lode, a discovery made by them in August last, on the Prosser slope of Gunnell hill. They employ no additional hands, but themselves break and hoist five cords, or about 40 tons of ore and quartz per week, all of which is sent to the stamp-mill. The ore yields an average of three and one-half ounces of gold per cord, which sells at the banks at $17 in currency per ounce. Messrs. Lyon, Miller & Lynn, estimate the total cost of breaking and raising the ore, including their own labor, at $11 per cord, hauling and milling at $30 per cord, leaving them a net return of $18.50 per cord, or (at five cords per week) $92.50 net yield per week, or a clear profit of $30.83½ per week to the man.

Utah.

Little Cottonwood.—Cor. Salt Lake *Tribune*, Oct. 30: Since yesterday noon the snow has fallen to a depth of two feet, and still it is snowing and blowing, as it only can do in Alta.

Business has been quite lively for some time, as the miners have been busy laying in and getting up to the mines their winter supply of provisions, powder, steel, whisky, etc. Every team and pack animal in the canon has been pressed into service, and kept moving early and late.

The mines are pushing things lively, and making preparations for a winter's siege. They are generally looking well,—in fact, much more encouraging than at this time last season, and are sending down plenty of the precious metal, and larger amounts will be brought to light before spring.

The Emma has again started up, and has a force of men employed concentrating the dump, hauling wood and doing other necessary outside work; but as yet nothing has been done in the mine. Rumor says it will be running in a few days.

The Flagstaff still keeps up its reputation as the leading mine in camp. It employs about 80 men, and ships from 50 to 60 tons daily, and has enough in sight in the mine to run it one year at least.

The Sweepstake Plow Company's Works.

In visiting the beautiful little town of San Leandro, the most prominent object met with is the manufacturing establishment of the Sweepstake Plow Co. The works occupy two large buildings, and these are found very inadequate to the demand for room. This is the principal establishment of the coast devoted to the manufacture of agricultural implements, and the business has rapidly grown into one of the most important industries on the coast. The question is fast being demonstrated that it is better to manufacture than to import. This company employs about ninety men, and find the demand for their wares, sold through the well known firm of Baker & Hamilton, constantly increasing. The main room of the largest building contains the machinery upon which the woodwork of the implements is prepared. All this machinery is of the latest and best, and everything possible is done by steam power—boring, mortising, sawing, planing, drilling, punching, polishing, etc. In a side-room, running the whole length of the main room, are the blacksmith's forges, eight in number. The shop is supplied with two steam power hammers, and inventive genius is displayed everywhere. In the rear of the main building is the foundry, where all the castings used in the machinery are moulded. The filling of the moulds at night with the melted metal from the furnace is a sight worth see. The glowing, red, molten stream as it is poured from the iron kettles into the moulds lights up the whole room with a beautiful yellow light. Myriads of beautiful sparks go dancing and crackling in all directions. This is the poetry of blasting; the prose is the lifting, carrying and emptying of these heavy buckets, the heat from which is very intense. It requires powerful men to handle these kettles. The work turned out is of first quality. The grinding and polishing of the mould boards, which is done by machinery, is very interesting. The grinding is done upon a very large stone, with a very rounding surface. The plows are placed on a machine something like a long wheelbarrow, a man taking hold of the handles and holding the plows against the stone, moving them constantly backward and sideways. They are then placed upon another wheelbarrow and brought in contact with a wheel revolving with great velocity, the surface of the wheel being prepared emery. This is done dry of course, and the contact of the steel with the rapidly revolving wheel produces a magnificent shower of glowing sparks, the metal becoming very hot by the friction. A very fine polish is put upon the plows. Perhaps no other plow, save the Garden City Clipper, receives so fine a finish as the Sweepstake plow, manufactured by this company.

After the implements are finished they are removed to another large building where they are painted and varnished. All the work is done in the most thorough and substantial manner, and the material used is of the best quality. The company are too proud of their reputation to allow any but first-class work to leave the factory. The principal implements made at these works are the Sweepstake and Eureka gang plows, an illustration of the latter being given in this issue. These plows have earned for themselves an enviable reputation, carrying off the first prize at the two last State fairs at Sacramento, and the last fair held at Stockton. At these fairs these plows were put to the severest test in competition with about one dozen others and gave entire satisfaction. The steel gangs with cast steel points have 5-16 inch moulds, extra hardened, warranted to scour in any soil, and are recommended as the best steel gangs in the world. The immense number of these plows which are being manufactured and sold is the best testimonial in their favor. There is but little difference between the Sweepstake and the Eureka—an illustration of one is sufficient for both.

The company are also manufacturing the "Sweepstake" single gear header. They have adopted this header after the most careful investigation and have made several important improvements upon it and believe that the machines they now offer to the public are as near perfection as it is possible to make them. The drive wheels are strengthened and made higher. The draper is extra strong and completely protected from wear by leather belting. The guide wheel and boxes are much improved, making the steering much easier for the driver. They are also making three styles of harrows, the patent flexible, the improved hinge and Sweepstake harrow. The patent flexible is made in four sections and adapts itself to the inequalities of the ground, thoroughly pulverizing the lumps, and leaves it in a smooth and mellow condition. The company believe this to be the best harrow in the State. Another useful agricultural implement made by this firm is the chisel cultivator. It is put together with bolts, in a very substantial manner, and each tooth is intended to stand the entire pull of the team. The firm are also turning out quite a number of very pretty and substantial express wagons, designed for the country. They are made with the Sarven patent wheel and are first-class in every particular. Another article made at these works is the Stockton gang plow. From five to eight plows are put upon a strong beam, this beam forming the hypothenuse of a triangular frame, the whole being carried upon three wheels, one at each angle. The plow is designed for light, sandy soil and will do immense execution. But the implement upon which the company pride themselves particularly, next to the Sweepstake plow, is the Gem seed sower. This sower has been in use on this coast for five years and is constantly growing in favor. It is placed in the hind end of a wagon and geared to the wheel, thus getting rid of the chain and small gears, which have always been a source of annoyance. The grain is thrown out horizontally, in this manner avoiding being carried about by the wind.

One hole can be closed, thus throwing the seed on one side only. Sows evenly, about 60 feet wide, and will sow 90 acres per day. The friction wheel runs the machine at a uniform rate of speed. There is no chain to run off on a hill side or consume power.

The works present an animated scene when in full blast. Their location is in one of the most lovely spots on the globe. Climate delightful, water excellent. The cars of the C.P.R.R., run by the finishing room, and with a new and commodious building the arrangements for manufacturing would certainly be first-class in every particular.

Rights of Locators.

The case of Livingston *et al. vs.* Paxton *et al.*, in which the jury returned a verdict for plaintiffs on Friday, is one of great importance to the original locators of mines in Utah and elsewhere. This was a suit in ejectment, the plaintiffs claiming under their discovery and location of the Southport mine in Rush Valley district, in the year 1864, at which time many soldiers then serving in this territory, and citizens also, made similar locations. On June 11th, 1864, the miners organized the district, established a code of by-laws, and otherwise provided for the government and protection of mining interests there. The case just concluded manifestly turned upon the validity of the district regulations, as appeared from the law presented to the jury in the charge of the court. Chief Justice McKean instructed to this effect: That owners of mines deriving their titles from the operation of the by-laws of districts hold against all except the United States, provided always that these owners had complied with such district by-laws, and this for the reason that Congress, by the act of 1866, made the laws of miners and mining districts virtually legislative enactments. Under these instructions, the jury, after a few moments' deliberation, returned a verdict for the plaintiffs, who were original locators, deriving title to their mine according to the mining laws of Rush Valley district, prior to the act of Congress of 1866. Messrs. Robertson and McBride were counsel for the plaintiffs, and Haydon and Gilchrist for defendants. The case just closed has been before the courts for nearly three years, and now its decision, if final, establishes a principle which gives both justice and right to the pioneers in Utah mining.—*Salt Lake Tribune.*

EUREKA GANG PLOW.

The new Knox & Osborne furnace, at the Ida Clayton mine, on Knight's Valley ranch, is working satisfactorily. It is run by water power; fifteen inches is accessible for the purpose of driving the overshot wheel, which turns the fan creating the draft through the condensers, which are sixteen in number.

There is a firm of brass and copper wire manufacturers in Scotland who have made a penny go further than ever the thriftiest Scotchman could make it, having drawn it out 2,700 feet, or more than a half a mile of wire.

The California Mine.

In five or six days connection will be made between the drift running north from the 1,500-foot level of the Consolidated Virginia and the drift running south from the corresponding level of the Ophir mine. When this connection shall have been completed cross-cutting may be commenced. The drifts, for the sake of stability, are being advanced in west country rock. This rock is very hard, therefore the progress made in it is not rapid, but in the long run it will be much cheaper than if driven through softer material. Drifts and shafts which require frequent repairs eat up a great deal of money. The connection completed, there will be a circulation of air between the Consolidated Virginia and the Ophir through the California ground. Cross-cuts may then be driven east into the vein, and there can be no doubt that rich deposits will be found, as the claim is sandwiched between two large and rich bodies of ore. The opening of the California mine will give employment to a great number of miners; eventually, in all probability, as many as any claim on the Comstock. They may begin hoisting ore at any time by bringing it out through the Consolidated Virginia shaft. The shaft contains four compartments, and all of these may be used for hoisting purposes, as they have not yet found it necessary to place their pump in the compartment intended for its reception. About the time they reach ore in the California, the big mill of the Consolidated Virginia company will be started up, and there will probably be a portion of its stamps that can be procured for the reduction of California ore. Eventually, however, the California company will doubtless build a mill of their own in the neighborhood of the Consolidated mill. The opening up of the California mine will add greatly to the value of property in the northern part of the city. The many men who will be employed in the mine, and eventually in the mill, will look for homes in the neighborhood. The married men will want houses for themselves and families, and the single men will be the paying patrons of not a few boarding and lodging houses yet to be built. Should good bodies of paying ore be found in the Union Consolidated—and the prospects are now very flattering—the north end of the town would soon be packed with buildings—not only dwelling houses, but also stores and shops of all kinds. This, followed by a strike in the Sierra Nevada, would cause half the people in the north end of town to stand on their heads. Well, all this may yet be seen!—*Enterprise.*

Microscope.—According to Prof. Abbe, of Jena, the limit of capability of a microscope in showing the structure of tissues and the character of minute objects has nearly, if not entirely, been reached, higher power than those now in use giving rise to optical phenomena which are likely to completely mask the structure and character of the object under examination. Thus it may happen that while different structures give the same microscopical image, like structures will give different images; and while systems of the fine lines and the like may appear ever so distinct and well marked in the microscope, we are not entitled to regard such appearances as of morphological significance, but merely as physical phenomena from which nothing can be inferred except the presence of such structural conditions as are incapable of producing the diffraction effects obtained. These observations apply more especially to the marking of certain diatoms and striated muscular fiber. According to Prof. Abbe, by no microscope can parts be distinguished if they are so near to each other that if the first bundle of light rays produced by diffraction can no longer enter the object simultaneously with the undiffracted cone of light.

The "Otter" brought down the largest piece of gold which has been found in British Columbia; it weighs very nearly sixteen ounces, and was taken out of the Lyons & Co.'s claim on Dease creek.

Metal Manufactures of the Japanese.

The Japanese are a very industrious and ingenious people, and while in many respects they resemble the Chinese, there are marked points of difference in the habits and manners of the two nations. There is a stamp of originality in the productions of the former as distinctive and peculiar to them, as can be seen in the two peoples of the Anglo-Saxon race, designated as English and American. The Japanese mechanic is generally well-skilled in his employment, and his work is characterized by that nice perception of style and finish which indicates the true artist. It is pains-taking work, but it is performed with all the enthusiasm and devotion so noticeable in the inhabitants of the Orient. Whole families work together at the same trade in the domestic quiet of their own homes, and in this way they transmit a kind of inherited skill to their children, which is observly displayed by even the youngest members of the household who are large enough to be acquainted with the use of tools.

Factory life is almost unknown in Japan, and there are few large establishments of this description, the exceptions being witnessed in a number of important silk factories, porcelain works and cabinet workshops. There are potteries, tile-yards, dye-houses, paper mills, private looms, forges and iron works; but these are mostly domestic pursuits carried on by families, and free from outside assistance. They have few labor-saving appliances worthy of the name, and, with the single exception of the bellows in some of the forges, which are controlled by the action of a water-wheel, there is no evidence that useful inventions are known or have ever been used.

In the fabrication of metals they display rare ability. Bronze articles of exceeding beauty are sold surprisingly cheap. They make ordinary utensils and table appliances of iron, copper and bronze; tall candelabra of many queer and curious shapes; altar vases representing sheaves and wreaths of loaus leaves; ornaments studded with small bells; incense boxes, and beautiful bronze vases. The latter are especially deserving of notice, some of them being of most exquisite model and decoration. Flowers of delicate design are traced on the smooth black surface by hammering fine silver wire into the bronzes, a piece of work never performed except in the East, and considered when properly executed, as displaying most wonderful skill. Their candlesticks are also very graceful and elegant in design, representing birds or plants, flowers, and even children, with a fidelity to to life truly wonderful. At various distances are sharp points on which are stuck large candles made of vegetable wax. In hardware the people transact an extensive internal and export trade, which is very profitable.

In the manufacture of lacquer ware they also excel, and varnishing or japanning has arrived at such a degree of perfection that when it is applied to the most common woods they become as elegant and attractive as polished metals. A vast number and variety of articles are made of lacquer, such as toilet stands, traveling cases, looking-glass frames, etageres, altar-pieces, cases, shelves, and other household articles; beside all the tables, incense stands, tripods and fixtures required in the temples of the idols. The drinking cups of the Japanese are made of red lacquered ware, ornamented with gilt tracery and arabesques, or gorgeous paintings of scenery and landscapes illustrating charming locations throughout the empire. Some of these utensils are still more costly works of art, fashioned from the shells of the nautilus and heliotis, very richly carved, and mounted on silver filigree.—*Iron.*

Technical Schools.—Where our future skilled workmen are to come from is a question which is crowding for solution. The decline, or rather the total abrogation, of the apprentice system has deprived the youth of the opportunity of learning trades. The result is that there are few who are learning, so that skilled labor is getting scarcer in every department of industry. It is therefore a matter of urgent importance that some method should be devised to remedy this difficulty. Of all the plans discussed there seems to be but one which promises success; that is, the establishment of technical schools. The large degree of success which has followed the introduction of these schools in some departments of our activities is strong proof of their utility in all branches. We might refer to our various schools of design and art, to our medical schools, and schools of mining and engineering.

A French journal connected with the metal trade gives the following curious estimate of the value of a piece of iron costing in its rough state 1f., after being employed for different manufactures. Made into horse-shoes it is worth 3f.; into agricultural implements, 4f.; forged into ornaments, 45f., converted into needles, 75f.; into steel buttons, 900f.; employed as polished steel for decorative purposes, 2,000f.; and made into shirt studs, 6,000f.

Good Health.

Good Food and Good Health.

Upon this topio Prof. Blot expresses himself as followa: "The man who does not nee his brain to select and prepare his food is not above the brutes that take it in the same state. It is to the physique what education is to the mind—oourse or refined. Good and well-prepared food beautifiee tbe physique tho same as a well-dirscted education beantifies the miud. People's taste is in food as in drees, differing not nnly in colors but also in shape; therefore, hy nnr variety of dishes and nur different styles of dressing them, by the ease with which they can be prepared, in the cheapest as in the most costly way, we think we moet all wants aad tastes. Iu fact, to make a very little romark, yon cannot make a gentleman hy feeding him nn codfi-h."

There is no conntry where there is so much dyspepsia as in America, because our people pay bnt little attention to food, aad eat too mnch meat for tbe exeroiee they take. If oae has mental labur fish evory secoad day at least is a requisite. Sonp sots all the glands at work, and prepares the stomach for the most important functions of digestion; and therefore should be takeu at dinner every day. Beef broth is to nld age what milk is to the yonng. Cookery, properly attended to, keeps man in health. If tbe stomach is ont of order the brain ie affected.

We have the hard and soft parts in our anatnmy, nnd the bile, and therefore it is requisite to vary onr food. We sbonld eat more fruits, vegetables, soups and fish. Fish and cheese are the best articles of diet to give to children. The United States has the most money of any people, and tbe greateet abundance of the rnw material; yet they live more poorly, in comparison, than any civilized nation. For instance there ie a millionaire in Brooklyn, who has pork and beans every second day for dinner. Wrinkles are produced by a want of variety in food.—*Ex.*

What Girls Should Drink. — Dr. Dio Lewis, in his book, "Our Girls," says: I am astonished that a young woman who is ambitions of a clear, fine skiu, ehould drink tea. It is a great enemy to fair complexions. Wine, coffee and cocoa may be used without tiuging the skin, bnt as soon as tea drinking becomes a regular habit, the eye of the discriminating observer detects it in the skin. Tea compromisee the complexion, probably, by deranging the liver. Weak tea or coffee may be ueed occasionally, in moderate quantities, without noticeable harm; bnt I advise all young women who would preserve a soft, clear skin, and quiet nerves, to avoid all drinks hnt cold water. It is an excellent plan to drink one or two glasses of cold water on lying down at night and on rieing in the morning. If you have good teeth, nnd can help the food into yonr stomach witbont nsing any finid, excent the saliva, it will, in the long rnn, contribute much to your health.

Red and White Muscles. — M. Rinvier points out that the red and white muscles of a body—very clearly seen by removing the skin nf a rabbit—which exist mingled in the same region, are different both in structure and properties. On applying the electric current, the white portions contract almost instantly, and reepond even to rapid and continuous shocks. The red portions, on the contrary, are mnch more sluggish; it requires a certain time for them, apparently, to feel the excitement, while, on quick interrnpted discharges of electricity beiag administered, they eimply assnme permanent contraction. It is believed by the author that the latter are involuntary and of the nature of the mnscles of the heart or other portiona relating to the animal existence; the former, however, he thinks, are controlled hy the will.

Bathing in Cold Water.—Nothing is more common tban a custom of many persons to have a cold water bath immediately on leaving their beds as a daily habit. Delicately organized ladies not nnfrequently have established the eame course, considering it conducive to the health. There is an impreesion that it invigorates the individual, hardens the muecles and etrengthens the constitntion. The snddeu abstraction nf caloric or vital warmth in that way has not only injured bnt deetroyed more than ever were benefited thereby. A reaction, as it is called, a glow of warmtb that subsequently follows, a direct draft npon the system to meet a snddeu loes of vitality, ie by no means ae beneficial as theoretically imagined. .A tepid bath makes no auch injnrious demands, and therefore is not injurions to those of a frail structure.

Increase of Short-Sightedness.—There is nn doubt that the largely increasing number of short-sighted persons resnlte from the imperfect mode of teaching and learning. It is, in a large measure due to the unnatural positions children are compelled to assume by reason of the conatruction of the deska and aeate, and to the imperfect lighting of the school buildinga. It is high time tbat ateps be taken to remedy this increaaing evil, by not allowing children to keep their booka closer to their eyea than is neceasary for correct vision, and to give them a chance to exercise their eyes periodically and often at distant objects.

Bone Felon.—Of all painful things can there be anything so exernciatingly painful as a bone felon? We know of noae that flesh ie heir to. As this malady is quite frequeut, and the subject of much earuest consideration, we give the last recipe for its cure, which is given by that high authority, the London *Lancet:* As soon as the disease is felt put directly over the spnt a fly blister, aboat the size of your thumb nail and let it romain for six hours, at tho expiration of which time, directly under the surface of the blister, may be seen the felon, which can instnatly be tnken ont with the point of a needle or a lancet.

Hash and Health.—At last science grapples with this mysterious compound. The attention of tho averege New York boarding honee keeper is directed to the words of Prof. Redfern, who condemns tho process of cutting up meat into small blocks, and then stewing it, the effect of which is that the albumen in the outer surface of each block becomes firmly set, and the whole affords about as indigestible a mass as can well be imagined.

Useful Information.

Strength of Various Kinds of Glass.

Acqnaintance with the strength of glass, in the various forms in which it is employed in art and industry, has generally been quite limited, and the result of recent experiments shows some interesting facts, not commonly nnderstood, as to the tenacity, the resistance to compression, and to barstiag and collapse, characterizing this widely used material.

The experiments relating to the tenacity of glass, made by tearing specimens asnnder, showed the tenacity per square inch, of fiiut glass, to be 2,413 pounds; of green glass, 2,896; of common glass, 2,146; these, of course, being the mean results.

To test the resistance of the material to crushing, small cylinders and cnbes of glass were crashed between parallel steel surfaces by means of a lever. The cylinders were cut of the reqnired length, from rods drawn to the desired diameter, when molten, and then annealed—in this way retaining the exterior and first cooled skin of glass. The cnbes, however, being cnt from much larger portions, were consequently in a less perfect condition as regards annealiag. Without attempting to present the details involved in this part of the investigntion, snffice it to say, that the specimens were crushed almost to powder by the violence of the concnesion—bnt it appeared that the fracture occurred in vertical planes, splittiag np the specimens in all directions. Cracks were noticed to form some time before the specimen finally gave way; then these rapidly increased in number, splitting the glass into innumerable prisms, which fiually bent or broke, and the specimen was destroyed. The mean resistance to crnshing was, in the case of flint glass, 13,130 pounds; green glass, 20,206; crown glass, 21,867.

Mine of Liquid Sulphur.—It is reported that a few miles from San Martino, near Palermo, a mine of liquid sulphur is being worked. That is to say, the sulphur is being removed as it runs from the fissures in the rock, at the rate of 400 to 500 quintals (abont 40 or 50 tons) a day. The sulphur proceeds from a mine in the interior of the mountain which is in a molten state. The men are often obliged to stop np the fissures from which the molten sulphur ruas so as to give it time to cool sufficiently to be removed, after which the fissures are again unstopped. It happened at the end of July, on unstopping one of these fissnres, that no sulphur was found, nnd the idea entered the heads of the workmen to reopen the hole by blasting. They succeeded in re-establishing a communication with the interior, but the pressure had become so strong during the obstruction, that the expansion of the gas produced a terrible explosion, which blew the workmen ont of the mine and even sent them flying 50 meters (nearly 55 yards) into the air. Five were killed on the spot, four were seriously injured, and two had to be left in the mine, whence it was impossible to remove them, owing to the snffocating smoke which was evolved. Not one of those eleven workmen came out safe and sound.

To Make Good Dutch Cheese.—Set the sour milk on a warm stove until the whey separates from the curd; then put it into a large, coarse towel or thin cloth, and tie it np. Lay it in a pan and let it lie. Occasionally turn off the whey until no more whey runs out. Then put it in a dish, and with the hands work in it salt to taste, and a piece of butter and cream to make it adhere sufficiently to make into balls. Some persons like to eat it with sweetened cream.

Wind Power.—There are said to be upwards of a hnndred private mansions near New York city which employ windmill power for pumping water, sawing wood, grinding, threshing grain, etc. The *American Manufacturer* states that in many instances they are superseding steam engines, water wheels, hydranlic rams, horse power and caloric engines, being run without cost, exeept for lnbricating oil. These mills are not only noiseless, as now constructed, but they are also self-regulating.

How Eggs are Hatched.

People have an idea that the hen sits on the eggs for a time, and when the time comes for hatching the chick bursts forth. There never was a greater mistake. The chick, until liberated from the shell by ontside aid, is as incapable of motion as if it formed a solid egg, which it nearly does. You might as well inclose a man in an iron boiler, and tell him to get out of the shell without help. The chick grows on the insido of the shell, until at last the excrescence on the point of the beak of the bird prosses against the inside of the shell, and bursts up a very small scale. Of course when it does this, it at the same time "breaks in that spot" the inside of the egg. This admits the air; in a short time it breathes and gets strength to cry loudly. The hen then sets to work to liberate it; she brings it forward under the feathers of the crop, and supporting it between the breast-bone and the nest begins the work of setting it free. She hitches the point of her beak into the hole formed by the raising of the scale by the chick's beak, and breaks away the egg-skin or shell all around the greatest diameter of the egg. The joint efforts of the hen without and the chick within then liberate the prisoner, and he struggles into existence, and gets dry under the feathers and natural heat of the hen. All female birds which sit on their eggs to hatch them have the hook in the beak strongly developed. Even the broad-billed duck and goose have those hooks specially developed, and with them they liberate their young. In Australia, where everying seems to be by contraries, it is the cock of the bush turkey that hatches the eggs, and not the hen. It would be interesting whether the hook of the beak is better adapted for this service in the male bird than in the female. The hook of the beak of the ordinary cock of the common fowl is quite different from that of the hen—it is adapted for wounding in fighting, but not for hatching of eggs.

Cause of the Rusting of Iron.—It has nenally been snpposed that the rnsting of iron depends principally npon moistnre and oxygen. It would appear, however, from Dr. Calvert's experiments, that carbonic acid is the principal agent, and without this the other agencies have very little effect. Iron does not rust at all in dry oxygen, and bnt little in moist oxygen; while it rusts very rapidly in a mixture of molst carbonic acid and oxygen. If a piece of bright iron be placed in water saturated with oxygen, it rnsts very little, but if carbonic acid be present, oxidation goes on so fast that a dark precipitate is produced in a very short time. It is said that bright iron placed in a solntion of caustic alkali does not rust at all. The inference to be derived is that by the exclusion of moist carbonic acid from contact with iron rust can he very readily prevented.

To Extinguish Kerosene Flames.—The alarming frequency of accidents from kerosene flames, coupled with the great difficulty encountered in subduing them, renders the acquisition of any ready and convenient means of extinguishing them a matter of much importance to every household. Perhaps one of the most ready means is to throw a cloth of some kind over the flame, and thus stifle it; bnt as the cloth is not always convenient to the kitchen, where such accidents most frequently occnr, some one recommends *flour* as a substitute, which is always at hand in the kitchen, and which it is said promptly extinguishes the flames. It rapidly absorbs the fluid, deadens the flame, and can he readily gathered up and thrown out of doors when the fire is out.

Explosive Paper.—Make a mixtnre of saltpeter, 8 parts; chlorate of potash, 5 parts; charcoal powder or pulverized coal, 1 part; fine saw-dust of hard wood, 1 part; and a little mucilage, gum or other binding material; put water enough on it to change it into a paety mass, work it well through, and soak strips of heavy blotting-paper or its equivalent in it. If you dry these strips, you obtain explosive paper; if you roll them up tightly when wet and let them then dry, you obtain little blocks which, when confined and fired, will explode with great violence, but will not easily go off by percuesion or friction alone.

A Cure For Corns.—A French medical jonrnal reports the cure of the most refractory corns by the morning and evening application with a brush, of a drop of a solution of the perchloride of iron. It states that after a fortnight's continued application, without pain, a patient who had suffered forty years from a most painful corn on the inner side of each little toe, was entirely relieved; presenre was no longer painful, and the cure seemed to be radical. Other and similar cases are reported as equally successful nnder the treatment.

To Remove Perspiration from Kid Gloves.—Where the coloring matter of dyed gloves has been affected, we know of no method of renewal except re-dyeing. Where benzine fails to remove the dirt, you can try the following French invention: Curd soap (in small shavinga) 1 part, water 3 parts; mix with heat and stir in eaaence of citron 1 part. The glove is stretched on a wooden hand of appropriate size and the componnd rubbed over the glove (with a piece of flannel, alwaya in one direction) nntil it is sufficiently olean.

Domestic Economy.

Economise Your Strength.

Honsehold details are so numerous and complicated that the mother of a family is often obliged to attend to many of them at once, and she ought to learn to mingle the lesser taske with the greater, so that one sot of muecles is resting while another is called into action. In this way some intervals of comparative rest can be secnred, and the work move along more to the purpose than if there were no partial breaks in the endless chain from morning till night. For instance, if pies or apple sauce are to be made, when the breakfast dishes are washed, sit down to prepare the apples and it will not infringe our code of domestic by-laws if yon shonld happen to mix the pie-crnst also while sitting, for rolling it out and finishing the pies will be more easily done after this brief rest. When the coffee is to be browned, it is well to give that process close attention, though sometimes mending stockings or reading will not interfere very much with the roasting, if one eye is kept on the oven.

In many houses the washing machine has shorn Monday morning of half of its discomforts, but genius has not rescued us from the thralldom of ironing day; so here necessity becomes the "mother of invention." We find a board like those used for ironing dresses and skirts furnished with four legs just long enough to come over the lap is very convenient. On this one can iron all small articles, and, if necessary, even shirts and large garments, though not quite so rapidly as at the table, and the change of posture, for a short time, is a relief when there is a large ironing to do.

Cutting garments on a table is tiresome work, and the ironing bench can be used for this purpose, but a lapboard is better. It should be about three feet in length by two feet in width, with a half circle cut ont on one side to fit the form. After a few hours of hard work in the kitchen, the weary housewife will appreciate the advantage of being able to prepare garments for the sewing machine without extra exertion.

Perhaps a healthy, energetic woman might deepise these simple expedients for lifting heavy burdens; but in time even she may have ample need for some strength held in reserve; while there are thousands of feeble women who gratefully accept any suggestions that will, in the least, lessen their labors. If they do the best they can, there will be many wide gaps in the course of the year which they can not fill; and without wishing to be misunderstood, or to appear as an advocate for sloth and "inglorious ease," I believe that the ambitious wife and mother who does the most of her own work is more apt to do too much than too little. She can well afford to economize strength and preserve health, thereby securing more time for her own mental culture and retaining the ability to wisely superintend the moral and physical education of her children. —*Ruth Lee in Moore's Rural.*

Here is a recipe for making Graham biscuit without yeast, soda or cream tartar. Take cold water—say one pint or qnart, according to the quantity one desires to make, or the size of the family demands—and with one hand sift in the Graham flour through the fingers, stirring with the other till you have rather soft dough; then knead it for about five minutes; roll to about three-fourths of an inch thick; cut ont with a common biscuit cutter and prick with a fork (this is done to prevent blistering over top) and place in a very hot oven to bake 30 to 45 minutes, according to the heat of your stove. Care should be taken not to burn the biscuit. This plan will make very light and sweet Graham biscuit.

Spiced Tomatoes.—To four pounds of large red tomatoes take two pounds of gold brown sugar, a pint of cider vinegar, half an ounce of cloves, and half an ounce of stick cinnamon. Stew altogether, in a preserving kettle, over a slow fire, until the tomatoes are nearly cooked. Take them out and put them on dishes to cool, letting the syrup go on simmering slowly. When the tomatoes are cold return them to the syrup and finish cooking. Let them become cold before putting them into jars. The syrup must be boiled down until as thick as molasses, and poured cold over the tomatoes. Tie them down with bladder or waxed paper.

Lemon Tartlets.—Rub a teacupful of sugar in lumps over the rind of a fresh lemon so as to absorb all the essential oil; squeeze the juice of the lemon over the sugar; crush it fine with a sponge; add to it two eggs well beaten and two tablespoonfuls of sweet butter; heat all together and bake in little patty-pans, lined with puff paste.

Sugar Snaps.—One cup of butter, two cups of sugar, four cups of flour, one egg; stir sugar and butter to a cream; add the egg well beaten, and a small teacupful of water with a quarter of a teacupful of soda dissolved in it; stir half a spoonful of cream tartar into the flour; roll out very thin, and bake in a moderate oven.

Flannel Rolls.—One cup of sweet milk, whites of two eggs, two-thirds of a cup of butter, flour to make a thick batter, one-half of a cup of yeast, two tablespoonfuls of sugar. Raise over night; add the butter and eggs in the morning; work in some flour, making a limber dough; form into rolls, and after the second rising bake.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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Saturday Morning, Nov. 7, 1874

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The New Mint.

The new Mint was thrown open to public inspection on Saturday last, and was visited by several thousands of our citizens. It was on Thursday handed over to G. H. La Grange, who has been appointed custodian of the same. The San Francisco Mint building has been erected and furnished apparently without regard to expense, and when fully fitted up will be the most extensive and perfect institution of the kind in the world. We have no knowledge of its cost; but it must be very large. The building is a very imposing and substantial structure, perfectly fire-proof throughout. It is classical in design and ornamented with Doric columns and pilasters.

The building is of two stories with a basement altogether above ground. The boilers and some of the heaviest machinery are in the basement. The engine, which is of elegant and massive construction, is upon the second floor. The Treasury and banking rooms are large and elegant, as are also the officers of the melter and refiner. The offices throughout are large and commodious. The machinery is all substantial and elegantly finished, and every detail of the interior of the building appears to be perfect. The only objectionable feature connected with the structure is the faulty character of the outer portion of the walls, to which fact we have alluded several times during the construction of the building. It will be recollected that Mr. Mullet, the architect, himself has spoken disparagingly of that portion of the work.

We understand that certain portions of machinery in the old Mint will be at once transposed to the new, and that coinage will immediately commence there, and with very little interruption in consequence of the removal. Actual coinage operations will not be suspended for over fifteen days. Bullion deposits will, however, be received within one or two days after the transfer has been commenced, and gold deposits assayed and paid for from the U. S. Bullion Fund. The coinage at the new Mint will be confined for several days to silver.

The Director expresses his determination to so arrange Mint matters on this coast as to insure the coinage of trade dollars in such quantities as will meet the increasing demand for the same.

Street Sweepings and Fertilizers.

In the large centers of population in Europe considerable attention has been paid of late years to the utilization of sewage. In this country few attempts have as yet been made in this direction, though it is probable that before many years it will become a subject of more importance than we consider it at present. In England fertilizing substances of every description are extensively used, and the land is supplied with what it needs in the proper quantities according to the class of crop. Detailed scientific experiments have been made and the results given to the public, and the people have not been slow to adopt the systems and substances that have been proven practically to be successful. The main thing, of course, has been to get a substance which was plentiful, efficient and at the same time cheap.

Near some of the large cities in Europe establishments have been put where night soil is collected, deodorized and prepared for fertilizing purposes. In some of the English towns the "pail" system of removing night soil has been adopted. This system consists in placing an iron pail under the seat of the privy to receive the night soil, and which is removed as frequently as necessary through a small door. The pails are covered with a lid and placed in a wagon specially constructed for the purpose, provided with a roof and doors at the sides for the admission and removal of the pails. An empty pail is substituted for a full one at each collection. This system is in vogue in six or seven of the principal towns in Lancashire, having originated in Rockdale. The company which collects this material have machinery, retorts, etc., for utilizing the sweepings of the streets. The sweepings are exposed to an intense heat in the retorts and are converted into a finely pulverized charcoal. This makes a very efficient charcoal solely from street sweepings, and available for deodorizing purposes, being adapted for use in dry closets, the wards of hospitals, public urinals, months of sewers, and for using with all kinds of offensive material. By its use all decomposing substances are rendered perfectly harmless, so that they may be removed without offence or damage in the daytime instead of at night.

On the arrival at the yards of the wagon with the pails above spoken of, their contents are emptied into a shallow tank formed in the floor of the shed and a few shovelfuls of the charcoal are immediately thrown on the night soil. A reporter of the *Engineer*, who witnessed the operation says the effect is certainly surprising, the offensive odor being immediately removed. The mixture is then well incorporated, placed in sacks and sold for manure at a very reasonable price, which, however, leaves a profit to the company. The street sweepings are also ground and mixed with certain proportions of clay and then charred, in which condition they are used for the filtration of sewage. The manure made by this process is very good, as it is composed entirely of night soil and carbonized street sweepings, which latter contain a large quantity of animal droppings. The works where this business is carried on were erected at Salford to ascertain, experimentally, whether charcoal possessing powerful deodorizing properties could be made from the street sweepings at a cost which would be commercially profitable.

On the 13th ult., the Tacoma saw mill cut 82,159 feet of lumber, an average of 8,000 feet an hour, during the 11¼ hours' working.

The Vallejo barrel factory commenced operations Monday, after a suspension of several months.

Mercuryville is the name of the town just started on the grade between the Missouri mine and Geyser hotel.

The Original Gold Hill mine, on the Comstock, is to have new hoisting works.

The Vallejo foundry has shipped a quicksilver furnace manufactured for a Colusa mine.

The Gold Mountain mining company, San Bernardino county, have 200 men employed.

The mining excitement at Mount St. Helena continues.

The Eastport coal company are now shipping about 2,200 tons per month.

The Belcher Mine Fire.

At about 2 o'clock last Friday afternoon the timbers in the new air shaft in the Belcher mine, on the Comstock, was discovered to be on fire. The fire started on the 800-ft. level, and a few moments afterward a huge volume of smoke poured out of the mouth of the shaft. The alarm was promptly sounded by the various fire bells and hoisting works' whistles throughout the town. The fire department turned out in full force and hurried to the scene of the conflagration, followed by thousands of spectators, including women and children, who were sobbing hysterically, fearing that their husbands and fathers, who were working in the mine, had perished in the flames. The whole energies of the officers and men employed in the mine were devoted to extinguishing the flames. Superintendent Smith and Foreman Donnelly were on the ground personally superintending the work. An immense stream of water was brought to bear on the fire through the hoisting works' hose. Half an hour after the commencement of the fire, the flames, which had hitherto been smouldering, burst out into the air with terrific violence, a distance of several hundred feet, hurling fragments of rock in every direction. At this stage the fire resembled a huge volcano in active operation. The few men who worked in the shaft when the fire broke out had a narrow escape from death. The last one who came up through the shaft had to pass through the flames a portion of the way, and came near being suffocated.

When it was found that the flames could not be extinguished from above, eight men were lowered from the hoisting works to the drift at the 1,000-ft. level to tear out the timbers and the track communicating with the air-shaft, and build a bulkhead to prevent the spread in that direction. The current of air is usually down the air-shaft, but the heat from the flames reversed the process, and the wind sucked down the shaft at the hoisting works. The men were engaged in the work, and succeeded in tearing up the timbers and the track, and partly accomplished their object, when a fearful cave came down the air-shaft, which forced the flames as from the mouth of a huge cannon, full upon them. The result was most fearful. Six of the eight men were severely burned, and the other two more or less injured. The unfortunate men were speedily brought to the surface. They had done sufficient to prevent the flames from reaching the stopes connected with this level, wherein had been the chief danger.. From this time the flames began gradually to subside. The opinion as to the origin of the fire is that it arose from the carelessness of one of the men employed in the 850-ft. level in leaving a burning candle sticking in the timbers. There are about 1,000 men employed in the mine, and although strict injunctions are given to use every precaution with candles, still among so many there are sure to be some of careless habits

The following is a list of those who accompanied A. S. Burt and John Downey, foremen of the mine, in the attempt to erect a bulkhead, and who were more or less injured: William Upham, foreman, somewhat severely burned; it is expected that he will recover in a few days. John Bigge, also an underground foreman, was burned about the arms and chest and face. Patrick Clohesy, foreman, terribly burned about the face and body. William Johns, very seriously burned all over, died this week. Thomas Treglown, not seriously injured. Frank Leclare, a Frenchman, not much burned. Richard Pollard, very seriously injured; burned all over the body, beside which he is suffering from inhalation of impure air; it is hoped he may recover, but the physicians consider this case a bad one. James Thomas, burned, but not dangerously. Charles Sweeney, burned very seriously, his skin being off on nearly the whole of his body. William Thomas, very seriously burned over the body. The men who were injured were all volunteers.

The amount of damage done is estimated at between $20,000 and $30,000. On Saturday morning the workmen found in the mine the dead body of Patrick Kelly, brother of John Kelly, the well-known mining expert. Patrick Kelly was one of those who volunteered to descend into the mine for the purpose of preventing the spreading of the flames, and lost his life in the air shaft, which turned the current of fire down the shaft. He got badly scorched by the sheet of fire which burst in upon him, and in the confusion wandered off in the wrong direction. He fell down a chute a distance of twenty-five feet into an incline and then crept into a small drift, where he was found.

The Crown Point mine is looking well throughout, and promises a rich yield for many months yet to come. Opening out the 1,600-ft. station is making rapid progress; the mills are again running up to their full crushing capacity, and the future prospects of the mine look bright and prosperous.

A turnpike and toll road is soon to be built from Knight's valley to the Great Western quicksilver mine, in Lake county. The right of way is now being secured.

The mines in Winnemucca mountain are now yielding sufficient ore to keep the Humboldt reduction works in constant operation.

That Tea Set.

The editorial columns of the *Scientific American*, our New York contemporary, are generally well and ably edited, and their articles are usually based on sound sense and judgment, but we are compelled to find decided fault with the article in its issue of October 31st, headed "A Panic in the Patent Office." Why the *Scientific American* should demand the discharge of the entire Patent Office force, from the Commissioner down to the petty clerks, simply because the latter contributed towards purchasing the retiring Commissioner a tea set, as a token of their regard for him, we cannot see, unless the proprietors of that paper think to make capital out of a circumstance utterly trivial in itself, but by a legal quibble involving these people in the legal meshes. Had the tea set been purchased by contributions of the office, and presented to General Leggett, when he first entered upon the duties of his office, or during his active management thereof, we would then consider that the law had been violated, and the severe article of the *Scientific American* would not be out of place. But we must be excused for not seeing any wrong in the donation, after Commissioner Leggett had handed in his resignation and his successor had been appointed, but not yet qualified. The extreme bitterness of the article above referred to is evidence that it was either written in a spirit of vindictiveness, because Commissioner Leggett would not allow the proprietors of that paper to manage the Patent Office, or they expected to obtain control of its next officers, who, in case they succeeded in their efforts to have the whole present force expelled, would naturally stand in fear of such a power. One thing is certain, if Mr. Thatcher should succeed General Leggett, as Commissioner of Patents, the *Scientific American* Patent Agency cannot expect any favors from that quarter, other than what the strict letter of the law and justice provide for it. This we look upon as a natural sequence of the article above referred to.

We should look upon the expulsion of the entire Patent Office force as one of the most calamitous occurrences that could befall our country. If there is any one department of our government in which a too frequent rotation in office works evil, that department is the Patent Office. No person, whatever his other qualifications may be, is fitted to be an examiner until he has spent several years inside the walls of the Patent Office. We agree with the *Scientific American* that some—a few—of the examiners, might be removed for incapacity and illiberal views towards inventors with benefit to the country, but to demand the expulsion of the entire force is to demand the total disruption, for a season at least, of our patent affairs. Many of the officers and examiners are worthy and competent, and it would be impossible to fill their places as well as they are now filled. Still the *Scientific American* would make no exceptions. General Leggett has made a good Commissioner; he has instituted many reforms in the office, and his decisions as a rule have been just and equitable. We are only sorry that we did not get a chance to contribute towards that tea set.

The death is announced of Sir John Rennie, the eminent civil engineer, under whose direction some of the most important engineering works of the past half century have been carried out. Sir John was born in 1794, and was the son of the late Mr. John Rennie, who designed New London bridge, and who also designed and executed Southwark and Waterloo bridges. Mr. Rennie educated his son for his own profession, and left to him the task of executing his designs for London bridge. Among his other important works we may mention his completion of the drainage of the Lincolnshire fens, commenced by his father, and the works connected with the harbor of Ramsgate. Sir John was employed by the Earl of Lonsdale in the construction of the new docks at Whitehaven, and through his career he was largely interested in railway operations.

We are informed by a gentleman just in from Bear valley mining district, says the San Bernardino *Argus*, that the Gold Mountain company have 200 men employed at their mine, and that they intend to push things. He says they have one of the biggest mines he ever saw, and he has traveled all over this State and Nevada.

The Consolidated Virginia mine is looking splendidly at all points, and the prospecting being done is proving the greater extent of the ore bodies in almost every direction, and shows the mine to be as yet but scarcely prospected in any direction whatever.

Last week Charles Robinson, an old quartz miner, discovered a ledge below Auburn, so rich that he pounded out about $200 in less than a day in a hand mortar.

Estimates put the yield of the precious metals this year in Utah at $10,000,000. This is against $5,000,000 last year.

Fifteen miles of the Santa Cruz and Watsonville railroad have been graded. Track laying will soon be commenced.

Grafting the Grape.

[Written for the PRESS by Felix Gillet, of Nevada City.]

Of all the modes of grafting the grape known and used in Europe, the one most recommended as never failing and otherwise having certain advantages on all others, is

Grafting by Approach.

This might be done in four different ways. First, if the variety to be grafted is close by the stock upon which grafting will be done, just bend down a sprig of the former to the foot of the stock and set it in a kind of groove made in the body of the stock with a gouge, or better with a gouge-like tool (see fig. 2). This groove must be deep enough to hold the sprig, of which the bark or rather epidermis has to be scraped off, that is the side that goes into the groove. It is then well tied up to the stock; wax or clay might be used, although it is not absolutely necessary.

Fig. 1 shows well the whole operation. This is the second way of grafting by approach. First, rooted cuttings of the varieties to be grafted have to be set in pots sometime before grafting; said pot with vine is then buried in the ground close by the stock and the same operation as the one described for fig. 1 is done in a similar manner, as is represented by fig. 3.

Fig. 1

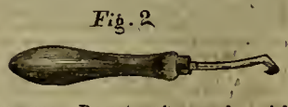
Fig. 2

These two modes of grafting by approach never fail and a great advantage with them is to not endanger in the least the crops of both vines, which are at liberty to grow and bear their usual crop. So if the graft does not take, the stock or rather both vines are all right, which is not the case with cleft grafting. Next year, provided the graft has taken, the stock has to be cut above the graft and the sprig below it.

Some people in California—for we are a fast State—may have objections to this slow, although sure way of grafting by approach, particularly when it has to be done on a large scale. Here, however, are two other and quicker modes of that special way of grafting.

Instead of a rooted vine set in a pot, a common cutting is used, being set on the stock on the same kind of groove and in the same manner as for the preceding grafts. From five to six inches of the cutting must stick in the ground so as to keep the cutting fresh and green. (See fig. 4). Here again, if the operation does not succeed, the stock is all right. The French call this way of grafting, cutting graft.

The fourth method of grafting by approach is somewhat like the one above, with this difference that instead of having the cutting sticking in the ground it is dipping in a bottle filled up with water, which bottle may be partly buried in the ground. The bottle has to be kept full until the graft is well taken. With tall vines, that have to be grafted high, like those running along walls, porches, etc., this mode of grafting is of some advantage, the bottle in this case being tied up higher where it is needed near the graft.

English Graft.

This is the next best method of grafting the grape. As shown by figs. 5 and 7, this graft is done a little above the surface of the ground, with the end of the scion, (fig. 6), sticking a few inches in the ground. Fig. 5 represents the stock ready to get the scion, (fig. 6), and fig. 7 represents the operation completed. The earth has to be drawn around so as to cover the graft, as represented by the dotted line, *d*, in fig. 7.

Cleft Graft.

This graft, the only one spoken of by authors in their works, succeeds well enough when it is done below the surface, or still better as we are going to describe it, the graft in this case not taking root.

The stock in the first place has to be cut off from four to six inches above the surface, (see fig. 8), and the scion set in the same manner as for common apple-grafting; the earth, too, has to be drawn around as represented by the dotted line; this little mound being removed after the operation has succeeded. Instead of splitting the stock in the middle, a hollow cut or groove might be made deep enough to hold in the scion.

Saddle Graft.

This mode of grafting is also used with success. Fig. 9 shows the stock and scion ready to be grafted together, and fig. 10 the grafting done. The dotted line represents the earth drawn around the graft.

With all these grafts, a little wax or clay might be used, though they generally succeed without it. When the scion, as is generally the case, is smaller than the stock, it has then to be set so that its bark will correspond with that of the stock.

Time For Grafting.

The best time for grafting the grape is when the sap is getting ready to go up; when it commences to run; say the latter part of March for the foot-hills, earlier of course for the valleys and southern counties of California. Scions for grafting have to be cut not later than January, and better in the fall, as soon as the vines have shed their leaves; their length being about one foot. They are put up in bunches, the butt end several inches in the ground or sand, and in a sheltered place. I put in my cellar, buried one-third in moist sand, all kinds of cuttings, being the best place to keep them against frost and winds.

For grafting take only that part of the branch nearest to the old wood; the bud, too, should be close enough. In grafting it must be seen that a bud be close to the graft; for not only will it be liable to be broken off, but it is the one that will give the finest shoot.

General Remarks.

When the graft is growing all other shoots around the stock have to be mercilessly nipped off, leaving none but those of the graft. Short stakes might be set at the foot of each grafted stock, so as to tie up the shoots from the graft when they are long enough for that; young shoots, as every one knows, are very easily broken off by the wind. Grapevines having no live bark, the sap goes up indistinctly through the capillary vessels which nature has placed in great number in the wood of that plant; while with trees the sap circulates exclusively between the bark and the wood of the tree. It is therefore immaterial which way the graft is placed in the cleft, whether even with the stock's outside or sideways: in either case it will take.

Do not graft black grapes on white grapes,

Fig. 1

Fig. 2

and vice versa. Do not graft on weak or sickly vines, but, on the contrary, on most healthy and vigorous ones. Common varieties do generally better than fine ones. Do not graft when it is raining or threatens to rain, too much moisture rendering the sap too impetuous, watery and devoid of gluten; if through the summer the graft grows too long, shorten it with the shears or knife.

The Rain.

The rain-fall in this city for the month of October was 2.73 inches, against 0.08 inches

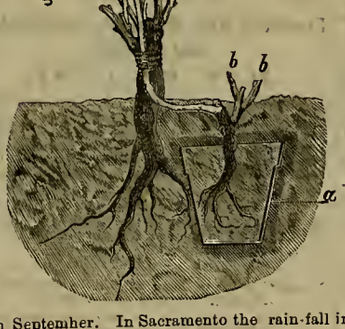
Fig. 3

in September. In Sacramento the rain-fall in October was 2.257 inches, against 0.050 inches in September and 0.310 inches in October, 1873. In looking over the rain tables for the last twenty-five years we learn that there have been but two years in which the rain-fall at Sacramento for October has exceeded two inches. These years were 1858, in which the

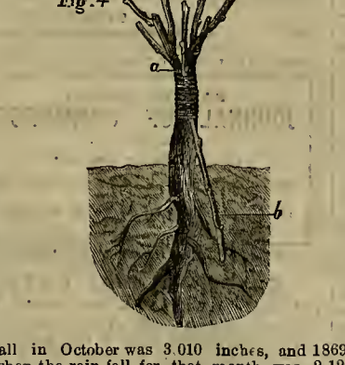
Fig. 4

fall in October was 3.010 inches, and 1869, when the rain-fall for that month was 2.120 inches. We notice, also, that during this same period there have been but two other years in which the rain-fall for October exceeded one inch. In 1849 the rain for October was 1.05 inches, and in 1854, for the same month, was 1.01 inches. In the years 1850, 1852, 1855, 1859, 1866, 1863, 1867 and 1868 there was no rain in October at Sacramento. In October, 1849, in this city in three days 3.14 inches of rain fell, or over an inch a day. In 1861, 1863, and 1870 no rain fell in October in this city. Last October 0.68 inches fell here, against 2.73 inches this year. The rain-fall for October, 1849, was the heaviest we have ever had in that month in San Francisco.

The "weather sharps" of different localities can make their own predictions about the coming winter to suit their own fancies. The farmers will hardly need to be reminded to put in their grain as soon as there is sufficient moisture to start the plow; and they know that the sooner the grain has a good start, when the spring opens, the better it will come to maturity in most localities. Those who have not, as well as those who have, an idea that this will be

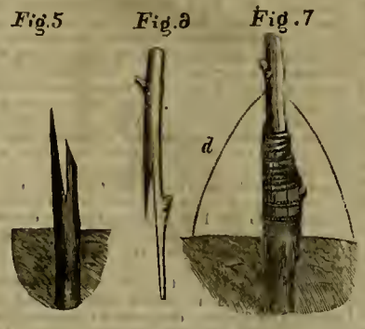
Fig. 5 Fig. 6 Fig. 7

a "dry year" will put in their grain as soon as the ground is ready, whether figures prove that they are correct or not. We know that in older settled countries than California, where accurate records are kept of the rain-fall, they are unable to prove with any degree of probability what the coming season will be; and we are therefore of the opinion that it is of little use yet to prognosticate, taking the rains of former season's as a basis of calculation. These are "weather wise" here as well as in older communities, and no argument would change their own opinions, as this is a subject on which every one thinks he knows best. We therefore

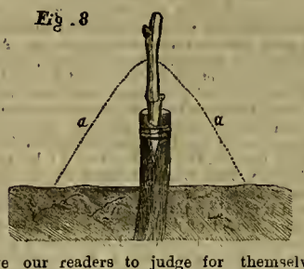
Fig. 8

leave our readers to judge for themselves, knowing at the same time that our friends, the farmers will take advantage of the early rains.

MARIPOSA AGAIN.—In another column will be found notice of the articles of incorporation of the Mariposa Land and Mining Co., which proposes to acquire the famous Mariposa property. One peculiarity of the new arrangement is given as follows: "Fifty thousand shares shall be designated as 'preferred' stock, and the holders of such shall receive dividends from the net receipts and earnings of any current year, if such net receipts and earnings will pay the same to the amount of ten per cent. per annum on nominal par value thereof, in preference to any dividend upon the re-

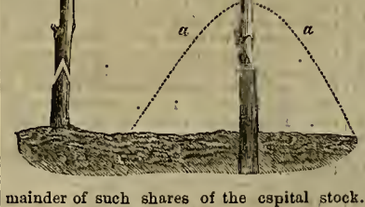
Fig 9 Fig 10

mainder of such shares of the capital stock. If such earnings and receipts shall not pay ten per cent., then such dividends shall be paid in such fifty thousand shares of the stock as the same will pay yearly."

A RAILROAD meeting was held at Nevada, Marin county last week, to consider the desirability and feasibility of building a railroad from San Rafael to Petaluma and beyond, and maintaining a ferry. Mr. Wickersham, banker, of Petaluma, was called to preside. Wm. T. Coleman, having been called upon, addressed the meeting at length. He explained the necessity of the line; said it would pay, and must be built; that it would cost a half million of dollars, two hundred thousand of which he would pledge San Rafael to raise, which would leave two hundred thousand dollars to Petaluma and one hundred thousand dollars to the intervening country. If Sonoma would come in and add enough to stretch the rail to her doors, by all means receive her, and so of Napa. Mr. Wickersham said that he felt authorized to say that Petaluma would respond in the sum named, and Mr. Sweetzer said that the county would do its share.

San Francisco Tanneries.

The first tannery established in this city after it was settled by the Americans was started in 1849 by an enterprising German, appropriately named Harnis. His tannery was beside "Washerwoman's Lagoon" on the old Presidio road. It was an establishment suited to the times, but little leather being used then, except that which was tanned in a rude way by the Mexican population. The stock imported was heavy, and some of it remaining unsold for over a year was re-shipped East—one lot of it amounting to 5,000 sides. This being the case, of course a small factory was considered sufficient to supply the demand. Another tannery was afterwards started by the firm of Le Gattis, McKay & Smith, on the opposite side of the lagoon from that of Harnis. Then follow the tanneries of J. J. Fulton, Wm. Fields and others.

The tanning business of this city has of late years grown to large proportions, and is now one of the prominent interests. Many of the tanneries are situated out on Mission creek, near 17th and 18th streets. The neighborhood is not an aristocratic one, and the surroundings are more useful than ornamental. The creek itself is not such a stream as a painter would like to depict, and the bridges which span the noble stream are of a natural order of architecture suitable to the locality. These circumstances, however, are not detrimental to the tanning business, which flourishes as well in one locality as another.

McAlser's tannery is in this vicinity, where it has been in operation about five years, doing a good business. They tan about 150 sides of sole and harness leather per week, when at that kind of stock, and at other times putting into the market about 180 sides of upper leather. From 12 to 15 hands are employed here and the business foots up to about $30,000 per annum.

The tannery of A. B. Patrick is on the southwest corner of Folsom and 18th streets. This tannery is a very large one, the main building being 180 feet on 18th street and 150 on Folsom. There are 100 vats, each containing 3,000 gallons. The works are run by a 60 horse power engine, which runs two pumps, a bark mill, rolling mill, press, etc. The pumps discharge 300,000 gallons per day. The rolling mill will smooth 160 sides per day. A strong liquor is made in which the hides remain for 24 hours. This liquor is then pumped off and new liquor run in. The used liquor is drawn into two capacious "junks" of 10,000 gallons' capacity, and is then pumped into the leaches, etc.

It takes about four months to thoroughly tan their leather, so that from the beginning of the process until the proprietor receives his money is from six to seven months. This tannery turns out 150,000 sides of sole leather and 2,000 sides of harness leather annually. We saw at this establishment a splendid lot of 400 hides finished and ready for delivery; and also a large quantity of very fine seal and dog skin leather. The heaps of wool, rawhide from the Sandwich Islands, piles of stock, and the general neatness indicate a prosperous business. Heavy leather being in demand, is made chiefly at present, but they have every facility for the manufacture of every description of upper leather of a superior style. The ground and buildings of this tannery are owned by A. B. Patrick, the proprietor.

Artificial Wine.

Complaints about the adulteration and dilution of foreign wines are not new, and their truthfulness has been generally conceded, but it now appears that the art of making wine has at length reached that point of perfection where the grape can be dispensed with altogether. A Strassbourg paper complains of the production of artificial wine at Kehl, where there is a large establishment, much patronized by Strassbourg wine-merchants, into which a grape has never entered. This colored and sweetened Rhine water is recognized by the excise as grape wine. In the Rheingau and the Palatinate there are hundreds of similar establishments. The Rhenish and Alsatian wine-growers intend to urge the Reichstag to pass a stringent law against the falsification of wine and other drinks.

The American people have their faults; but this is not one of them; and among the "Yankee tricks" that have become famous, we find but few instances of the falsification and adulteration of articles of commerce. It is not an American vice; and we have faith that California wines will achieve and maintain a good reputation in the world's markets.

THE SOCIETY OF ENGINEERS of California met last Tuesday evening, at which time S. H. Wheeler read a paper on "Quartz Mill Machinery." The President announced a paper on the "Properties of Steam" for the next meeting.

THE stages between Nevada City and North San Juan will only run tri-weekly during the winter.

The Fall of the Leaf.

The phenomenon of the "fall of the leaf," common ae it is, is very difficult to explain eatisfactoriiy. The following are the facts, eo far as we nnderstand them, which are exceedingly interesting and inetructive: It seems that natnre begins the provision for separation almoet ae soon as the leaf is horn, in epring. When first put forth into the atmoephere, the stalk of the leaf, enpposing one to be preeent, is continuoue with the stem. Ae the leaf and its etem grow, however, an interruption between their tissuee (fibrous and cellular) occurs at the base of the leaf stalk, by meane of which a more or lese complete articulation or joint is gradnally and ultimately formed. This articulation is produced hy the continuation of the growth of the atem after the leaf has attained its full growth, which it generally does in a few weeks. The growth of the leaf being completed, the base of its petiole, or foot-stalk, is no longer able to adapt itself to the increasing diameter of the stem, and a fracture hetween that base and the stem necessarily eneues; the excision advances from without inward, until it finally reachee the bundles of woody fiher which form the main support of the leaf. While, however, natnre is forming a wonnd, she is at tbe same time making provision to heal it, for the cuticle or epidermis of tbe stem is seen to grow over the surface of the ecar, so that when the leaf ie detached the tree does not suffer from the effects of an open wound. The provision for separatiog being tbne completed, the leaf is parted from the etem by the growth of the twig at tbe bud hase. the force of the wind or even hy its own weight. Therefore as soon as tbe glorious colors of the autnmn leaves begin to fade, this provision for separation is completed, and the winds sing their death dirge ae they carry them away from their eummer'e home, on the branchee of the trees, and scatter them in countlese nnmbere upon the ground. The fall of the leaf is therefore the regular vital process, which commencee with the firet formation of the leaf, and is ouly completed when it ie no longer useful to the tree. There is no denying, however, tbat the froste of autnmn, by suddeuly contracting the tiseues at the base of the leat etalk, accelerate the fall of the leaves. All must have noticed on a frosty morning in antumn that the slightest breath of air moving among the decayed and dying leaves will bring them in complete ehowers from the treee to the ground. The leaves of the beech, hornbeam and oak die in autumn, but frequently remain attached to theee trees throughout the winter months, provided that the treee are not so situated ae to be exposed to violent winds. Such leaves when examined will be found to be continnous with the stem, and therefore without that articulation or joint which eo naturally assiets in the separation of the leaf from the tree. Those dead leaves fall off when the new leavee are put forth in epring; they are in fact pu hed off by the expansion of tbe stem when the growth of the season commences. The leavee of evergreen trees and shrubs, and of coniferoue trees, as the pine and fir, do not fall in autnmn, but in epring, when the growth of the season ie proceeding; and as thie annual leaf-fall is only partial, coneisting of one-half or one-third at a time, there ie always a sufficient nnmber of leaves on ench trees to keep them clothed with perpetual verdure. Hence it ie that their foliage consists of leavee which have been attached to tbe stem from one to three or five succeseive yeare.—*London Garden*

Columbia District.—The *Silver State* eays: Charley Kyle and General Harris have juet returned from a hunting expedition in the northwestern part of the county. They report game plenty in that section, and, as trophiee of their succees, brought in a lot of venieon. From Kyle we learn the following relative to the miuing proepecte of Bartlett creek and Columbia district, which places they visited while hunting: Work has been commenced systematically on the Badger mine, a large interest in which wae recently purchased by Mr. Bollinger, of San Francisco. A few daye ago George Keating eold his interest in the mine, which comprised one-eixth of it, to a Mr. Johnson, of Baker City, Oregon, for $10,000. The new owners have enrveyed and commenced work on a ditch from Bartlett creek to an eligible site near the mine, for the purpose of running a quartz mill. The creek contains sufficient water at all seasons of the year to run a 20-etamp mill. Kyle speaks in the highest terme of tbe couutry, and believes, now that capital is intereeted, that next season there will be a flourisbing mining town in Columbia district. The country eurrounding the mines afforde excellent paetnrage for cattle, large herds of which are seen in the valleye.

Oconto, in Wieconein, promiees to rival the Black Hille or any other gold mining district in the conntry. The following is from the Oconto *Reporter:* It ie an indisputable fact that gold, in paying quantities, has been diecovered on the north branch of the Oconto river, which in purity and riohness has been pronounced by old California miners not to be surpaseed by any gold ever discovered on the Pacific ooaet. For reasone that we are not at preeent at liberty to divulge, this discovery has been kept quiet, but in the courre of a few weeks all unhelievers and scoffers will be made acquainted with the truthfulness of thie statement, as arrangemente are being made for the opening and working of the mine.

Manzanita Mine.

The heavy rain of Mouday and Tuesday had the effect to give the ground a good soaking. Quite a cave occurred on the weet side of the cnt in the Manzanita claims, and an acre of ground, more or lees, was tumbled down and brokeu np, ready for hydraulicing when water comes. Tbis mine ie in eplendid order for working now, better than it ever wae before, and the general arrangement of the worke, and the systematic manner in which tbe claime have been worked to bring them to a first-clase paying mine, reflecte great credit upon the superintendent, Mr. W. A. Roherte, who hae, for the paet two years, hattled againet many apparently insurmountable obstacles, and snceeeded in bringing order out of chaoe and making the Manzanita a paying mine. The claime are all ready for work when water comes, and it is the intention this season to rnn more water and use more gunpowder. Two more powder drifts are heing run, and the immeuse bank of gravel, one hundred and sixty feet high, will be hroken up all over a dietance of two hundred feet back, thus rendering the gravel easier to be dissolved. The bed-rock is still pitching slightly into the hill, showing that the deepest part of the channel has not yet been reached. There is still plenty of fall, however, to the claime, for the lower tunnel at the end of the ground sluice is from thirty to forty feet helow the hed-rock. Thie tunnel will be nsed for running off bottom dirt, and all the gravel on the north and weet sides of the claime, while the upper tunnel, which is some twenty feet above the bed-rock, will be used for conveying away the gravel from the east portion of the miue. Two monitors are used and eight hundred inches of water are forced throngh each of them. Tbe company's office, blackemith shop, powder honse and other buildinge, are conveniently arranged, and when Jupiter Pluvius eende efficient moisture to fill the Snow Mountain ditch with water, piping will begin, and old Manzanita will be made to disgorge the golden treaenres which are known to he in its poeseesion.—*Nevada Transcript.*

Steam Packing.—An English writer recommends well-sifted white-wood sawdnet, cnt with the grain and mixed with talc or plnmbago, ae a good material for eteam packing. Another writer eays in regard to it, "Tbis ie, in itself, a good anti-friction material, but I do not think the addition of plnmbago would he of any uee. I fear, however, that the action of eteam would eoon destroy the elasticity, and make it like a ring of eolid wood. Once, heing in a hurry to pack the gland of a piston-rod, I filled tbe etnffing-box with finely chopped etraw. Not the leaet steam escaped tbrough the interaticee, and it required hut very little compreseion, the mere weight of the gland serving to keep it steam-tight. I thought I had made a good discovery, that would save a continual eource of tronble, bnt at the end of a few daye' work the straw suddenly went rotten by the continued action of the steam, and blew out like coffee-grounde. Oat-husks are more enduring, and equally eteamtight. The experiment proved that a continuoue yarn gasket is not essential for steam packing, but that small pellete of something or otber having elasticity and eteam-enduring properties will do eqnally well, and be far more easy to extract than old hard junk, to hook out which to tbe very bottom ie sometimee a tronbleeome job."

Lida Valley.—A correspondent of the *R.R. Reveille* eaye: At no time since the settlement of thie valley has tbe outlook of the mining interest been so gloomy ae at preeent. No work is being done on any of the mines save and except the Brown'a Hope, on which Superintendent Higge has a crew of two men at work on contract. The mill, wheu running (now sbut down for repairs), is working the refuee ore or waste dumps of the Brown'e Hope mine and givee employment to eight or nine men, including officere. Gen. Page has machinery here for another mill; bnt when or where it will he set up we know not. Messrs. Kelly & Oher, the fortunate owners of eome very rich gold-bearing ledges in the Gold Mountain district, are building an arrastra-mill between Lida and Gold Mountain for the redncticn of their ore. The motive power of the mill will be steam. Owners of minee in Lida Valley district bide their time, confident in the merits thereof.

Oriental Mill.—The Nevada *Transcript* learns from Mr. Kitts, proprietor of the Oriental mill that he has crushed abont 1,000 tons of custom rock the past summer. Most of it was prospect rock, taken from Gold flat, Wood's ravine, from the Montana ledge and other places. The rock hae all averaged abont $25 per ton. The mill ie run by eteam power and has an engine of 30 horse power. The gold is saved by meane of copper slnices and Eureka rubbers. Mr. Kitte understands the working of rock and eaves the proceeds as closely as it is possible to do. The mill will run ae occasion requires during the winter.

The Milton mining company are pnshing work on their Milton and Moore'e Flat ditches ae rapidly as possible. Between Moore'e Flat and Eureka they have 500 men at work, and above Eureka the ditch is completed. The recent rains have given an impetus to the work, as fears are entertained that the rainy season has actnally commenced.

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Testimonials and references will he given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a *basis* of actual work performed hy a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine hy actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cnbic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be fnrther agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cnbic yard thus dredged in the same ratio the $10,000 is to he added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to he made in U. S. gold coin on delivery of machine, as may be indicated hy agreement.

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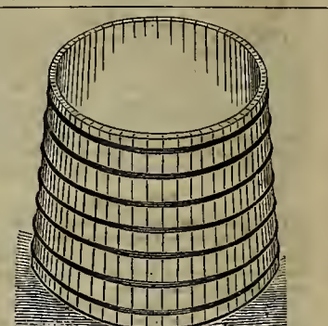

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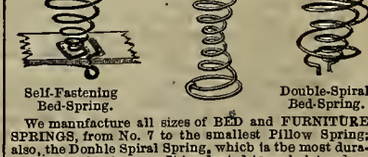

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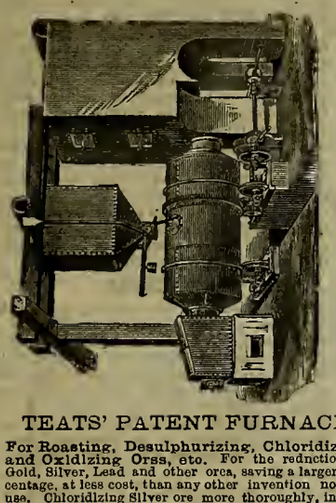

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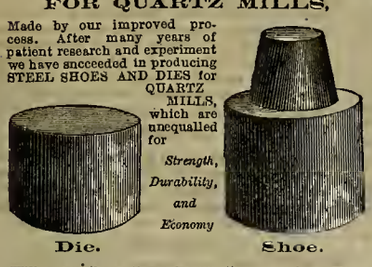

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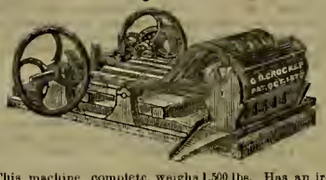

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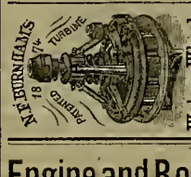

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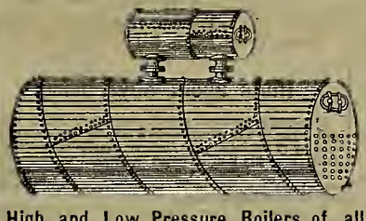

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All Policies issued by this Company, and the proceeds thereof, are exempt from execution by the laws of California. THE ONLY STATE IN THE UNION that provides for this exemption.

☞ Policies issued by this Company are non-forfeitable, and all profits are divided among the insured.

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General News Items.

THE ELECTIONS.—Twenty-four states held their elections on Tuesday last, at which eleven governors were chosen, 17 legislators elected, 218 members of Congress. The contest was generally between Democrats and Republicans—although in South Carolina both tickets were nominated by Republicans and in Missouri both by Democrats. The result has surprised every one, and forms one of the most complete revolutions which the country has ever experienced. The power of the administration has been broken in the Senate, while the position in the House has been advanced from one third of its membership to two-thirds. The legitimate inference is indicative of a deep rooted dissatisfaction with the present management of Federal affairs at Washington. What effect it will have on the coming election of President is as yet uncertain, and will largely depend on the action and spirit developed at the next session of Congress. Happily California is relieved this year of the excitements and bad blood generated by such a political campaign. Perhaps one of the best features developed by this election is the disposition so generally manifested by the people everywhere to ignore party and vote independently upon living issues. It is also gratifying to notice that the colored voters of the south are beginning to break away from their clannishness, and divide their support between the two opposing parties. This fact shows that they have opinions of their own, which they are prepared to hold and exercise even though they conflict with those whom they have hitherto regarded as their only friends.

EPIDEMIC AMONG THE CELESTIALS.—The past summer has been one of great mortality among the Chinese in the mines at Oroville. It is said that the deaths during the summer will reach nearly seven hundred, and that at the present time there are about three thousand sick. The epidemic commences with a swelling in the lower limbs, gradually going up over the body to the throat, when death in nearly every case follows. The Chinamen are leaving the locality by the car load. As yet the epidemic has not got among the whites. Very little is known as yet, with regard to the origin or nature of the disease.

THE "City of Pekin," reported last week as having put into Rio Janeiro to replace two blades which she had lost from her propeller, after lying there several days without being able to use her coffer dam for making repairs on account of rough weather, put to sea again determined to rely upon the good condition and strength of those which remained for the completion of her voyage.

PUBLIC SCHOOL NOTICE.—State Superintendent Bolander warns Boards of Education against changing the course of study adopted by the State Board, and notifies all Trustees that the law in regard to the course of study will be strictly enforced; and any school district which neglects to adopt the State course can receive no apportionments of the school money.

A MOST EXTRAORDINARY ATROCITY was committed a few days since at a house in Virginia Place in this city. Louis Berry, a respectable colored man was murdered by his son, a man 33 years of age, and horribly mutilated by an axe and dagger. The criminal has been arrested. No cause or provocation is given for the commission of the foul deed.

SNOW IN THE EAST.—A very severe snow storm visited the northwestern portion of Pennsylvania, on the 30th ult. Nine inches of snow fell at Erie. November is generally a miserable month for our friends in New England and the Middle States. Cold rains, raw winds, freezing, thawing, "slush" and mud—ugh!

COUNTY JUDGE.—The Governor has appointed Selden S. Wright to be County Judge of San Francisco county, to fill the vacancy created by the resignation of Judge Stanly. Mr. Wright has been Probate Judge of this county, and was at one time a candidate for the Supreme Court on the Democratic ticket.

JOHN COCHRAN, the Master of the Patrons of Husbandry of the State of Wisconsin, has declined the Republican nomination for Congress, in his district, on the ground that it is a trap laid to draw the Patrons of Husbandry, as an Order, into politics.

LABOR TROUBLES IN ENGLAND.—There is still much trouble among mining and agricultural laborers in England. Farmers of Lancashire insist upon reducing the wages of the men three shillings per week. A serious agricultural lockout is expected.

THE CARLIST WAR.—The Carlists are said to be negotiating for an armistice. Another dispatch says that several leading Carlists have waited upon Don Carlos at Tolosa, and reported to him that it is useless to continue the war.

PROF. HILGARD, of Michigan University, who temporarily supplied the chair of Agriculture at the University after Prof. Carr's removal, has been invited to fill it permanently by the board of regents.

SUICIDE.—Henry Sustan, an elderly German, committed suicide in a shanty on Fifth avenue, between L and M streets, South San Francisco, a few days since.

NARROW GAUGE LOCOMOTIVE.—Moynihan & Aitken, of the Portland Boiler Works, of this city, have just completed a narrow gauge locomotive, designed by W. W. Vanderbilt, formerly Superintending Engineer of the Pacific Mail Steamship Company. This locomotive is intended to run on a narrow gauge railroad built for one of the coal mines in Coos Bay. The cylinder is 7½ inches in diameter, 14-inch stroke. There are four drivers 36 inches in diameter. The boiler shell is 36 inches in diameter, and 12 feet long. The locomotive is calculated to draw 40 coal cars.

CASE OF CREMATION.—During a warm shower of rain last week, a man who was hauling a load of lime in Sonoma county, had his cargo set on fire in consequence of the heat given out by the lime in absorbing the rain. One of the mules stubbornly resisted all efforts to detach him from the burning wagon and was cremated on the spot, while his unfortunate owner stood by and misapplied scripture.

PACIFIC COAST APPROPRIATIONS.—The Congressional appropriations asked for the Pacific coast for the present year are as follows: Fort Point, $50,000; Lime Point, $50,000; Alcatraz Island, $50,000; the mouth of the Columbia river, $20,000.

MURDERED HIS BROTHER'S WIFE.—Levy Thornton murdered his brother's wife at Day's Hollow, near Binghampton, New York, on Sunday, by cutting her throat, because she refused to elope with him.

SAN FRANCISCO HARBOR.—During the month of October, 412 vessels of all classes entered the harbor of San Francisco: Steamers, 90; ships, 71; barks, 27; brigs, 7; schooners, 210; men-of-war, 5, foreign fishermen, 4.

THANKSGIVING.—The President has designated the 29th day of November to be set apart as a day of National Thanksgiving for all the many blessings enjoyed during the past year.

TROOPS FOR THE SOUTH.—Government is unable to comply with the demand for troops to keep the peace at the South, on account of the smallness of the number at its disposal.

AN EXPENSIVE CITY.—New York's expenses for the coming year are estimated at $38,693,052 65, a reduction of $2,000,000 over the previous year.

THE GENERAL POSTOFFICE.—The Postoffice department has abandoned the idea of making the department self-sustaining, for the present at least.

GARIBALDI PROVIDED FOR.—The municipality of Naples proposes to tender to General Garibaldi an annuity of $60,000.

THE DEATH RECORD.—Eighty-four deaths have occurred in this city during the past week—54 males and 30 females.

THE rush of immigration to California is greater this fall, than at any time since the "days of '49 and '50."

POWDER EXPLOSION.—Another tremendous powder explosion occurred in London on the 3d inst., by which four persons were killed.

THE war cloud in Europe seems to increase in blackness.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Nov. 3rd, 1874.

FOR WEEK ENDING OCT. 20th, 1874.*

VENTILATING BLANE FOR ILLUMINATING TILES.—Wm. Lynch, S. F., Cal.

CAR AXLE BOX.—Josiah C. Tuck, Oakland, Cal.

CARRIAGE AND WAGON WHEEL.—Wm. H. Keep, Stockton, Cal.

SEWING MACHINE.—Eugene Morean, S. F., Cal.

TRADEMARK.

FOR TEAS.—Albert Mau & Co., S. F., Cal.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect secrecy and in the shortest time possible.

A COMPLIMENT.

PLAINSBURG, MERCED CO., CAL., June 22, 1874.

DEWEY & CO.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which you have displayed in procuring my patent.

Although you were entire strangers to me when I first communicated with you, I soon felt satisfied you were gentlemen of integrity, and shall always be happy to represent you as such. Very truly yours,

H. W. RUCKER, M. D.

Wood Cuts for Sale.

We are willing to sell a large number of the wood cuts and electrotypes which have appeared in the PRESS, on very liberal terms to publishers abroad, and would invite correspondence on that business.

FOR STATE OF NEVADA.—We have appointed Mr. F. B. Alderson our special agent and correspondent for the State of Nevada. He will visit our friends and patrons there soon.

The Mining and Scientific Press--Ever Onward.

Our careful system of compiling, judiciously condensing, and conveniently arranging into regular departments, has been heartily endorsed. It renders the paper worth more to readers, who can find handily that which interests them most.

The weekly issues of the PRESS will contain reliable

Information for Practical Miners,

Treating on the Opening of Mines; Mining of Ores; Milling of Ores; Smelting of Ores; Separation and Roasting of Ores; Amalgamation; Saving of Gold and all precious Metals; New Processes of Metallurgy; New Discoveries of Mines; Mining Engineering and Hydraulics.

For Inventors, Mechanics and Manufacturers.

All new and important developments in Scientific and Mechanical Progress; Patents and Inventions of the Pacific States; Progress of Home Industries; Hints for Local Manufacturers; Illustrations of New Machinery; Reports of Popular Scientific and Industrial Lecturers.

Our Mining Summary

Gives the progress of mining work from week to week in the various counties and districts throughout the principal mining regions of the United States, arranged in alphabetical order. It is the most extensive record of mining operations published in the world. It affords the intelligent miner a rare opportunity to know and profit by the work and experience of his neighbors. Miners have few sources of practical information in their calling, and should embrace every reliable means for improvement. Mining Operators and Shareholders, at home and abroad, weekly examine our Summary with increased interest and profit.

Our "Domestic Economy"

Embraces new and important facts which should be known in every cabin and household. Short and interesting—the articles under this heading are freely read and practiced with profit and improvement to the readers.

The PRESS is not strictly a "paper for professional scientific men," but rather a

Liberal and Popular Scientific Journal,

Well calculated to make practically scientific men from our intelligent masses. This is our stronghold for accomplishing good. Plain, correct and pleasing language, easily comprehended by all, confined mostly to short articles, is our endeavor.

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In this progress of this comparatively new section of the Union (but recently settled and now rapidly increasing with a population of the most intelligent and venturesome people, attracted from nearly every quarter and clime on the globe), snails us, with due enterprise, to display vigor and freshness in our columns not met with in similar journals elsewhere. The same circumstances also render such a paper more especially valuable to its readers in a new, and, to a certain measure, untried field, where the best methods and processes of industry are not so well established or traditionally known as in older communities. Published experiences often save costly experiments and disastrous results.

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In brief and fresh form, suited to the wants and tastes of the readers of this coast, which is not obtainable otherwise so timely, or in so cheap and convenient form. As an industrial publication, meeting the wants of so many kindred industries, this journal stands pre-eminent and without a precedent.

Subscriptions payable in advance—$4 per annum. Single copies, post paid, 10 cents. Address

DEWEY & CO.,

MINING AND SCIENTIFIC PRESS and PACIFIC RURAL PRESS Office, 224 Sansome St., S. F.

Hints about Advertising.

If you have goods to sell farmers, how much better will it pay you to advertise in a farming paper, closely read by 15,000 intelligent farmers, than in miscellaneous daily or weekly journals with 30,000 readers, comprising only 2,000 farmers. A mining journal in California with 15,000 readers reaches more intelligent miners than any other 10 papers in the Union.

Purchasers are more likely to look for information in the advertising columns of a paper devoted to their special interests, than elsewhere, when ready to buy. Some will not read advertisements upon any other occasion, but seek the best paper when wanted.

If you happen to be the only advertiser in your line of business in a paper, all the better. But if several firms advertise the same, your own judgment will question whether you can best afford to go unrepresented.

Weekly journals are read most leisurely and carefully, and at a time when the subscriber is most favorably inclined to examine advertisements. The newspaper most specially representing your particular branch of industry is usually best entitled to your patronage, and the most profitable medium you can employ.

An advertisement in an honest and handsome sheet is favorable to the reputation of the advertiser. The readers of the PRESS are a superior and industrious class, who are able to purchase and who seek to patronize the best and fairest dealing tradesmen.

Advertising in cheap priced mediums (of limited circulation) is like buying goods at retail when you could as well take them at wholesale.

Information imparted to a list of superior and intelligent and active and industrious readers (naturally looked up to by others for information), is seed sown in good soil for the advertiser.

Fame and fortune are gained, nine times in ten, by liberal and judicious advertising.

PACIFIC RURAL PRESS,

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DEWEY & CO., Publishers,

No. 224 Sansome street, SAN FRANCISCO

DEWEY & CO.

American & Foreign Patent Agents,

OFFICE, 224 SANSOME STREET, S. F.

PATENTS obtained promptly; Caveats filed expeditiously; Patent reissues taken out; Assignments made and recorded in legal form; Copies of Patents and Assignments procured; Examinations of Patents made here and at Washington; Examinations made of Assignments recorded in Washington; Examinations ordered and reported by Telegraph; Rejected cases taken up and Patents obtained; Interferences Prosecuted; Opinions rendered regarding the validity of Patents and Assignments; every legitimate branch of Patent Agency Business promptly and thoroughly conducted.

Our intimate knowledge of the various inventions of this coast, and long practice in patent business, enable us to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most steadfast friends and patrons, who fully appreciate our advantages in bringing valuable inventions to the notice of the public through the columns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity.

Foreign Patents.

In addition to American Patents, we secures with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, British Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales, Queensland, Tasmania, Brazil, New Grenada, Chile, Argentine Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainable.

No models are required in European countries, but the drawings and specifications should be prepared with thoroughness, by able persons who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

Our schedule prices for obtaining foreign patents, in all cases, will always be as low, and in some instances lower, than those of any other responsible agency.

We *can and do* get foreign patents for inventors in the Pacific States from two to six months (according to the location of the country) SOONER than any other agents.

Home Counsel.

Our long experience in obtaining patents for Inventors on this Coast has familiarized us with the character of most of the inventions already patented; hence we are frequently able to save our patrons the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applications which will interfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

Situated so remote from the seat of government, delays are even more dangerous to the inventors of the Pacific Coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor.

Confidential.

We take great pains to preserve secrecy in all confidential matters, and applicants for patents can rest assured that their communications and business transactions will be held strictly confidential by us. Circulars free.

Engravings.

We have superior artists in our own office, and all facilities for producing fine and satisfactory illustrations of inventions and machinery, for newspaper, book, circular, and other printed illustrations, and are always ready to assist patrons in bringing their valuable discoveries into practical and profitable use.

DEWEY & CO.,

United States and Foreign Patent Agents, publishers Mining and Scientific Press and the Pacific Rural Press, 224 Sansome St., S. F.

METALS.

WEDNESDAY M., Nov. 4, 1874.

American Pig Iron, ₱ ton	—	@	42 00
Scotch Pig Iron, ₱ ton	42 00	@	45 00
White Pig, ₱ ton	—	@	42 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ ℔	—	@	3½
Refined Bar, good assortment, ₱ ℔	—	@	4
Boiler, No. 1 to 6	—	@	4¼
Plate, No. 8 to 9	—	@	5¾
Sheet, No. 10 to 13	—	@	5¾
Sheet, No. 14 to 20	—	@	5¾
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9¼	@	—
Norway Iron	8	@	—
Rolled Iron	6	@	—
Other Irons for Blacksmiths, Miners, etc	—	@	4¼
COPPER.			
Brazers	31	@	32
Copper Tin'd	45	@	—
Ox Nail's Cut	50	@	—
Sheathing, ₱ ℔	—	@	24
Sheathing, Yellow	—	@	23
Sheathing, Old Yellow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES.			
Plates, Charcoal, IX ₱ box	13 00	@	14 50
Plates, I O Charcoal	12 75	@	14 50
Roofing Plates	11 50	@	14 00
Banca Tin, Slabs, ₱ ℔	31	@	32
STEEL.—English Cast, ₱ ℔	20	@	25
Anderson & Wpode' Americah Cast	10	@	17
Drill	18	@	22
Flat Bar	18	@	22
Plough Points	16	@	17
ZINC.	—	@	11
Zinc Sheet	—	@	11½
NAILS—Assorted sizes	5¾	@	8
QUICKSILVER, per ℔	—	@	1 45

GENERAL MERCHANDISE.

WEDNESDAY M., Nov. 4, 1874.

BAGS.

Eng. Stand Wht.—	—	@	12
Detrick's Machine Sawed, 22x36 E..12	—	@	12¼
do 22x36, do E W	—	@	13
do 20x10, do A	—	@	13½
Flour Sacks ¼s	9¼	@	11½
" ⅛s	6	@	7
Stand. Gunnies, double seam	15	@	15¼
single seam	13½	@	14
Wool Sacks	60	@	67½
Barley Bags 24x35	—	@	14
do 23x40	—	@	11½
do 21x40	—	@	15
do 2x36	—	@	16
Oat Bags, 24x40	16	@	16½
do 23x36	—	@	17
Hessian 40-in gds	9½	@	10
do 45	10½	@	11
do 60	—	@	15

CANNED GOODS.

Asst'd Pie Fruits in 2½ ℔ cans	2 75	@	—
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	—	@	3 50
Sardines, qr box	1 85	@	—
do ½ boxes	3 25	@	—

COAL—Jobbing.

Australian, ₱ ton	10 50	@	11 00
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11 —
Cumberl'ds	—	@	18 00
do, bulk	16 00	@	17 00
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 —
West Hartley	9 50	@	10 00
Scotch	10 00	@	11 00
Scranton	—	@	13 00
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ bk	15	@	—
Coke, ₱ bbl	—	@	60

COFFEE.

Sandwich Island	—	@	22
Central American	19	@	20
Costa Rica, per ℔	19	@	21½
Guatemala	19	@	20½
Java	—	@	27
Manilla	19	@	20
Ground in cs	—	@	27
Chicory	9	@	10

FISH.

Pac. Dry Cod, new	5	@	—
cases	—	@	—
do boneless	11	@	12
Eastern Cod	—	@	—
Salmon in hbls	9 00	@	9 25
do ½ bbls	4 50	@	4 75
do 2½ ℔ cans	—	@	3 00
do 2 ℔ cans	2 65	@	2 75
do 1 ℔ cans	1 75	@	—
Do Col. R. ½ ℔	—	@	—
Pick. Cod, bbls	22 50	@	—
do do bbls	7 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No. 1, ½ bbls	8 00	@	8 50
" Extra	—	@	9 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½ bbs	2	@	2 00
Sm'k Herr'g, bx	50	@	60

NAILS.

Assorted size, 6 to 4	37½	@	7 50

OILS.

Pacific Glue Co. Neat ₱'t No. 1	—	@	90
Pure	—	@	—
Castor Oil	—	@	1 75
do do No. 2	—	@	1 60
Cocoanut	60	@	65
Olive Plagniol	5 00	@	—
do Possol	4 15	@	—
Palm ₱ ℔	9	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in cs	82½	@	88
Sperm, crude	—	@	1 40
do refined	—	@	2 20
Coast Whales	60	@	—
Polar, refined	50	@	55
Lard	1 15	@	1 30
Coal, refined Pet	37½	@	—
Cleophine	20	@	23
Devne's Brl't	25	@	28
Long Island	20	@	23
Eureka	—	@	—
Devne's Petro'm	20	@	23
Barrel kerosene	20	@	23
Olive	4 00	@	5 50
Downar Kerose's	—	@	37½
Gas Light Oil	—	@	26

PAINTS.

Atlan. W. Lead	6	@	10¾
Whiting	—	@	2
Putty	4	@	5
Chalk	—	@	2½
Paris White	2¾	@	—
Ochre	2	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11½
Eng. Vermillion	2 00	@	2 10

RICE.

China No. 1, ₱ ℔	6¾	@	6¾
do 2, do	5½	@	5¾
Japan	—	@	6¾
Siam Cleaned	5½	@	—
Patna	5¾	@	5¾
Hawaiian	7¼	@	8
Carolina	10	@	10½

SALT.

Cal. Bay, per ton	10 00	@	14 00
do Common	6 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	22 00
do coarse	16 00	@	—

SOAP.

Castilo ₱ ℔	10	@	11
Local brands	7	@	8

SPICES.

Cloves	45	@	50
Cassia	26	@	27
Citron	—	@	30
Nutmegs	1 20	@	1 25
Whole Pepper	18	@	19
Pimento	—	@	15½
Grn'd Allsp'ce	—	@	12½
do Cassia do	—	@	1 50
do Cloves do	—	@	1 50
do Mustard do	—	@	1 20
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	2 10

SUGAR, ETC.

Cal. Cubs per ℔	11½	@	—
Pariz' Pro. Cube hhl or 100 ℔ bxs	—	@	11¾
do in 50 ℔ bxs	—	@	12
do in 25 ℔ bxs	—	@	12¼
Circle A crushed	—	@	11½
Powdered	—	@	11¾
Granolated	—	@	11
Dry granulated	—	@	11½
Hawaiian	8	@	10½
California Beet	—	@	—
Golden C	—	@	—
do Ref'g grade	—	@	60½
Cal. Syrup in ble	—	@	70½
do in ½ bls	—	@	67½
do in kegs	—	@	75
Hawaiian Molasses	25	@	27½

TEA.

Oolong, Canton, ₱ ℔	19	@	25
do Amoy	23	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	1 00
Gunpo'der, Cant	30	@	42½
do do Pingsuey	50	@	80
do Moyune	65	@	1 25
Y'ng Hy., Canton	28	@	40
do Pingsuey	40	@	70
do Moyune	65	@	85
Japan, ½ chests bulk	30	@	75
Japan, lacquered bxs, 4½ and 5 ℔s	45	@	67
Japan, do ½ ℔ bxs	40	@	60
do pl'n bx, 4½ ℔	35	@	65
do ½ ℔ paper	30	@	55

TOBACCO—Jobbing.

Bright Navys	50	@	55
Clark	50	@	55
Dwarf Twist	65	@	70
12 inch do	60	@	70
Light Pressed	85	@	75
Hard do	50	@	60
Conn. Wrap'r	35	@	40
Penn. Wrapper	20	@	45
Ohio do	15	@	20
Virgi'a Smok'g	45	@	75
Fine cut chewing, huc'ts, ₱ ℔	75	@	90
Banner fine cut	9 00	@	9 25
Eureka Cake	—	@	9 00

TURPENTINE.

Eastern	65	@	70

LEATHER.

WEDNESDAY M., Nov. 4, 1874.

City Tanned Leather, ₱ ℔	28@29
Santa Cruz Leather, ₱ ℔	26@29
Country Leather, ₱ ℔	24@28
Stockton Leather, ₱ ℔	25@29
Jodot, 8 Kil., per doz	$50 00@54 00
Jodot, 11 to 19 Kil., per doz	66 00@90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55 00@72 00
Cornellian, 12 to 16 Kil	57 00@67 00
Cornellian Females, 12 to 13	63 00@67 00
Cornellian Females, 14 to 18 Kil	71 00@76 50
Simon Ulmo Females, 12 to 13, Kil	60 00@62 00
Simon Ulmo Females, 14 to 15, Kil	70 00@72 00
Simon Ulmo Females, 16 to 17, Kil	73 00@75 00
Simon, 13 Kil., ₱ doz	61 00@63 00
Simon, 20 Kil. ₱ doz	65 00@67 00
Simon, 24 Kil. ₱ doz	72 00@74 00
Kohen's Calf, 7 and 8 Kil	35 00@40 00
French Kips, ₱ ℔	1 00@1 15
California Kip, ₱ doz	40 00@48 00
French Sheep, all colors, ₱ doz	8 00@15 00
Eastern Calf for Soles, ₱ ℔	1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@13 00
Sheep Roans for Linings, ₱ doz	5 50@10 50
California Russett Sheep Linings	1 75@4 50
Best Jodot Calf Boot Legs, ₱ pair	3 00@5 25
Good French Calf Boot Legs, ₱ pair	4 00@4 75
French Calf Boot Legs, ₱ pair	4 00@—
Harness Leather, ₱ ℔	30@37½
Fair Bridle Leather, ₱ doz	48 00@72 00
Skirting Leather, ₱ ℔	33@37½
Welt Leather, ₱ doz	30 00@50 00
Buff Leather, ₱ foot	17@23
Wax Side Leather, ₱ foot	17@23
Eastern Wax Leather	—@—

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FROM AN INVENTOR.

PLACERVILLE, October 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen:* Yesterday I received from you my Letters Patent for my Hydraulic Mining Lamp, and I herewith tender you my grateful acknowledgements for the energy and promptness which you have displayed in working said invention through the Patent Office for me; and shall in the future, as well as the past, recommend all parties having inventions, to go direct to the office of Dewey & Co., and ask for Mr. Boone, in the Patent Department, and if he cannot procure a patent for them they will find it useless to try further. Yours Respectfully,

C. B. BROWN.

THE MINING AND SCIENTIFIC PRESS, San Francisco, we regard as the best paper for miners published anywhere in the world. Subscribers should be careful to put on file each number; and each year's edition, bound in a volume, would prove a most valuable book to all reading men engaged in mining or in the reduction of ores.—*Boulder News.*

PLAINFIELD, July 4th, 1874.

MESSRS. DEWEY & CO.—*Dear Sirs:* I acknowledge receipt of yours of 2d inst., inclosing my Letters Patent. I thank you for the interest you have taken in obtaining the same. Yours truly, M. W. OOON.

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To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice,

DEWEY & CO., Publishers.
June, 1874.

Mining and Other Companies.

Cincinnati Gold and Silver Mining Company.

Location of principal place of business, San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-fifth day of September, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Clapp, R W	27	100	$2 50
Clapp, R W	28	50	1 25
Ganz & McLaren	63	100	2 50
Ganz & McLaren	64	100	2 50
Ganz & McLaren	65	100	2 50
Ganz & McLaren	67	100	2 50
Ganz & McLaren	68	100	2 50
Hinckley, G E	54	300	7 50
Hinckley, G E	55	25	63
Hudson, G B	24	100	2 50
Hudson, G B	42	400	10 00
Hudson, G B	45	250	6 25
Hudson, G B	74	500	12 50
Hudson, G B	75	250	6 25
McLaren, J C	48	25	62
Penulman, Mrs Mary	57	50	1 25
Penulman, Mrs Mary	58	50	1 25
Shrewsbury, Mrs L A	20	50	1 25
Whitney, Jacob	35	500	12 50

And in accordance with law, and an order of the Board of Directors, made on the 25th day of September, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the office of the Company, Room No 1, 531 California street, San Francisco, California, on the 24th day of November, 1874, at the hour of one o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. SMALL, Secretary.

Office—Room No. 1, No. 531 California street, San Francisco, California. no7-2t.

Confidence Mining Company---Location of

Principal place of business, San Francisco, California. Location of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 19th day of September, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
James Bell	38	338	$101 40
H. Hampton, Trustee	2	562	168 60
H. Hampton, Trustee	5	225	67 50
H. Hampton, Trustee	6	225	67 50
OLD ISSUE.			
William Sell	36	100	87 50
William Sell	37	100	67 50

And in accordance with law, and an order of the Board of Trustees made on the 19th day of September, 1874, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the Company, 217 Sansome street, San Francisco, California, on the 16th day of November, 1874, at the hour of two o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale.

W. S. ANDERSON, Secretary.
Office—217 Sansome street, San Francisco, California.

Land Purchasers' Association—Office, No.

331 Montgomery street, Room 7, San Francisco, Cal.

Notice is hereby given, that at a meeting of the Directors or Trustees of this corporation, held on the 28th day of October, 1874, an assessment of ten dollars per share (being the 42d monthly installment on the subscription to the stock) was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at No. 331 Montgomery street, Room 7 San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 30th day of November, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on the 24th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

C. S. WRIGHT, Secretary.

Office, No. 331 Montgomery street, Room 7, San Francisco, California.

☞ This assessment is levied to pay the taxes on the property for 1874 and 1875.

The Orleans Mining Company—Principal

place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of October, 1874, an assessment (No. 1) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary at the office of the company, Room 8, 315 California street, San Francisco.

Any stock upon which this assessment shall remain unpaid on the 2 th day of November, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 15th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. NESMITH, Secretary.

Office—Room 8, No. 315 California street, San Francisco, California. oc24

The Orleans Mining Company---Principal

place of business, San Francisco, State of California. Location of works, Grass Valley Township, Nevada County, State of California.

There will be a special meeting of the Stockholders of the Orleans Mining Company, on Tuesday, the 10th of November, 1874, at 1 o'clock, P. M., at the office of the company, Room 8, No. 315 California street, San Francisco, California, to take into consideration the disposal of the company's reserve stock, and transaction of such other business as may come before the meeting.

By order of the Board of Trustees.

J. F. NESMITH Secretary.

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Julian Mining District, San Diego County, Cal.

Notice is hereby given, that at a meeting of the Directors held on the second day of November, 1874, an assessment No. 3) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 4, Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the seventh day of December, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 4th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

FRANK SWIFT, Secretary.

Office, Room No. 4, Hayward's Building, No. 419 California street, San Francisco, California. oct-5t

Stanislaus River Mining Company—Location of principal place of business, San Francisco, California. Location of property and works, Stanislaus River, Tuolumne County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 4) levied on the 23d day of September, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
D F Verdenal	145	61	$12 20
Wallace Everson	65	225	45 00
Wallace Evereon	134	34	6 80
James Dunn	26	100	20 00
Thomas Derby	29	200	40 00
Thomas Derby	55	100	20 00
Thomas Derby	156	45	9 00
T Greenwood, Trustee	148	60	12 00
T Greenwood, Trustee	156	200	40 00
F M Berryman	17	1000	200 00
F M Berryman	18	500	100 00
F M Berryman	108	225	45 00
Walter Turnbull, Trustee	98	100	20 00
R F Bunker, Trustee	141	15	3 00
S J Smith	44	100	20 00
S J Smith	128	30	6 00
S J Smith	149	50	10 00
James Ross	150	50	10 00
Frank Clayton, Trustee	80	500	100 00

And in accordance with law, and an order of the Board of Directors, so many shares of each parcel of such stock as may be necessary will be sold at public auction, at the auction rooms of Maurice Dore & Co., 326 Pine street, San Francisco, on Friday, the 13th day of November, 1874, at the hour of one o'clock P. M., of such day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale.

WILLIAM STUART, Secretary.

Office—113 Leidesdorff street, San Francisco, Cal.

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This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

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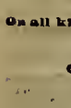

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DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches.	4	6	6	7	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches.	2¾	2¾	3	3½	3¾	4¼	5	6	7	8	10	12
Stroke of Piston, in inches.	6	6	7	7	8	8	10	12	12	15	16	18
Capacity at ordinary Speed, per minute.	15	25	35	45	60	80	120	165	225	300	400	500
Maximum Capacity, per minute.	30	45	60	80	100	135	180	225	300	400	500	600
Boilers in horse power they will supply.	25	40	50	70	90	120	150	200	250	350	450	600
Size of Steam Pipe, in inches	¾	1	1	1¼	1¼	1½	2	2	2½	3	3½	4
Size of Exhaust Pipe, in inches	1	1¼	1¼	1½	1½	2	2½	3	3	4	4	5
Size of Suction Pipe, in inches	1	1¼	1½	2	2	2½	3	3	4	5	5	6
Size of Discharge Pipe, in inches	¾	1	1¼	1¼	1½	2	2	2½	3	4	5	6
Weight of Pump, in pounds	186	235	400	425	810	875	1180	1500	1612	2450	3375	4800
Length over all, in feet and inches	3-4	3-4	3-10	3-10	4-11	4-11	5-4	5-6	5-6	6-10	7-7	8-6
Height over all, in feet and inches	3-3	3-3	2-3	2-3	3-1	3-1	3-7	4-3	4-3	7-7	5-7	6-10
Width over all, in feet and inches	1-6	1-0	1-1	1-1	1-3	1-4	1-6	1-10	1-10	2-1	2-9	2-10
PRICE	$	$	$	$	$	$	$	$	$	$	$	$

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LONG STROKE PUMPS, { No. 4, 24-in. Stroke, $ / No. 5, 24-in. " / No. 6, 30-in. Stroke, $ / No. 7, 30-in. Stroke, $ / No. 8, 36-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

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Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.

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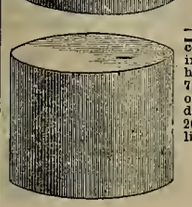

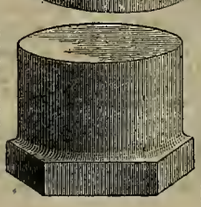

The Los Prietos Mining Company.

This mining company, under the energetic management of the superintendent, Mr. John F. Cassell, is making rapid progress toward establishing the necessary works to place their valuable mines in a producing condition. A large number of men are now at work in the immediate neighborhood of the mine, making brick of which to construct the reduction furnaces. Others are engaged in opening and grading a wagon road from the stage road near the San Marcos rancho, up the Santa Ynez valley, to the mines, so that there will soon be a good wagon road all the way from Santa Barbara, over which even a light buggy can go with safety. Besides the men making the brick and getting out stone for the furnaces, and those at work on the road from the mines to San Marcos, the force of experienced miners engaged in getting out ore has been increased, and arrangements are under way to add still further to their number, so as to advance more rapidly the development of the productive capacity of the mine. Over 40,000 feet of lumber are ready to be carried across the mountains, to be used in the construction of houses for the accommodation of the miners and furnaces, and for other purposes. Besides the lumber that is to be freighted to the mines, there are also about 150 tons of general freight ready for transportation, for which teams are now wanted. Altogether, besides the lumber, there will be nearly 400 tons of freight to be carried over the mountains to the mines within the next sixty days. Superintendent Cassell meets with considerable difficulty in securing the number and character of teams required, and may yet find it necessary to go to San Francisco, and purchase wagons and horses to get this large amount of freight over to the mines in a reasonable time.—*Santa Barbara Index.*

Sonoma County Quicksilver.

The Petaluma *Argus* says: By no means the least among the vast and varied resources of Sonoma county are her quicksilver mines. That they are to become a source of immense wealth to the county, and at no distant day give employment to thousands of persons, we are fully convinced. Enough has been done to show that they are among the richest and most extensive in the world, and as yet the work of development is in its infancy.

The region within which cinnabar has been found in paying quantities embraces many square miles, a portion being close to the railroad, and all the advantages which it affords, while other parts more remote have an abundance of the most essential elements—wood and water—for working the mines. We are informed by a gentleman who is well posted on the subject that under the most favorable conditions for working, ore which will yield one-half of one per cent. of quicksilver will pay handsomely. A 15-ton furnace will produce 150 pounds of metal per day, which at present prices is worth $225, while the cost of taking out and working the ore will not be more than two-thirds of that amount. It is believed that there are millions of tons of such ore in the county.

We have this week very encouraging reports from the quicksilver mines near Cloverdale, Work is going forward steadily on the Live Oak and Hercules claims, which are about two and one-half miles from the town. From the former a large amount of ore has been taken which is considered sufficiently rich to be worked profitably. If the developments continue as favorable as at present, a furnace will be erected within a few months.

From the mines near Guerneville and in the vicinity of Pine Flat District, we continually receive very favorable reports.

AN AUTOMATIC TIME INDICATOR.—The Terre Haute (Ind.) *Journal* gives the following account of an arrangement for recording the time of trains, a specimen of which is now in use on the Terre Haute & Indianapolis road: "In the caboose, attached to one side, is an iron box with a glass front, the key to which is kept by the officers of the line. There is a common clock in the box. A spiral thread is fastened upon one of the axles of the car which turns a wheel over the axle. This communicates its motion to a set of rods, which in turn move another small wheel under the edge of the car, and it again moves a small rod which projects upwards into the iron box and moves a pencil point slowly back and forth over a narrow sheet of paper wound upon a small drum, which is turned at constant speed by the clock-work. The paper is ruled in red lines into small sections, every fourth line the short way being dotted and representing a mile. The movement of the paper being uniform and that of the pencil being regulated by the axle, the diagonal lines traced by the pencil will show the rate of speed at which the train has moved. For instance, if the car has gone a mile in four minutes, the line will cross just four sections in going from one dotted line to the next. If the car is standing still, the pencil is at rest and draws a straight line on the paper. The stations being marked at the proper places on the paper, at the end of the trip the roll will show what rate of speed was made at every part of the road, and where and for how long stops were made."

ORE SHIPMENT.—At present about ninety-five car loads of ore per day are shipped over the Virginia and Truckee railroad to the various mills on the Carson river and at Silver city.

The Heart of the Comstock.

The Consolidated Virginia mining company, says the *Enterprise*, are beginning to open up and lay bare some of the secrets of the northern end of the great Comstock lode. Their location is proving a most fortunate one; yet, strange as it now appears, this same ground lay idle for years. It was then in the shape of several small claims, upon which work had ceased after the first excitement of the early days of Washoe. These claims were knocking about in the market and nobody was found to purchase them or even look at them. Upon all of them a considerable amount of work had been done at the surface and in a line with the Ophir and the croppings of the Gould and Curry. But little pay ore was found in any of the claims and the companies owning them became discouraged and discontinued their prospecting explorations. At that time the opinion very widely prevailed that where nothing of value was found on the surface nothing need be looked for below, and the owners of the set of small claims lying between the Ophir and the Gould and Curry sorrowfully came to the conclusion that by bad luck a barren portion of the great ledge had fallen to their share. Years ago, in these columns, long before there was any Consolidated Virginia company, we urged these small companies to unite and sink a large prospecting shaft on E street, just east of Piper's Opera House, but no attention was paid to the suggestion—at least not by the men who then owned the ground. All that we then predicted in regard to this piece of mining ground has now been verified. There was a fault, a slip, in the lead above and the whole weight of the deposit was thrown further to the east. Although we have spoken of the break in the lead as a fault or slide, it was really in places more of the nature of a "pinch," and this was what cut off the old Ophir deposit at a certain depth. Now they are reaching the great lode on a new and sound line, and being below the disturbing influences mentioned are finding a continuous body of ore. This body is now known to extend from the Gould and Curry through the Consolidated Virginia, California and Ophir to the Union Consolidated. It will yet be found in the Union Consolidated and probably beyond. The heart of this portion of the Comstock, in our opinion, lies to the eastward of the gas works, and probably almost directly under the point where General Thomas H. Williams some time since was engaged in boring with his diamond drill. We think he "smelt it" when he began boring there. The Consolidated Virginia company are on the upper edge of the great deposit lying under the basin in which are situated the eastern suburbs of the city, and are now beginning to reach some of the rich ore it contains. In the early days many of our miners were of the opinion that in the course of time a point in the lead would be reached where would be found almost solid silver. At the further depth of four or five hundred feet in their mine the Consolidated Virginia company may reach a point where their ore will lack but little of being solid silver. There appears to be lying far down in this portion of the lode a perfect mountain of silver ore. Specimens brought up from the drift running into the Consolidated from the 1,500-ft. level of the Gould and Curry are even now almost solid masses of silver. The reporter of the Gold Hill *News*, who visited this newly opened section of the Consolidated Virginia mine, gives the following account of it:

This drift, after reaching the Consolidated Virginia south line and being connected with the 1,500-foot level of that mine by an air winze, the Gould & Curry drift being 38 feet lower down than the south drift from the Consolidated Virginia shaft, was pushed directly ahead to prospect the ore vein on that level. Hardly had the line been crossed before the drift encountered a body of rich sulphuret ore, second to nothing of the kind now known to exist on the Comstock lode. The drift has penetrated this body of ore 110 feet, with every indication of its extending the entire length of the claim, and even into the California ground. To attempt a fair description of the rich character of the ore is almost useless, the sides and face of the drift being one glittering mass of sulphurets mixed with the richest character of chlorides. Much of this ore is being sacked, and a portion of the amalgamating department of the Mariposa mill is to be set apart for its reduction, its extreme richness often requiring the use of 500 and 600 pounds of quicksilver to a charge for a single pan, where only 200 pounds is used in working the ordinary class of ores. No cross-cutting of this body has yet been attempted, as all the air forced in by the compressor is required to drive the Burleigh drills in the face of the drift. The exhibition of the precious metals displayed in the face when a blast of half a dozen holes is discharged is simply grand, and one that would cause the eyes of a miser to weep with joy. Two upraises have been made, 100 feet apart, for air connections with the 1,500 foot drift south of the shaft, both of which passed the entire distance through the same rich character of ore. The future prospects of the Consolidated Virginia, judged by its present developments, are not only almost without an estimate, but every drift run, in fact almost every stroke of the pick made, seems to be adding to its already immense wealth.

During the month of August Melbourne, Sydney and Adelaide exported 950 tons of copper and 2,000 tons of copper ore.

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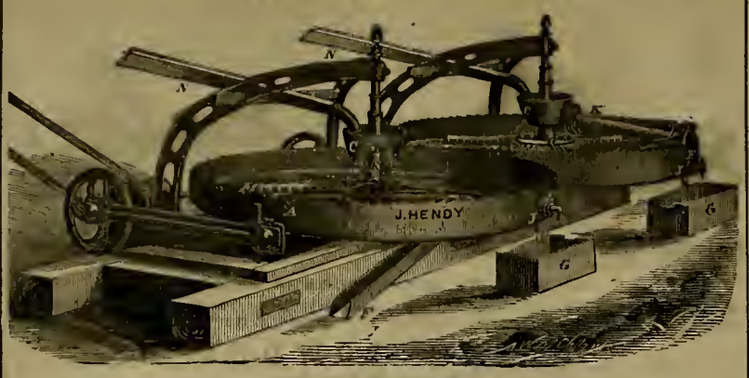

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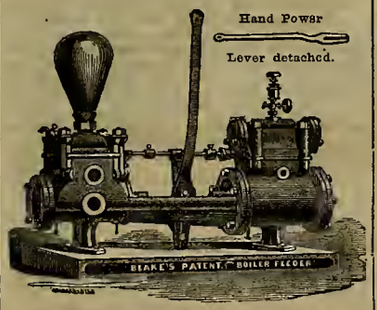

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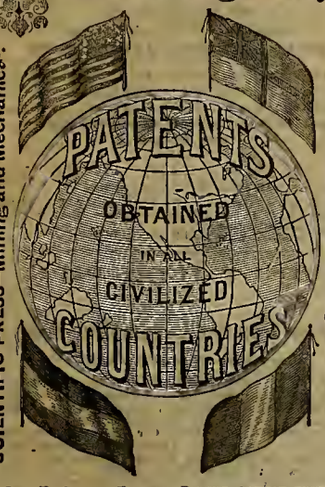

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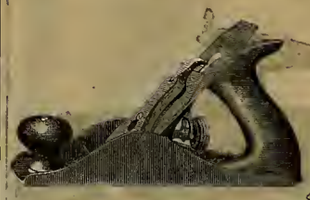

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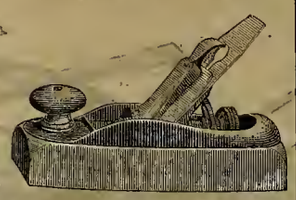

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SAN FRANCISCO, SATURDAY, NOVEMBER 14, 1874.

VOLUME XXIX Number 20.

Measurement and Yield of Gravel.

Mr. W. A. Skidmore, in his report to the U. S. Miniag Commissioner, on the Bald Moantain claima, extracts from whioh are given in another oolumn, makes some remarks on the measurement of gravel in mines which are interesting and which he allows us to puhlish. He says: The method of stating the yield of gravel varies in different localities. In some counties in California the standard is the "oarload," generally 16 cobic feet or a ton; but as there is no regulation size of car, and its dimensions and capacity depond on the size of the tunnel, this affords no atandard of comparison. Again the yield is sometimes expressed as so much to the superficial yard of channel ground; hut here we meet with the difficulty that the hight of ground worked is not uniform, heing in some places three feet, and at others four and five feet. The only unvarying standard of comparison is the cubic yard; but unfortunately, thia ia not in general use among miners, and necessarily our means of comparison are limited. It is, however, well understood that gravel should pay from 50 cents to $1 per carload of 16 cubic feet to he considered as profitahle for drifting. We may therefore fix the minimum yield at from 85 cents to $1 per cubio yard of hroken ground.

It will he observed that a distinction ahould be made hetween gravel in place and gravel broken down to the condition of loose dirt. It is apparent that a cubic yard of ground as it atands in its position in the mine, where it is so compressed as to require the nse of drills and gunpowder for its extraction, cannot he contained in its loose or hrokeu condition within the limits of a car or hox of the dimensions of one cubic yard. Careful observation and comparison have demonstrated that in a majority of cases a cnhio yard of standing ground will, when broken down, fill two cars of the capacity of one cubio yard each. The measurement of the ground worked in the Bald Mountain company's claim, compared with the number of carloads extracted, confirms this statement.

Orr'a Safety Nozzle.—The Fire and Water committee of the Board of Sopervisors, of this city, have reported in favor of using Orr's Patent Safety Nozzle. The committee recommends the purchase of ten sets for the use of the Fire Department. The advantage of this patent is that there is a valve, or overflow pipe, attached to the engiue, through which the waste water runs, and that the pipe mao, eveu if on the upper story of a hotel, can turn off the water with this patent nozzle, without iujuring the hose, hecause the wa ter flows as waste from the patent overflow valve, as it may he termed, attached to the engine. By this contrivance a hose can be taken through a huildiog dry until the fire is reached, which must very much lessen the damage hy water.

Arrangements are heing made hy the Virginia and Gold Hill water company for snpplying the town of Silver City with pure water from the Sierras.

An immense hed of gypsum has heen found in Rye valley, Baker county, Oregon.

Damages by a Typhoon.

Details of the terrihle typhoon which occurred at Hongkong, China, and vicinity on September 22d, have arrived hy mail. It is scarcely possihle to conceive how suoh havoc could he created hy the winds and waves. It is known that over 8,000 lives were lost, and at Hongkong property valued at $5,000,000 wss destroyed. Vessels were wrecked, wharves torn away, houses unroofed and haildings blown down. A very high tide increased the danger and damage. An eye witness at Hongkong says:

"I had heen out dining with a friend and started to return home a little after eleven. It was then hlowing very hard, but neither I nor any of my companions had an idea of the severity to which the gale was destined to reach. I accordingly went with a compaaion to the Praya to see the sight, and certainly never witnessed anything so striking in my life. Although I have seen many typhoons during a stay of over fourteen years in Hongkong, I do not know of any which has caused so much injury to the Colony and so much loss of life. By the time we had arrived at the Praya the wind had freshened rapidly, and the typhoon was raging with full vigor. The sea was breaking over the Praya with terrific force, while the roar of the wind was deafening. The sea hroke bright with phosphorescent light and presented a striking and awful sight. The lights on shore flickered through the darkness and seemed oaly to render it the more iutense. Gradnally the swell increased, and the waves rushed quite acrosa the Praya, and I had to push my way knee-deep in the water. Clinging to such projections from the houses as were within my reach I endeavored to continue on my course, but soon found that it was too dangerous to persevere, as the waves were coming in with such force that there was every chance of heing washed away, while tiles aod hricks were falling in all directions from the shaken houses. It was 1 o'clock when I was thus forced to heat a retreat, and I may mention that up to that time none of the sad casualities which have been recorded had occurred; and as the gale began to moderate at 3 o'clock, it is evident that the havoc must have heen the work of little more than two hoars."

To convey an adequate idea in general worda of the effeot that this tremendous gale has produced, is impossihle. From the accounts given of the extraordinary high tide, it would almost seem that there must at one time have heen a tidal wave, and this would fit in with statements made in some quarters with reference to the stoppage of clocks, which seemed to indicate that a slight shock of an earthquake occurred while the typhoon was raging. Every ship in the port of Hongkong was damaged. The fine steamer Alaska, helonging to the Pacifio Mail Company, was hlown ashore at Aherdeen, as were a number of other ships and steamers, and junks and sampans innumerahle. As showing the force of the galo, it may be interesting to note that the smallest twigs were hroken off almost as sharply as if cut hy a knife. At Aherdeen, Stone-cutters' Island, Kowloong, Swatow and Macao immense damage was done. At Macao the typhoon and fires nearly leveled the entire city, and the loss of life was enormous. At Swatow the sea ran so high as to flood the Custom House, whioh is three hundred yards ialand, to such an extent as to damage the whole of the papers in the office. Serious injury has also been sustained io otber directions. As to vessels outside of course nothing is known and more details of damage will prohahly come to hand. One of the saddest considerations is that nnmherless junks hava utterly gone to atoms with every soul on board, so that hundreds of people must he kept in lengthened suspense as to the fate of friends and relatives, of which no one lives to tell the tale.

The total loss of life is not known as yet, as hundreds of bodies were seen floating out to sea. A correspondent writes that four days after the gale, in Macao, the effluvium arising from the thousands of decomposing bodies was so great that the National Guards revolted and refused to bury any more; and the Governor, fearing that a plague would soon follow if the bodies were not disposed of, ordered them to he hurned. Four thousand were cremated, first covering them with tar and then settiog fire to them.

Want of space forhids our giving further details of this appalling disaster, beside which earthquakes and ordinary gales seem trivial. A great number of Europeans, as well as Chinese, were killed. Business was about entirely suspended for many days, and everybody is bnsy repairing damages to dwellings, etc. This typhoon has caased more damage to life and property than any one catastrophe of similar character of whioh we have recollection.

Four men working on the 1,000-foot level of the Belcher mine were asphyxiated on Tuesday morning by inhaling had air. Dr. Manson, who attended them, reports them out of danger.

Placer Mining.

The scene depicted on this page will hriag to the minds of many of our readers recollectioas of the early days of mining ia California when gold was easier to get at than at present. Claims were smaller, wages larger, gold more plentiful and times easier to the workiag miner thau now, when capital makes more out of mining than lahor. We see in the engraving a miaer panning out some dust for a prospect; another woking his rocker; others at the "long tom," and still others washing in sluices. Some of the miners are "drifting" into the hill, some working a shaft to hed rock and some working in an open cut and pitching the gravel into the "tom."

PLACER MINING.

Most of the diggiags of this class are now worked out in California or are now being reworked for the third or fourth time hy Chinamen, who earn from $1 to $2.50 per day in snch ground. The gravel mines are now worked on a large scale, with tremendous heads of water, heavy expenses and by wealthy companies. The area of ground now owned hy these oompanies would, in early times in Califoroia, have been large enoagh for 500 or 1,000 men to work on; but then of course it is a different class of ground and not near so rich as that worked byindivldnal miners. The processes in mining shown in the engraving are so well known, that it is useless for us to go into details and describe them.

Biggest Work on Record.—Duriog the month of October, says the Virginia *Independent*, the workmen in the Sntro Tunnel have been snccessful in pushing it forward. Dnring the week endiug October 8th, 83 feet of 10x14 tuunel were made; October 15th, 80 feet; Octoher 22d, 81 feet. From October 22d to November 1st, 116 feet, makiug a total of 360 feet in a single month. This is not only the largest result yet accomplished, but the greatest month's work on record in the history of tunnel-making. The whole length of tunnel now oompleted is 7,792 feet. A veio of water has beeu struck and yesterday it was some three inches deep in the tunnel. It is, however, fast flowing out and the vein will soon be exhausted. This work speaks well for the Burleigh Drill whioh is used in the Sntro Tunnel.

A letter from Panamint says the five-stamp mill is nearly ready to commence work. Another mill is going up under the management of Messrs. Jones and Stewart, who have a large force of men engaged in mining, grading, road-cutting, etc.

The furnace erected at Cerbat, Arizona, two years ago, which was at first a failnre, has become a success under the management of Col. Buell and Mr. Fisher. The first bullion turned out is now waiting shipment to this city.

It is exactly 169 miles by roadometer measurement from the town of San Bernardino to Panamint.

A large number of persons are passing through Los Angeles on their way to Panamint.

The Wallapai Mines.

The *Post* has been furnished with some facts concerning these mines, by Silas Atchinson, who has recently returned from these mines. We condense as follows: These mines are situated near the Colorado river in Mohave county, Arizona Territory, and are about 170 miles in an air line northeast of San Bernardino city. This district is undoubtedly in the same argentiferous mining belt as the Comstock, the Panamint and other mines are located.

The Routes.

There are two ways of reaching this mining district. One by ocean steamers to the Gulf of California, thence by the boats that run up the Colorado to Hardyville, which is about thirty miles from Cerbat, the principal town in Wallapai district. This route is not much traveled by passengers, being tedious, but is the usual line over which merchandise is transported from and ore shipped to San Francisco and thence to Swansea to be smelted.

The other route is by way of San Bernardino, and thence by wagon or saddle. Animals suitable for the trip can be bought quite cheaply in San Bernardino, and are always useful in the mines. The stopping places upon the route are numerous, and the journey need not be an irksome or dangerous one. From San Bernardino by the way of Tejon Pass, to Lewis' Station, is 23 miles; the next station, on the Mohave river, is 18 miles; to Fish Pond, where the road forks, 14 miles; to Cady, 9 miles; to the Caves, 16 miles; to Soda Lake, 22 miles; thence to Morrill Springs, 35 miles; to Rock Springs, 22 miles; to Piute Hills, 18 miles; and to Hardyville, 23 miles. As already stated, this point is on the Colorado river, 30 miles from

Cerbat.

This is the largest camp in the district. It now contains about 250 persons. There are several families living at this place and they have a small school of twelve to fifteen scholars. There are here two stores, three or four saloons, two blacksmith shops, one livery and feed stable, and the other conveniences of a mining camp. It is the county seat of Mohave county. At this place Buel & Fisher have a

Smelting Furnace,

With a capacity of six or eight tons per day. It is constructed in the crudest manner, and therefore does not produce large results. It gives employment to seven or eight men, and though it has not come up to the anticipations of the miners or owners, it has done as well as could be expected under all the circumstances.

Smelting Ores

Are abundant within a distance of three miles, and some as near as a half a mile from the furnace, much of which yields in this imperfect structure from $30 to $200 a ton. There are a number of fine lodes of rich ore in this neighborhood, generally galena, and yielding from 30 to 50 per cent. of lead. From the district there has been shipped to San Francisco and to Swansea, Great Britain, some ore of great richness. Charcoal is used for smelting, and can be had at about 30 to 35 cents per bushel. Wood is worth six dollars per cord. To illustrate the value of the ore I may state that a gentleman, an owner in the Indian Bay mine, offered to deliver ore to the Buel furnace, and take for his pay for mining and hauling all over $75 per ton, also giving the lead to the furnace owners, which would yield them from 40 to 45 per cent. He would have to haul the ore two and a half miles. His offer is still open, and he says he would then make $50 a ton.

Mineral Park

Is situated about five miles in a northwest direction from Cerbat. It is a smaller place than Cerbat, but has two stores, two restaurants, one blacksmith shop, and the usual number of saloons. This place boasts of a five-stamp mill. It is now under the management of Captain Wilburn. There is connected with this mill and in successful operation a Crowe concentrator. After the ore is crushed it is put through the concentrator and the bulk is reduced from eight tons to one. It is then carried to Buel's furnace and smelted, saving a large expense in handling, hanling and smelting.

The altitude of Wallapai district is between 2,500 to 3,000 feet above the level of the ocean, affording a most delightful climate. During the last summer the thermometer did not rise above 96 degrees in the shade, nor fall below freezing point in the winter, except on two or three occasions. The winters are simply delightful.

The soil of Sacramento and Wallapai valleys is a sandy loam, producing a good growth of grass, and when watered, a very luxuriant crop. These valleys are from ten to fifteen miles wide, north and south, and many miles in length. There is always plenty of food for stock. All working animals feed on live grass

Mountains, Roads and Wood.

The mountains are neither so high, so steep nor so rugged as in California, and therefore prospecting is more easily accomplished. Persons can travel over nearly all these mountains on horse or mule back. Roads are more easily constructed in this mining district than in the mines of California. There are already some very good roads in the Wallapai district, and the road from San Bernardino to Hardyville is excellent, except in the Thirty-mile desert.

Wood can be had in great quantities from a growing forest about 14 miles from Cerbat, ten miles from Mineral Park, and within a mile or two of Chloride. In addition to this, the tributaries to the Colorado—that is, the Grand, the Green and San Juan rivers, rising in the forests of the Rocky mountains—carry great quantities of pine, spruce and fir timber, brought by snow and land slides into these mountain streams. The waters from the melting snows of June and July carry it into the Colorado, which bears it toward the ocean. By hooming and other means most of the drift, amounting to thousands of cords of lumber, can be saved each year for the use of the district in timbering, making charcoal and for building.

The Indians

In this section have been bad, and have murdered several persons, but they are now peaceable. There is no danger from them, I believe, if treated right. Your informant often camps alone with them feeling perfectly safe.

The area of the mining region extends north and south perhaps hundreds of miles, and is from four to ten miles wide. Very many mines are yet undiscovered. It is a great opening for prospectors. The poor man has yet a chance of becoming rich. A want of capital to erect mills and furnaces, and a fear of the Indians, has kept the district back; but it must soon come to the front, and population and money will flock to Wallapai.

Calaveras County Mines.

The Calaveras *Chronicle* says: Mining operations in this vicinity present an encouraging aspect. Never before has there been such a systematic, energetic prosecution of extensive gravel mining as is carried on at present. The invaluable inventions for facilitating operations have enabled the miner to attack gigantic gravel banks which heretofore defied his efforts. In fact a complete revolution has taken place in the methods of gravel mining. The wonderful power of water has been brought to act with astonishing effect through the means of modern inventions. The numerous gravel hills, rich in auriferous matter, but presenting obstacles that could not be overcome in early days, for want of proper means, are now being worked with perfect ease and remarkable results. The mines in this section have fully established their reputation as valuable property, and continue yielding handsomely. It is amusing to reflect how, a few years since, the very hills, now such valuable property under the present system of working, were considered exhausted diggings. There are thousands of such remaining, awaiting the practical and enterprising miner to yield their wealth. Modern mining appliances have marked the commencement of a new era in this interest, which reveals a wealth in the hills far exceeding former must prove eminently satisfactory. The hoisting works are located nearly a quarter of a mile from the mill. The incline is down upwards of 200 feet. The bottom end is in 118 feet from the incline, and is being run to connect with a tunnel through which all ore from the southern portion of the mine will be run to the mill. As soon as the connection is made the ore will be carried underground direct to the mill, whereas at present it is hauled by teams at considerable expense. Some twenty men are now engaged in taking out "tribute rock." They drive drifts when necessary and receive a small price per foot in money, and a portion of the ore extracted. They take out ore in out-of-the-way places, where it would be unprofitable for the company to do it by the day. In most instances the men will make good wages. An experienced force of men are to be put on, sufficient to take out enough to keep the sixteen stamps running to their full capacity. Altogether, the Wyoming is in a healthy condition.

COPPER ORES.—Mr. F. Zwickl, of Jersey City, says that his process for treating copper ores is an improved one, and one by which argentiferous, auriferous, or other copper ores may be treated either independently or as an auxiliary to other processes for the extraction of gold, silver and copper. It consists of a combination of operations, namely, smelting of the ores in a reverberatory furnace to a mat, with admixture of sulphate of soda, for the purpose of disintegration; oxidation of the disintegrated mat in a furnace similar to that of a common roast furnace, suitably adapted to prevent the heat from rising above the desired degree; repetition of this oxidation after the first is finished, and the product of it has been soaked with water, dissolving the sulphate of copper formed during the said oxidation in a tank with water, and after removal of the solution, dissolving the copper still left in residue with a solution of sulphate of iron, this latter process being repeated as long as any copper is left in the residue, and the copper in solution to be precipitated with iron. The residue containing peroxide of iron and all the gold and silver, being much reduced in bulk, can be treated by any known method for the extraction of the gold and silver, or used as a flux for smelting the ores, and to accumulate the bullion as far as desired.

HOISTING WORKS IMPROVEMENTS.—The steam from the engines in the different hoisting works hereabouts condenses rapidly during the cold weather, and settles upon the machinery and wood work in large drops of water, causing the one to rust badly and the other to decay rapidly. To obviate this trouble the Yellow Jacket mining company, in making their recent improvements, constructed an open cupola over their works, which is very serviceable in allowing the steam to escape through the top of the building.—*Gold Hill News.*

Wyoming Mine.

In a previous issue, says the Grass Valley *Union*, we gave a short item relating to the completion of the Wyoming company's new mill. Since then we visited this and other mines in the vicinity and are able to give the following particulars: Although we were aware that improvements were being made at the mine, we little expected to see the very complete structure the company have erected for reducing their ore and saving the gold. Through the kindness of the superintendent, Mr. Charles Purinton, we were shown around the mill and by repeated questions and observations we obtained the following items of interest. Heretofore the rock taken out of the mine depended upon a six-stamp battery for crushing. As the ledge is large and ore can be easily raised, the mill did not afford sufficient capacity and it was decided to enlarge and reconstruct the same. Accordingly a ten-stamp battery was erected in line with the two three stamp batteries heretofore in use, thus giving a 16-stamp mill.

So far as we were able to judge, the mill as now constructed and arranged is one of the most convenient and perfect ones we remember to have seen. In front of each mortar is a square copper apron the width of the mortar and four feet in length, from which aprons copper sluices 14 feet long and 16 feet wide extend. Where the copper sluices terminate, revolving blanket sluices 12 feet long and 18 inches wide take the tailings. After passing off these blankets, the tailings are carried through boxes to a system of concentrators, which are operated by pulleys and ratchet wheels, and in these concentrators the sulphurets run in, while the lighter sand is carried off by the water. It is the intention of the superintendent to put in pans to grind the blanket-washings, which he informs us will pay at least $30 per ton. The recent rain prevented the completion previous to our visit, but in a few days the pans will be in operation. The power in use is water, applied to a "hurdy-gurdy" wheel 16 feet in diameter, and the overshot wheel in previous use to run the six-stamp mill. These wheels are so arranged as to "pull together," that is, the water after passing from the hurdy wheel is carried to the overshot wheel and this, with what water may be obtained from the creek will furnish power nearly all the year to run six stamps and some portions of the year ten.

The water to run the hurdy is obtained from the South Yuba Canal Company's ditch, a small ditch having been dug to convey the water to the top of the hill above the mill, where it runs into an eleven-inch pipe, and thence is conveyed to the wheel at the mill. The pipe is upwards of 700 feet in length, and the pressure obtained is 270 feet vertical, yet one would perish with thirst if dependent upon the water leaking from it. The pressure is sufficient with 50 inches of water to run the stamps 60 drops a minute. Arrangements are made to connect a three-inch hose to the main pipe for use in case of fire, and the pressure is sufficient to reach any part of the mill, and a fire can be as quickly and effectually quenched by this hose as could one by the water works of this city. As we remarked before, the mill is very complete; and judging from the healthy appearance of the copper plates and ore room, we feel confident the owners were justified in making the outlay they have, as the receipts calculations.

The quartz interest, yet in its incipiency, promises a grand development in the future. Judging from the persistency with which work is carried on, confidence in the ultimate success of the various enterprises is a settled thing in the minds of miners. More extended researches are daily planned and undertaken, and daily developements favor their prosecution. In reality, mining has only commenced, such as will be a permanent source of wealth to the country. The gold taken out is but a trifle compared with the riches yet locked within the hills. From the present outlook of things we cannot but predict more prosperous times in the future. Evidences are tending to a realization of present anticipations, and the resurrection of "lively times" we safely hope to chronicle.

A NEW THEORY OF ELECTRICITY.—Professor Edlund, a Swedish physicist, expounds in a recent work a new theory of electricity, the substance of which is as follows: He supposes the existence of a highly subtle and elastic ether, everywhere present, both in *vacuo* and in ponderable matter. Two molecules of this ether are mutually repelled along the line of their connection, and in inverse ratio to the squares of the distances. In good conductors the molecules are displaced easily from point to point, it being presumed that they can be moved with little force. If the body be a non-conductor, this mobility is arrested, and depends on the molecules of the material body. A molecule is at rest from the moment when it is equally repelled on all sides. If the repulsion be less at one side than at the other, the body will move if it be free in the direction of the resulting forces.

NEW MINING ENTERPRISE.—G. F. Kellogg, formerly head foreman of the Crown Point mine, has leased 300 feet of ground from the Yellow Jacket mining company on their north line, adjoining that of the Confidence. Mr. Kellogg has cleaned out the old Michigan shaft and put it in working order. He has also had a donkey engine set up at the shaft, and will soon commence to take out ore.

Tybo District.

We extract the following facts concerning this district from a letter in the Eureka *Sentinel:*

The principal mine is the 2 G, consisting of three tunnels, running in a southeasterly direction, one above the other, and designated as tunnels No. 1, 2 and 3.

Tunnel No. 1 has a length of 340 feet. Two hundred feet of this distance contains lead and smelting ore, the remainder quartz and milling rock. Two shafts, or winzes, have been sunk in this tunnel to a depth of 75 feet each, one at a distance of 110 feet, the other 240 feet from the month of the tunnel. From the bottom of these shafts tunnels are being driven toward each other, and the quality of ore being found is the best yet discovered in this district.

Along the main tunnels are reserves opened so that in case the supply of ore gives out in the winzes, or by any cause be partially checked, ore can be immediately obtained. Owing to the fact that the company has no means of working quartz, this portion of the ore body is only mined to a sufficient extent to allow a passage way through. This passage demonstrates that the quartz ledge is at least seven feet wide, but the entire width has not yet been ascertained.

Tunnel No. 2 is 384 feet in length and 43 feet above the level of No. 1. It strikes the different chimneys in the same manner as in the lower tunnel. These two tunnels are connected by a shaft through which all the ore passes that is extracted above No. 1. All the ore coming from below the level of this tunnel is brought up the main shaft, sunk about 200 feet from the tunnels.

Tunnel No. 3 is still higher, and is now in a distance of 70 feet, developing the same kind of ore as found in the other tunnels.

The furnace that has been shut down for want of coal has

Resumed Work

And is turning out bullion at the rate of three and a half tons a day. The value of this bullion is about $400 to the ton, which shows the character of the ore being taken out of the mines of our district. The furnace employs fifteen men, and is the only one running; but the capacity of the engine, blower, etc., is such that another furnace can be added without loss of time. It is the intention of the company to erect another furnace soon. In connection with the furnace are the usual accessories: rock crusher and mills for grinding. A roaster is in operation and a refinery fast approaching completion. The method of conveying the ore from the mine to the furnace is exceedingly convenient, being by means of cars running on a track. Lime rock is used as flux and is easily obtained, being quarried near the track. The Tybo Consolidated company has purchased

The Highland Mill,

In Highland district, near Pioche, twenty stamps, which will be immediately torn down, removed here, rebuilt, and the crushing of milling ores commenced. The wood and coal trade is quite an item here. About 75 men are at work in the woods felling timber, burning coal and cording firewood. The water supply is sufficient for all purposes, both for the works and for town use.

Besides the 2 G mine, the Tybo Cons. own the Lafayette, Casket, Hunkadori and other locations, all on the same ledge, which can be traced for three miles.

All the features of the place indicate not only a prosperous camp for the present, but also one where prosperity is lasting. All the crude substances, ore, wood and water, are found in abundance; we have close communication with Eureka and Belmont, and willing hearts and eager hands are here to make our district occupy a prominent place in Nevada's mining camps.

A NEW FOSSIL MAMMOTH.—The bones of a huge animal have been discovered on the farm of Orman Tuttle, in Seneca township, Lenawee county. These bones were discovered ten feet below the surface, and a tusk taken out is eight feet long and weighs 150 pounds. The ribs are of immense size, the shortest being over six feet long. One of the thigh bones has been taken out, and it is estimated that the hight of the animal must have been 20 feet, and its length 30 feet. Its teeth are larger than a man's two fists, and a foot in length. What sort of animal this huge monster must have been remains for the comparative anatomist to determine.

TO RESTORE BURNT PICK POINTS.—A correspondent to the *Scientific Manufacturer* says, "To restore the burnt steel point of a pick, drill, or any similar tool, do not touch it with a hammer, but while it still emits sparks plunge it into cold water and let it remain there until cold. Then reheat to the proper degree and work it. It will then be found as good as before it was burnt."

MECHANICAL PUDDLING.—This subject is still largely engaging the attention of the iron masters of England. It has been freely discussed at several meetings of the Iron and Steel Institute. Thus far the Danks process is the one selected as most likely to meet all the contingencies in the case.

RECENT EXPERIMENTS by M. Sorel prove that carbon retains its reflecting capacity even at the highest temperatures. A sunbeam becomes reflected by diffusion, and is polarized in exactly the same manner, whether it falls upon a brilliant flame or upon earth.

MECHANICAL PROGRESS.

Tempering Steel.

Tempering is the romance of the smith's shop; it has an attraction about it that characterizes every process that is mysterious, especially any process connected with, or belonging to mechanical manipulation. A strange and perhaps fortunate habit of mind is to be greatly interested in what is not understood, and to disregard what is capable of plain demonstration.

An old smith who has stood at the forge for a score of years, will take almost the same interest in tempering processes that a novice will. Give an old smith a piece to temper that is liable to spring or break when the risk is great, and he will enter upon it with the same zeal and interest that he would have done when learning his trade.

No one has been able to explain why a sudden change of temperature hardens steel, nor why it assumes various shades of color at different degrees of hardness; even the most critical researches into the chemistry of steel have offered no rational explanation. We only know the fact, and that fortunately steel has such properties. Every one that uses tools should understand tempering them, whether it be for iron or wood work. Experiment with tempered tools is the only means of determining the proper degree of hardness, and as smiths except with their own tools have to rely upon the explanations of others as to proper hardening, it follows that tempering is generally a source of complaint with those who use tools hardened by others.—*Jour. Franklin Institute.*

WOOD-SAWING BY WHITE HOT WIRE.—We mentioned, some months ago, that a person in New York had invented and patented a process for sawing wood by a wire kept white hot by electricity. The matter seems recently to have attracted the attention of the Abbe Moigno, editor of *Les Mondes*, who speaks of the invention as follows: The wire receives the same reciprocating motion, which is commonly given to the saw, and thus burns its way through the wood. It is practicable, according to the inventor, not only to cut logs into planks or heavier forms of lumber by this means, but also to give curvature to the cut, and to produce fantastic forms of every description, since the saw, being without breadth, adapts itself to such purposes better even than the hand or ribbon saws. Inasmuch as the wire burns its way instead of cutting, it leaves the surface of the wood charred; but this is an effect entirely superficial, and occasions no injury to the material. It would seem as if, however, there were an important question of economy here to be settled, and we shall wait before pronouncing an opinion on this application of science until we hear from it further.

TRANSFORMATION OF SANDSTONE TO MARBLE. J. Corvin, an engineer residing at Dresden, Germany, has invented a method of giving the ordinary sandstone, found in abundance in many localities, the exterior appearance of marble. He accomplishes this by impregnating the well dried stone with soluble silica and alumina. The sandstone thus prepared becomes much lighter in color, some kinds being intensely light and translucent, while it is capable of the highest polish, equal to that on the purest marble. He has even succeeded in imitating marbles of every color by adding mineral colors to the liquid used for impregnation. The famous quarries near Pirna, in Saxony, produce a sandstone especially adapted to this process, and Mr. Corvin now makes colored stones from this sandstone, adapted to the most elegant architectural structures. The price is considerably below that of marble, and the new material has the important advantage that it is much more fire-proof than marble, which, when exposed to the fire, rapidly burns into quicklime and crumbles to dust.

STEEL ARMOR FOR LAND FORTIFICATIONS. The Gruson foundry at Magdeburg have manufactured a full complement of the newly invented cast-steel blocks for the protection of the fortifications at the mouth of the Elbe and Weser. These blocks are from fifty to seventy centimeters thick, and when placed on the scarp of properly constructed earthworks render the latter absolutely invulnerable. The new cuirassed works will be armed with the twenty-eight centimeter cannon, hurling a projectile of three cwt., and firing five rounds every quarter of an hour. Besides these earthworks cuirassed revolving towers, which are likewise ready, and admit of being armed with the same ordnance, will be placed at some points of the shore.

STEEL VS. IRON PLATES.—Herr Krupp, after many previous experiments in the same line, has turned out cast steel plates supposed to be equal to the strongest iron plates manufactured in England. As soon as the new 30½-centimetre cannon is ready, the solidity of the novel plates will be tested by the novel gun.

GATLING GUNS FOR SEA SERVICE.—In consequence of the satisfactory results of the trials made with one of the cutters of the Monarch, which has been fitted to carry one of the Gatling guns, an order has been received at Chatham directing that all vessels which have the Gatling guns supplied to them are to have one cutter fitted like the Monarch's cuttter.

A SAFETY CAR SHOE.—An exchange gives the following account of a car shoe invented by a Mr. Stillson of Minneapolis, Minnesota, and designed to prevent cars from leaving the track: "It consists of a clamp-like arrangement which is affixed between the wheels of each truck. This runs about two inches above the rail, and if anything happens to throw the wheels from the track the clamp at once grasps the rail, holds the car on the track and brings the train to a halt very quickly. During one of the experiments of a curve in the road, on a down grade, a rail was removed from the track. The car having the shoe on was started down the grade, its speed being not less than 30 miles an hour. On reaching the gap the wheels jumped the track, the car settled down upon the shoe, which at once grasped the rail which had not been removed, held the car in an upright position on the track, and finally brought it to a standstill in a distance of 250 feet. At a second trial, with a speed of 15 miles an hour, the same result was accomplished, the car being brought to a halt in 30 feet."

NEW METHOD OF SIMULTANEOUS LAMP LIGHTING.—Simultaneous lamp lighting by electricity is well known; but a German engineer has invented something which he claims to be more practical and simple. The apparatus can be affixed equally to all gas jets, and it is made to act, not by any special mechanism, but simply by the increased pressure of the gas which is always laid on from the gasometer when the lamps should be lighted. The act of turning on the gas, at the main, ignites it at all the burners fitted with the new apparatus. He has pushed this invention still further, and has provided that when the pressure is diminished at the main, the gas can either be totally extinguished or let down to a thread. It is chiefly in the lighting of the streets of a town that the invention will be of practical use. Directly the gas is turned on the whole city will be simultaneously illuminated, and when in the early morning the pressure is reduced the light may be totally extinguished or gradually diminished.

A MODEL AND EXPERIMENTAL FLOUR MILL.—Prof. Isham Walker, of Lexington, Tenn., suggests that various State organizations of millers and the National Association unite and subscribe funds for the building—at Chicago, Illinois—of a model school flour mill, at a cost of $150,000. He shows that such an institution, supplied with the best examples of modern machinery, and exhibiting the latest improvements and examples of practical science in milling, would be of immense instructive advantage to millwrights throughout the country, while the stockholders, he thinks, would realize handsome dividends every year.

If Prof. Walker's idea is a good one as applied to flour mills, and we think it is—how much more valuable would it be applied to quartz mills. An experimental quartz mill, properly managed, with full publication of its results, would be worth millions to the Pacific coast, every year.

A MAMMOTH CANNON.—The new eighty-ton gun is progressing at Woolwich. When finished, this monster piece of ordnance will be greater than twice the size of the largest gun in existence, and its destructive power at fighting range proportionate. With a sixteen-inch projectile, weighing 1,650 pounds, and its maximum charge of 300 pounds of powder, it will pierce the best iron plates, twenty inches thick, at 500 yards, sixteen-inch plates at 5,300 yards, and will pitch a sixteen-inch shell into a ship or fortress, at a distance of 10,300 yards. The steel block forming the inner tube was the largest ever cast, weighing over twelve tons; while the trunnion piece, about eighteen tons, was the largest ever produced at the arsenal. The actual cost of this fearful engine of war will not fall far short of $42,500.

IMPROVEMENTS IN CAST IRON.—The Philadelphia *Trade Journal*, in an editorial on improvement in cast metals, recapitulates the advantages gained by the modern scientific manipulation of iron, in a concise and forcible manner. In the past 40 years the gross weight of our cast iron articles has been reduced fully one-half. Half a century ago the iron frame of a Washington press weighed nearly 1,000 pounds; and although it was an arch of metel 9 in. wide by 3 in. thick, so poor was its quality that it was often broken by the pull of one pressman's arm. Our present smooth light castings show an elasticity under strain which approaches the service of wrought iron, allowing a large reduction in weight of metal and in the consequent expense.

NEW BOX-MAKING MACHINE.—A novel and most ingenious machine was exhibited in operation at the recent monthly meeting of the Franklin Institute, viz: Heyl's machine for making paper boxes. This invention performs with marvelous celerity all the movements of the human operator, and turns out boxes of all desired sizes ready for use. The machine is capable of turning out from 60 to 100 boxes per minute, according to the size of the box. The machines, though but recently brought to public notice, are already kept busily at work filling orders, and there can be little doubt that they will bring about a speedy revolution in the box trade.

AN EXPENSIVE ROAD.—A curious experiment in paving is being tried at Liege. The road is first paved with stone, then covered with asphalte, and on this are laid blocks of cast iron, two inches thick—a rather costly kind of road.

SCIENTIFIC PROGRESS.

A New Mineral—"Rivotite."

Mr. Dnclonx has discovered a new mineral which he has named *Rivotite*, in honor of M. Rivot, late Professor in the Paris School of Mines. It is found in small irregular masses, dispersed in a yellowish-white chalk, upon the western slope of the Sierra del Cadi, in the Spanish province of Lérida. It is a compact mineral; its color varies from light yellowish-green to dark greyish-green. The color of the dust is light green-grey. It is amorphous, and has a stony aspect, completely opaque and of unequal fracture. Its hardness is about that of fluor spar. It is tolerably fragile, and the blow of the hammer breaks it into fragments somewhat resembling bran. Its specific gravity varies from 3.55 and 3 62. Generally, in all the specimens of any considerable size, there may be seen plates of green and fibrous carbonated copper, which is often found also at the contact of the mineral with the chalk. The appearances which Rivotite presents with the blow-pips are as follows: A fragment of the regular size, warmed between pincers of platinum, decrepitates; but a smaller fragment fuses and the exterior flame takes a green color. Merely warmed upon coal in the flame of reduction it melts, and metallic globules are seen; it gives out no arsenical smell nor antimonial smoke; the coal receives no deposit whatever. Heated in the closed tube it becomes black, gives out carbonic acid, and a little hygrometric water, neutral with reactive papers. In the open tube the same reaction is observed.

With carbonate of soda upon the coal, in the flame of reduction, it presents an opaque mass which upon a thin plate of silver does not present the reaction of sulphur. On platinum wire with borax and phosphorescent salt it dissolves with effervescence, producing, in two flames, the peculiar reactions of copper.

A mixture of 100 milligrammes of the dust of this mineral, 100 of carbonete of soda and 50 of borax, melted upon coal in the flame of reduction, produces a grey metallic grain which is very brittle. Kept in fusion in the flame of oxidation, this grain produces a quantity of antimonial smoke, and the coal receives the deposit peculiar to this metal. After a great deal of blowing there remains a globule of red copper, which is malleable, weighing 29 milligrammes. This globule melted with 750 milligrammes of pure lead and a little borax and afterwards refined, produces a grain of silver 1.1 milligramme (11 per cent.).

When cold, and treated with chlorhydric acid, Rivotite gives out a sharp carbonic acid, but does not completely dissolve. When hot, on the contrary, it is dissolved with facility, and nothing remains but a slight deposit of chloride of silver. The chlorhydric solution is thickened by the addition of water, even if first adding tartaric acid. Concentrated nitric acid attacks this mineral with facility, leaving a yellowish residue which consists of antimony for the most part. Concentrated ammonia also attacks it, when it takes a deep sky blue. Pulverised and boiled in a solution of potash it turns black; the liquid, decanted, turns white by the addition of nitrate of silver. The chlorhydric solution of the mineral by boiling it with iodide of potassium, exempt from acid, produces a liquid of a dark chestnut color. These reactions prove that it contains antimony in the state of antimonic acid.

Quantitive analysis gives following results: Oxide of copper, 0.2950; carbonic acid, 0.2100; oxide of silver, 0.0118; antimonic acid, 0.4200; lime, traces; total, 1.0368.

The formula $Sb^2O^5 + 4 \left\{ \begin{matrix} Cu\ O, \\ Ag. \end{matrix} \right.$ Co^2 appears to represent this composition with sufficient exactitude.

The only mineral to which Rivotite can be compared, in the discoverer's opinion, with respect to its composition, is Selhita. Except that in the latter species antimony has been indicated in the state of oxide of antimony Sb^2O^3, the analogy could not but be evident. —*Iron.*

THE OCEAN'S FLOOR.—Before the times of ocean telegraph cables, very little had been done in deep-sea sounding; but when the laying of ocean cables came first to be contemplated, and when it came afterwards to be realized, the obtaining of numerous soundings became a matter of essential practical importance, and the indications are that the topography of the ocean's floor will soon be almost as well known as that of the dry land.

THE SPECTROSCOPE.—In a late annual report of the Royal mint, Mr. Wm. Chandler Roberts, the chemist of the mint (who with Mr. J. Norman Lockyer, the pioneer in spectroscopic research, has been conducting a series of experiments), states that he is satisfied that by means of the spectroscope very minute differences in composition of gold-copper alloys can be ascertained.

A COLORIMETRIC TEST FOR GOLD IN QUARTZ. The quartz, after being well ground and calcined, is treated with a bath of iodine or bromine-water, and allowed to digest in it for some time. A piece of filter-paper is then soaked in the solution, dried and burned to ashes in a muffle. If gold is present the ash is purple.

EXTRAORDINARY REFLECTION.—In some remarks at the late meeting of the British Association for the Advancement of Science, Prof. Curtis remarked as a notable fact that while so much is written about extraordinary refraction of light, nothing is said about extraordinary reflection, though Huggins' theory is applicable to both alike. Of light falling upon a crystal surrounded with air, part will be reflected at the bounding surface and part refracted, the latter portion being split into two rays, whether the crystal be uniaxial or biaxial, each of which rays will suffer double reflection at the point where they again reach the bounding surface of the crystal. In the case where the bounding surfaces are parallel, the planes of polarization are the same as those of the other. This is not true of the intensities, as one of the four intensities may be zero while the others remain finite. When the incident light is not polarized, the number of reflected rays will pass from four to three, and from three to two, as the crystal is turned around a vertical axis. With polarized light, the reflected rays may be four, three, two or one.

ELASTIC REACTION BY TORSION.—From a communication by Dr. Nessen, presented to the Academy of Sciences of Berlin, by Helmholtz, it appears that the former has been investigating the reaction observed after twisting a string of india rubber. This substance is peculiarly interesting, because of its remarkable combination of the properties of viscosity and elasticity. The observations of Dr. Nessen, made with an apparatus of considerable delicacy, lead to results somewhat different from those of Kohlrausch. He finds the strings to be highly susceptible to the least radiation of warmth; but, avoiding this source of error, he concludes that the elastic reaction in the case of torsion follows the law expressed by a simple exponential curve. The magnitude of the reaction increases with the diminution of temperature, as also with increasing angle of torsion, and increasing duration as to time. The coefficient of elastic reaction increases with increasing temperature only, being independent of the extent of the duration of the torsion.

VARIATIONS OF LIQUID SUBSTANCES.—The undulations which are produced upon liquid surfaces when a heavy tuning-fork is brought into contact with the vessel containing the liquid, have been investigated by Bartholemy. He observed the phenomena by allowing a beam of sunlight reflected from the liquid surface to fall upon a screen. Bartholemy deduces the two following laws for rectangular vessels: First, that the breadth of the undulations is inversely as the number of vibrations; and second that the distance between two lines produced by the same tuning-fork is independent of the density of the liquid. The author calls attention to the general resemblance of these wave surfaces in the basin of a fountain, to the waves of the sea; even in the sand on the sea beach they may be recognized; so, also clouds are often arranged in parallel bands, and an ingenious application of these facts accounts for the phenomena of stratification produced by electric discharges in rarified media.

INTERESTING AND PRETTY EXPERIMENT.—The combustibility of iron is a chemical fact well known, but a Berlin experimenter has demonstrated the phenomenon in a manner peculiarly his own; he takes a straight bar magnet of some power, and sprinkles iron filings on one of its poles. These filings arrange themselves in accordance with the lines of magnetic force, and, however closely they may appear to be placed, of course no two of the metallic filaments are parallel, and consequently a certain portion of air is enclosed, as in a metallic sponge. The flame of any ordinary spirit lamp or gas burner readily ignites the finely divided iron, and it continues to burn most brilliantly for a considerable length of time, the combustion being, apparently, as natural and easy as that of any ordinary substance. If the experimenter with this operation stands on a slight elevation, and waves the magnet to and fro while burning, a magnificent rain of fire is said to be produced.

PROTECTING INFLUENCE OF THE EARTH'S ATMOSPHERE.—Weilman, after reducing the hourly observations made at Berne, Switzerland, for seven years, and deducing therefrom the laws of diurnal change of temperature, has investigated the effect of cloudiness on the daily variation, especially at night. He finds that the radiating power of the earth's surface is everywhere and at all times the same. The temperature in the morning is, he finds, in cloudy weather, five or six degrees higher than in clear weather. And again that the simple atmosphere of the earth surrounds it like a protecting layer of clouds, and that without this the earth would experience daily an enormous variation in temperature. Even the clear sky, or rather the moisture present, as an invisible vapor, protects the earth with an efficiency equal to about one-third of that exerted by a layer of clouds, against too strong a daily change of temperature.

DISCOVERY AT HERCULANEUM.—The Italian journals notice an interesting archæological discovery of some importance recently made in Herculaneum. It is a silver bust of life-size, and in an excellent state of preservation. It is impossible at present to say whether it is cast or worked with the chisel, or whom it may represent. It is said to be the first discovery of its kind made either at Herculaneum or Pompeii.

Mining Stocks.

Stocks have been much more active this this week. The principal excitement was the nnexpscted "deal" in Ophir, which enrprised outsiders by the snddenness and extent of tbe rise. Tbers has been qnite a strnggle to get control of tbis mine, and in order to secure a majority of shares before the election next month, the opposing parties have bid very ebarply. On the street, Wednesday noon, Ophir sold for $150—a small lot. Con. Virginia, California and Best & Belcher have been very strong indeed. The immediate prospects are favorable to a further rise. Overman and Sog. Belcher have been comparatively dnll.

Thoss who claim to be wise in stocks say that tbe rise of the year has as yet hardly begnn. In compariеon with the market one year ago, the Comstocks, with the exception of the Ophir, Con. Virginia group and Exchequer, are very low. Savage, Hale & Norcross, Yellow Jacket, Sisrra Nevada, Silver Hill and other stocks have not shown any such advance as is usnally ths case. Baltimore Consolidated is as low as last summer, thongh this favorite gambling stock sells at three or four times its present price when the market is really high. The same may be said of nearly all the Cometocks. So it wonld not be at all snrpricing if the whole line should advance largely.

Outeide of Washoe etocks the market was dnll. The Idahos and Californias suffered severely.

Tbe Con. Virginia dividend, paid on the 11th inst., was as nsual $3 per share Belcher and Crown Point each paid $3 per share. Cbarior Mill has declared its fourth dividend, of 40 cents per share, payable on the 16th inst. The Belcher dividend aggregates $312,000; the Con. Virginia, $324,000; and ths Crown Point, $300,000. Tbus the totals for November sbow a pretty fair yield, considering that ths bnlk comes from only three mines.

Concerning the wonderful developments in the Con. Virginia the *Enterprise* says: During the past week a considerable number of persons have visited and examined the lower levels of the Cons. Virginia. All are astonished at the exceeding richness and vast extent of the ore bodies now laid bare. They come out of the mine declaring tbat the half bas never yet been told. What astouuds all is the fact that large as tbe ore bodies are, they are still widening and expanding—looking almost as tbough likely to prove boundless. It would be a good joke on tbe company should they be nnable to find any east wall—if they should find nothing in that direction but "blarsted" silver ore, tied together with wires of gold.

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

IDA CLAYTON AND GREAT WESTERN WAGON ROAD CO.—Oct. 5. Object, to construct and operate a toll wagon road through a portion of the counties of Sonoma, Naps and Lake. The road will begin near the house formerly occnpied by Thomas Knight, in Knight's valley, Sonoma connty, thence to run in a northeasterly direction across the northerly portion of Napa county, and over a portion of Lake county to the Great Western quicksilver mine in Lake county. Directors, William A. Stuart, Charles Laird, G. P. Kellogg, W. S. Bartlett and A. H. Connolly. Capital stock $20,000, divided into 200 shares of the value of $100 each.

BADGER M. & M. Co.—Nov 6. Location: Colnmbns District, Humboldt county, Nevada. Directors, C H. Bogart, S. E. Holcombe, W. A. Bolinger, A. Hemme and Stillman H. Pitman. Capital stock $3,000,000, divided into 30,000 shares.

PHELPS HILL GRAVEL M. Co.—Nov. 6. Location: Phelps Hill, Nevada county, California. Directors—O. H. Bogart, W. M. Smith, J. B. Treadwell, F. H. Hill, W. G. Alhan. Capital stock $2,000,000, divided into 40,000 shares.

CRESCENT M. & M. Co.—Nov. 6. Location: Crescent Mills, Plumas county, California. Directors—O. H. Bogart, S. E. Holcombe, W. A. Bolinger, C. E. Gibbs, A. Hemme; capital stock $1,000,000, divided into 60,000 shares.

EAMES & WALBRIDGE FURNACE CO.—Nov. 6. Object: To buy, sell and manufa ture quicksilver and other furnaces, etc. Directors—H. H. Eames, W. D. Walbridge, R. D. Walbridge, A. P. Minear, Frank Swift. Capital stock $100,000, divided into 1000 shares.

NIAGARA M. CO. No. ONE.—Nov. 7. Location: Gold Hill Mining District, Storey county, Nevada. Directors—J. H. Pritchard, W. T. O'Neale, M. T. Brackett, I. I. Holmes and W. E. Hale. Capital stock $6,000,000, divided into 60,000 shares.

WELOH CON. Q. M. Co.—Nov. 7. Location: Mt. Diablo Mining District, Contra Costa county, California. Directors—S. Philips, E. J. Ryan, G. Hearst, J. P. Forbes, A. C. Corbett. Capital stock $10,000,000, divided into 100,000 shares.

ST. PAUL G. & S. M. Co.—Nov. 9. Location: State of California. Directors—I. I. Holmes, J. M. Winslow, J. A. Conlee, Paul Riegar and W. R. Steele. Capital stock $8,000,000, divided into 80,000 shares.

GARDEN VALLEY M. Co.—Nov. 1. Location: Garden Valley Mining District, El Dorado county, California. Directors—E. G. Waite, H. T. Wheeler, Walter Mead, E. R. Rockwood and C. W. Miller. Capital stock $2,400,000, divided into 24,000 shares.

SHASTA BULLION M. Co.—Nov 11. Location: Soulh Fork Mining District, Shasta county, California. Directors—W. T. Reynolds, H. H. Hubhard, Geo. Freeland, G. S. Keyes and C. H. Dewey. Capital stock $6,000,000, divided into 60,000 shares.

The following companies have filed certificates of incorporation in the office of the secretary of State, at Sacramento, Nov. 11.

TRINITY QUICKSILVER M. Co. — Location: Trinity county: Capital stock $1,000,000, in shares of $100 each. Directors—James G Trotter, M. H Lowden, E. P. Lovejoy, W. G. Tinnin, John McMurry, M. F. Griffin and Henry Martin. The principal place of business, Weaverville.

MONITOR M Co.—Location: Plumas county, California. Capital stock $40,000, in 160 shares. Directors—Frank Amann, D. R. White, C. R. Spencer, S. B. Pettingill and D. O. Webster. The principal place of business will be in Gibsonville.

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
American Flag M & M Co	Ely District	6	50	Nov 10	Dec 14	Jan 11	G R Spinney	320 California st
Belmont M Co	Nevada	4	1 00	Oct 9	Nov 10	Nov 30	C H Bogart	402 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	R W Geiger	414 California st
Caney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Empire M & M Co	Washoe	16	50	Oct 24	Nov 27	Dec 21	G R Spinney	320 California st
Eur ka M & Smelting Co	Nevada	4	25	Nov 6	Dec 12	Jan 6	T P Beach	424 Montgomery st
Golden Chariot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaplan	Merchants' Ex
Hubb & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball	409 California st
Ida Ellmore M Co	Idaho	14	1 00	Sept 21	Oct 27	Nov 14	W Willis	419 California st
Independent G M Co	Butte Co Cal	7	50	Oct 6	Nov 5	Nov 26	G T Grimes	240 Montgomery st
Julia G & S M Co	Washoe	20	2 00	Oct 30	Dec 4	Dec 23	A Noel	419 California st
Knickerbocker M Co	Washoe	12	1 50	Oct 30	Dec 5	Dec 24	H Boyle	Stevenson's Bldg
Mahogany G & S M Co	Idaho	14	2 00	Nov 3	Dec 10	Dec 31	C H Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
Newark S M Co	Ely District	9	50	Nov 4	Dec 7	Dec 28	Wm Willis	419 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 28	Thomas Derby	320 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	J H Gager	507 Montgomery st
Original Hidden Treasure	White Pine		1 00	Oct 12	Nov 14	Dec 9	D A Jennings	401 California st
Page & Pancca S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	H P Bush	Merchants' Ex
Pauper M Co	Idaho	3	50	Oct 24	Nov 30	Dec 23	D Wilder	Merchants' Ex
Pieton M Co	Washoe	6	25	Oct 24	Nov 28	Dec 16	S Phillips	408 California st
Raymond & Ely M Co	Ely District	2	3 00	Nov 3	Dec 10	Jan 7	T W Colhurn	418 California st
Sanderson G M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Liedesdorff st
Silver Cord M Co	Idaho	6	50	Nov 5	Dec 7	Dec 29	Frank Swift	419 California st
Silver Hill M Co	Washoe	4	2 50	Oct 28	Nov 30	Dec 21	W E Dean	419 California st
South Chariot M Co	Idaho	11	50	Nov 5	Dec 11	Jan 5	Frank Swift	419 California st
Utah S M Co	Washoe	6	1 00	Sept 21	Oct 26	Nov 16	W E Dean	419 California st
War Eagle M Co	Idaho	8	1 00	Nov 9	Dec 16	Jan 6	L Kaplan	401 California st
Yule Gravel M Co	Placer Co Cal	5	10	Nov 9	Dec 14	Jan 5	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Buena Vista Petroleum Co	Cal	22	75	Oct 5	Nov 16	Dec 14	L Hermann	330 Pine st
Cbance S M Co	Cherry creek	1	50	Oct 1	Nov 18	Dec 13	A Marks	414 California st
Cherry Creek M & M Co	Nevada	1	15	Nov 10	Dec 14	Jan 7	D F Verdenal	409 California st
Cherokee Flat Blue Gravel Co	Cal	33	5	Nov 10	Dec 14	Dec 29	H Pichoir	603 Washington st
El Dorado Water & Deep Gravel Co	Cal	6	10 00	Oct 26	Nov 27	Dec 12	H Elias	416 Montgomery st
El Madre Quicksilver M Co	Cal	2	6	Oct 27	Dec 4	Dec 28	A Halsey	312 Montgomery st
Equitable Tunnel & M Co	Utah	8	2	Sept 16	Oct 17	Nov 7	Chas S Healy	Merchants' Ex
Excelsior G M Co	Tuolumne Co Cal	14	15	Oct 20	Nov 25	Dec 19	E Chattin	442 California st
Great Blue Gravel Range Co	Cal	6	10	Sept 23	Oct 28	Nov 20	W H Watson	302 Montgomery st
Gold Run M Co	Nevada Co Cal	8	15	Oct 14	Nov 16	Dec 3	C C Palmer	41 Market st
Green M Co	Placer Co Cal	1	50	Oct 7	Nov 9	Nov 30	W R Townsend	330 Pine st
Gualala M Co	Sonoma Co Cal		5	Sept 29	Nov 5	Nov 25	James R Martin	Larue's Wharf
Howard Hill G M Co	Cal		50	Nov 7	Dec 16	Jan 7	F J Hermann	418 Kearny st
Los Prietos M Co	Santa Barbara Co	1	25	Sept 29	Nov 2	Nov 20	S H Smith	6 Montgomery Av
Mount Savage M Co	Utah	1	10	Oct 16	Nov 18	Dec 10	D F Verdenal	409 California st
North Belmont M Co	Nevada	2	10	Sept 30	Nov 3	Nov 18	D L Thomas	419 California st
North Fork M Co	Plumas Co Cal	6	2 00	Oct 24	Nov 20	Dec 4	A Martin	520 Washington st
Omega Table M M Co	Cal	4	2½	Oct 15	Nov 23	Dec 14	D Wilder	Merchants' Ex
Oneida M Co	Amador Co Cal	9	75	Oct 8	Nov 11	Nov 30	L Kaolan	Merchants' Ex
Orleans M Co	Nevada Co Cal	1	1 00	Oct 10	Nov 24	Dec 16	J F Nesmith	315 California st
Owens G & S M Co	San Diego Co Cal	1	1 00	Nov 3	Dec 7	Dec 28	Frank Swift	419 California st
Quintero M Co	Nye Co Nev	3	10	Sept 30	Nov 2	Nov 18	H C Kibbe	419 California st
Starr King S M Co	Nevada	8	25	Oct 3	Nov 6	Nov 25	L Kaplan	Merchants' Ex
St John G M Co	Kern Co Cal	2	5 00	Oct 2	Nov 5	Nov 23	W R Townsend	330 Pine st
Tecumseh G S & C Co	Cal		25	Aug 1	Sept 5	Sept 30	J W Clark	418 California st
Tolman & Miller M & M Co	Cal		20	Oct 3	Nov 12	Nov 28	J L Trask	306 Montgomery st
Victoria & Imperial T & M Co	Utah	3	10	Oct 7	Nov 11	Dec 5	W H Watson	302 Montgomery st
Woodside M & M Co	El Dorado Co Cal	1	25	Nov 10	Dec 19	Jan 6	J Glaseman	335 Montgomery st
Wyoming G M Co	Nevada Co Cal	4	40	Sept 30	Nov 2	Nov 23	W J Onnn	410 Montgomery st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Challenge Cons M Co		W E Dean	419 California st	Annual	Nov 19
Cosmopolitan M Co	Nevada	D L Thomas	419 California st	Special	Nov 28
Kearsarge Quicksilver M Co	Cal	J McHaffie	408 California st	Annual	Nov 21
Kentnck M Co	Washoe	Frank Swift	419 California st	Annual	Nov 23
Lady Washington M Co		Called by Trnstees	419 California st	Special	Nov17
Mount Savage M Co	Utah	Called by Trnstees	409 California st	Special	Nov 17
North Belmont M Co	Nevada	D L Thomas	419 California st	Annual	Nov 10
San Jacinto Tin M Co	Cal	Louis Franconi	314 California st	Special	Nov 17
San Marcial S M Co	Mexico	Called by Trustees	409 California st	Special	Nov 17
South Monntain M Co		W Willis	419 California st	Annual	Nov 16

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Nov 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Nov 16
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	Nov 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	Nov 12
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 00	Jan. 25
Enreka Consolidated M Co	Ncv	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phoenix G M Co		Charles E Elliott	419 California st	50	June 38

SALES AT THE S. F. STOCK EXCHANGE.

Latest Sales—Thursday, Nov. 12.

Morning Session.

935 Ophir	90@86	625 Con. Virginia	1?0@148
955 Gould & Curry	16@17½	50 ....h 30	149
100 ....h 30	18	1405 Sierra Nevada	9½@1?
964 Best & Belcher	20@22	100 ....h 30	9?½
400 ....h 40	21@22	360 Daney	2
150 ....h 5	21	30 Excheq	2?0@250
535 Savage	79@82	165 Seg. Belcher	122½@11?
330 ....h 30	22½	20 ....h 5	120
50 ....h 5	80	255 Overman	55½@53½
495 Chollar-Potosi	56@57	170 Justice	38@36
230 Hale & Norcross	46	50 ....h 30	36
1680 Crown Point	44@47	40 Bacon M. & M	23½
20 ....h 30	47	800 Lady Bryan	3½@3½
150 ....h 5	44½@45	800 Julia	4@3½
50 ....h 5	45	370 Caledonia	?½@?½
330 Yellow Jacket	87@89	200 Knickerbocker	?½@?½
100 ....h30	89½	700 Globe	11½@12
1475 Imperial	10½@10?	120 Baltimore Con	8½@8¾
50 ....h 30	10?	395 Bullion	15@16
750 Empire M. & M	9½@9¾	615 Utah	2?½@3
420 Kentnck	16½@16¾	150 California	10½@12
250 ....s10	16¼	120 ....h 5	71½@71
320 Alpha Con	17@17¼	4185 Belcher	42½@46
390 Confidence	23½@24	115 ....h 5	43@44

Afternoon Session.

235 M Valley	6@5¾	110 Dayton	5½@5½
1?65 Raymond & Ely	16½@16¾	430 Dardanelles	17½@18
195 Eu Con	12½@12	30 Trench	6
50 ....b 30	12¾	365 New York	2?½@2½
900 Fnoche	3@2½	250 Occidental	3
225 Wash & Creole	1?@?	500 Senator	15@?
60 Am Flag	2?½@2	120 American Flat	9@8
610 Belmont	8?½@8½	1085 Union Con	22@40
400 Newark	50c	125 Tyler	5?½@5½
825 Rye Patch	3½@3¾	100 Rock Island	3½
200 St Patrick	1½	685 Woodville	2@1½
440 Chariot Mill	6	240 ....h 30	1¾
600 ....h 30	7½@7¼	125 Mint	3?c
220 Gold & Chariot	3¾@3½	600 Indnn	2½
200 Ida Ellmore	2½	570 Kossuth	2½@2¾
100 South Charlot	1	200 Leo	1¼@1
550 War Eagle	3@2¾	2050 Andes	2¾@2½
530 Silver Hill	6¾@6¾	100 Pacific	1
100 Eclipse	7½	525 North Carson	3¾@2¾

Last Week—Thursday, Nov. 5.

Morning Session.

1460 Ophir	65@63	820 Overman	58@59
100 ....s30	61½	50 ....h 30	61
850 G & C	16@17	20 ....b 5	56
20 ....h 30	18¼	110 Justice	29½@28
1548 B & Bel	15¼@18	30 Sncor	2?
165 Savage	75@74	805 Lady B	3@2½
140 Chollar	69½@68	200 ....h 30	3
50 ....h 30	6?	225 Julia	3¼@3½
60 ....h 5	60	120 Caledo	21@20½
165 H & Nor	43@44	50 Knicker	4½
10 ....b 5	44	835 Globe	11½@11¾
810 C Point	55½@56	205 Balt'ore	9½@9½
100 ....h 30	56	220 Bullion	15½
360 Jacket	91@93	100 Utah	4@3¾
485 Imperial	10½@10¾	675 California	83@84
50 ....b 5	11	20 ....h 30	84½
280 Empire M	10@9¾	30 ....b 5	64½@63½
290 Kentuck	16½@17	420 S H ll	8?@8?
160 Alpha	16	20 Eclipse	8¼
565 Belcher	57¾@57½	235 Dayton	5¾@6
150 ....h 30	58¾@59	100 Dard-nel	18½
150 Confidence	23½	110 N Y Con	3¼
130 ....h 30	23½	95 U Con	20½@20
790 Con Vir	127@129	740 Woodville	2
130 ....h 30	129@130	400 Indus	1½@1¾
50 ....h 5	128	60 Kossuth	2¼
1250 Sierra N	8?@9	400 Leo	1½
345 Daney	2@2¼	750 Andes	1¾@2
63 Excheq	19?@180	100 Pacific	1?c
65 Seg Bel	122½@125	100 N Carson	2¼@2½

Afternoon Session.

210 Meadow Val	6¼@6	120 ....h 30	56
100 ....b 30	6¾	900 California	64½@66
100 Raymond & Ely	14½@14¾	220 Imperial	10?½
25 Enreka Con	12¾	630 Yellow Jacket	88@86
30 ....h 5	12¾	50 ....b 30	96
100 Wash & Creole	1¾@	12?1¼ Best & Bel	16@15½
165 Belmont	7¾@7½	150 ....h 30	16
100 Newark	50c	800 Ophir	61½@60
195 Rye Patch	3½@3¼	230 Overman	60@59
50 ....h 5	3¾	20 ....h 5	59½
520 K Con	2¼@2	740 Gould & Curry	16½@15½
100 Watson	2?@2?	80 Caledonia	2?@2?
100 Quintero	15c	90 Seg Bel	130@127½
900 Prussian	4¾@4½	755 Con Vir	128@127½
100 N Belmont	15c	20 ....b 5	127½
100 St Patrick	1¾	30 ....h 30	127½
150 Chariot Mill	10@9¾	210 Chollar-Potosi	56@55½
300 ....b 90	11	95 Kentnck	17¾@15½
50 ....h 90	10	20 Empire M	9¾
160 Crown Point	56@55½	185 Confidence	25@24

THE daily yield of ore dnring last week from the Comstock minee was as follows: Belcher. 550 tons; Crown Point, 500 tons; Consolidated Virginia, 300 tone; Ophir, 100 tons; Chollar, 80 tons; Sierra Nevada, 65 tone; Dayton, 50 tons —making a total of 1,645 tons from seven leading minee on the Cometock.

WE hear, says the Inyo *Independent*, that Jones and Stewart have pnrcbased the noted Panamint mine known as "Jacobe' Wonder," and the mill in conrse of erection belonging to the same parties. Our informant could not give the amount paid except that it exceeded $110,000.

MINING SUMMARY.

THE following is mostly condensed from jonrnals pnblished in the interior, in proximity to the mines mentioned.

California.

ALAMEDA COUNTY.

COAL AT SUNOL.—Cor. *California Reporter*, Nov. 7: A party is prospecting for coal about a mile west of tbis station with a small force, which will be increased if indications warrant. They snnk an incline on the hill side to a depth of 90 feet, passing through two small veins of coal, when they encountered quite a body of water, which compelled them to snspend operations in that direction. They have now moved down the hill some 400 feet, and have commenced a tunnsl, which they expect will strike the main vsin, or body of coal, at a distance of 600 fest. Witbin twelve fset of the mouth of the tunnel they struck a coal ssam, 8 or 10 inches wide, which is considered a very favorable omen. The discovery of a reliable coal mine so near the city wonld cheapsn the price of fnel very mnch.

AMADOR COUNTY.

MINING.—*Ledger*, Nov. 7: Preparations are being actively made to open up a number of hydranlic claims in the vicinity of Jackson. We are pleased to learn that the quartz mines in process of development in the county are looking very promising. The Bunker Hill gives evsry indication of a very valnable mine. The ledge is large, well-defined, and much of the rock will mill $25 to tbe ton. A mill is being erected, and ae soon as it is put in crnshing order the retnrns from Bunker Hill will be satisfactory to the owners. This Original Amador, at Amador City, is showing up richer rock than ever before discovered in that mine. Our informant says the mine never looked more promising than at present, with every appsarance of oontinning its present promising indications. The Gover, at Drytown, at the lowest depths reaohsd, shows an immense vein of ore, which will pay a fair return in free gold, besides being heavily charged with gold-bearing sulphnrets. From the depth reached in tbis mine, and the vsst qnantity of ore laid bare, it can be safely said the Gover is no longer an experiment, bnt that it has bsen developed into a permanent paying mine. The Alpine, at Plymonth, as sinking progresses in the main shaft, shows richer rock than at less depths, and more of it. The last rock taken out is represented as heing extra rich in free gold, and the qnantity of ore increasing, no doubt is entertained by practical miners as to the ultimats success of tbe Alpine. The owners deserve success, and the conductors of the working of the mine dessrve credit for the judgment manifested in the labor of development. The Oneida likewise keeps up ite ehow of good paying rock, and at no time has ths mine given more satisfactory evidence of value than at present.

CALAVERAS COUNTY.

MINING PROSPECTS.—*Chronicle*, Nov. 7: An abundance of water is all that is required to keep tbe gravel mining interest in its present leading position, and plenty of rain has fallen to warrant that, at least during the greater portion of the year. The quartz mining interest, we can truthfully say, was never in a healtbier condition. From the West Point, Mosquito and Sheep Ranch districts reports are especially pleasing. Permansnt development is steadily progressing, and tbe practical results of operations are extremely flattering. The Gwin and other well known mines throughout the the county continne to be profitably worked, and their yield increases as the development progresses. New enterprisss are constantly being engaged in, and extraordinary advsncsment made in unfolding the mineral resources of the county.

A SPLENDID MINE.—The gross product of the Wallace & Ferguson for the year ending October 31st, 1874, was $61,000. That amonnt was taken out and sent to the U. S. Mint in San Francisco. Tbe expsnse of working the mine and milling the ore ranged from $800 to $1,200 per month dnring that period. Taking $1,000 per month as the average expense, the net profit of the mine for the year was $49,000. It must be recollected that ths ledge is not worked npon an extensive scale, it being only necessary to take out rock fast enongh to supply a five-stamp mill, that boing tbe capacity of tbe bettery that has done all the crushing.

EL DORADO COUNTY.

TAYLOR MINE.—*Republican*, Nov. 5: W. T. Gibbs, now snperintendent of this mine, reports the mine as looking highly satisfactory. Five more stampe are to be added to the mill immediately, and are now being turned out at the Placerville foundry. There is now ont, rsedy for ornshing, about 200 tons of rock, and the amonnt is daily increasing.

INYO COUNTY.

PANAMINT NEWS.—*Independent*, Nov. 7: The cañon or town eite, is very narrow; the widest place euitable for hnildings is not to exceed 300 ft., and mnch of it not that wide. The monntains on either eide are very rocky and precipitone. In blasting roads in the face of these monntains rock ia thrown clear across to the opposite monntain, occasionally plnmping down in the streete, which of itself has a tendency to make things lively. There is rarely a moment during the day or night when the reports of reverberations of the ebots are not heard. Work goee on in the minee at all hours, on the roads only in the daytime.

KERN COUNTY.

St. John and Bella Union.—*Southern California*, Nov. 5: The St. John mine, at Sageland, is now being worked on the 500-ft. level, where an unusually rich chimney is being taken out. A shaft has been put down to the 700-ft. level, and it is expected when the level is completed at this depth the rock will prove still better, from present indications. This mine is located in the low hills, to the east of the Bright Star mine on the Pinte mountains, some fifteen miles. The Bella Union mine, at Claraville, owned by A. H. Deaker, has been giving up good ore during the past few months. Mr. Denker informs us that he will next spring put up a 20-stamp mill, having at this time only five stamps. He will get greater power and have a good pump, to be prepared for water if it should be found in too great a quantity. He intends to go down about 300 ft. further before he commences taking out ore. It is the richest small mine in the country at this time, the vein being only about three feet in width.

LAKE COUNTY.

Clear Lake District.—*Bee*, Nov. 5: There has been considerable prospecting for cinnabar on the opposite side of the lake during the past two months, and the eager search is still going on. A good many claims have been taken up and notices of possession posted. Good cinnabar rock has been struck in the Parker claim, and all the ground in the vicinity of the mine is already claimed, mostly by Lakeporters. We have great confidence that mines as rich as those at Pine Flat will eventually be discovered in this district. There are strong indications of the existence of cinnabar in the mountains all around the lake, and the question whether this valuable mineral can be found here in paying quantities is likely to be settled in the course of a few months.

MENDOCINO COUNTY.

New Mining District.—*Independent Dispatch*, Nov. 7: A mining district has been organized including the newly discovered silver mines on Mt. San Hedrin. Two assays have been made of the ores of this mine. The first produced $5 40 per ton, and the next one $2.25. A mining company has been organized, with the following incorporators: S. Hornbrook, D. C. Dormaa, J. M. Ellis, C. H. Eberle, C. Edsal, Philip Deuel, Pollard, D. Ayres, T. Z. Bransford, D. Arthur, Martin Corbit, T. J. Howard,

MARIPOSA COUNTY.

Suit.—*Gazette*, Nov. 7: Last week an attachment suit was brought by parties resident in Bear valley against the Mariposa Land and Mining Co. We learn that the suit is likely to be settled in a few days.

Working Well.—The little engine set up by John H. Neal at the Mexican mine, on Bockeye creek, does its work well. The shaft is clear of water, and the ore taken out appears to be of the right sort.

Milling.—Dan. Breen is crushing refuse quartz from the Hart mine, Sebastapol, at his mill on Mariposa creek.

NAPA COUNTY.

St. Helena Mines.—*Star*, Nov. 5: Pickett Bros. last Tuesday forwarded to Lane & Co., San Francisco, 48 sacks of assorted rocks, weighing over two tons, from which they expect to get over $2,000 in gold, besides $1,000 in silver. The discovery of this mine was purely accidental, the circumstances of which are peculiar, and show how easily a man oftentimes has wealth thrust upon him. A short time ago while one of the Pickett brothers was on a hunting expedition he shot and pursued a deer by its trail of blood, for nearly a mile. Arriving where the mine is he found the deer dead, lying directly over the ledge. Not calculating that any fortune like a mine was to be developed by his bad shot, he proceeded to build a fire, when scraping away the brush the peculiar iron discoloration of the rock first attracted his attention. After supper Mr. Pickett carelessly broke a piece of the rock from the ledge—when his "heart jumped into his throat," so surprised was he at the eight of the glitter of real free gold—if the truth was known it would not be out of place to say he jumped and whooped like an Indian. The discovery was for reasons best known to the discoverer kept secret. The mine is located in what is known as Cow Woods, some six miles from St. Helena. The ledge is traceable for a long distance and averages in width over three and a half feet. A force of miners are sinking a shaft, and the proprietors are already preparing to put up a mill.

Cinnabar.—A splendid average yield of a new cinnabar mine was made by the Barnett Bros. last week; forty-eight pounds of rock produced six pounds of quicksilver. The mine is located near the upper end of James' creek.

Silverado.—Cor. *Register*, Nov. 7: The Calistoga mine is the pioneer of silver mines; has about 65 or 70 men employed at the mine, and 20 or more at the mill. Four tunnels have been run into the mountain, and there seems to be a whole mountain of ore, and there can be no doubt but this is destined to be the greatest mining district on the Pacific. The mill is a ten-stamp one and turns out about $1,000 per day. Four large bricks were sent down to-day; they will go about $12,000. The St. Paul mine on the Calistoga side promises well. A tunnel is being run, and a fine lot of ore extracted, which assays from $80 to $100 per ton. The St. Peter mine adjoins the St. Paul, and is equally as good. These two mines are owned by Messrs. J. A. Conlee, J. J. Holmes and J. W. Winslow; the two latter are San Francisco men. Work will be pushed forward on these two mines as fast as possible.

Shipment. — *Reporter*, Nov. 7: Fourteen flasks quicksilver from the Manhattan, and 15 from the California came down yesterday.

NEVADA COUNTY.

Blue Tent.—*Transcript*, Nov. 4: The Blue Tent Consolidated mining company had a line surveyed the present season for a ditch to bring water to their mine at Blue Tent. Work was commenced at the head of the ditch and prosecuted with all the dispatch possible until the late storms drove them out of the mountains. There is now four miles of flume completed and it is thought further work will have to be postponed until spring.

Gold Run Mine.—*Transcript*, Nov. 6: Work still continues on the Gold Run shaft. The depth now attained is 161 feet. The ground has to be blasted, but it is favorable to sinking. It is the intention of the company to sink 250 feet before running a drift. At that depth they will run for the chute of rock on the same ledge formerly worked by Captain Kidd, and which was the richest ever taken out on Gold Flat. The depth at which the rock was taken out at that time, was much less than where the drift will strike the chute. A rich ledge has been known to exist there for years, but it was also known that deep working and machinery was necessary to develop it.

North Bloomfield.—We learn from A A. Smith that the tunnel being run into the claims of the North Bloomfield company will be completed in about 10 days. The flume will be done in less than a month, and all will then be ready for operations.

New York Hill.—*Tidings*, Nov. 7: This mine continues to improve as the explorations progress. A lot of rock now on hand and to be worked next week at the Larrimer Mill, it is thought, will give a better yield than any run yet made. This rock has been taken out along the course of the tunnel, now 650 feet in—360 along the ledge—and the continued improvement of the vein as opened at greater depth, shows well for the future of this mine.

In Luck.—A gravel claim over at Iowa Hill in which the Messrs. Coleman of this place are largely interested, is, we are glad to learn, turning out very rich of late. Until recently the claim has not been working to advantage owing to a lack of water. The new ditch gives them 1,000 inches under a 500-ft. pressure. These gentlemen are large owners also in the Rising Sun quartz mine, between this city and Colfax. This mine has divided to the stockholders quite a nice little sum the past year from the run of five stamps, and are they are now adding ten stamps to the capacity of the mill it promises to take a prominent place among paying mines the coming year.

Omega Water and Mining Co.—*Transcript*, Nov. 11: The above company, whose mine is located at Omega, are making extensive improvements for work the coming season. The tunnel through which the flume passes is being enlarged, so that a flume six feet in width can be put in and have a capacity to run off all the dirt that the amount of water they have will be capable of washing. The mine paid the largest kind of dividends last season, and with the improved facilities for working the coming season, will demonstrate, what all who are acquainted with the mine now know, that it is one of the best in the county. It is safe to put the net profits the coming year at $60,000.

PLACER COUNTY.

Items.—*Argus*, Nov. 7: There is great activity all over the county in fitting up mining grounds, and the early rains give promise of an unusually prosperous season. The Sucker Flat claim, near Iowa Hill, has been sold by Messrs. Harper, Langstaff and Byrne to an incorporated company organized in San Francisco. The Booth mining company sent a couple of handsome bricks below last Sunday. They were worth about $1,800.

Good Clean-up.—*Herald*, Nov. 7: The Booth mining company cleaned up last Saturday, from a run of about 140 tons of ore, 238 oz. and 16 dwt. of the precious metal, or a little over $4,000; making within a small fraction of $30 to the ton. Considering that the total expense of mining, hauling and milling this ore did not exceed $1,300, this is certainly a very encouraging result. At the mine the indications for even better results in the future are indeed flattering. The east drift, which is in nearly 300 ft., has developed good paying rock all the way, and is growing better instead of worse. At the bottom of the main shaft, now close to 100 ft. deep, the ledge is 6 ft. thick, and the ore, judging from the specimen we saw a few days ago, fabulously rich. The work on this mine, so far, to sinking and drifting, with a view to its better development; yet the rock taken out in this work, from the above showing, pays a handsome profit to its owners, over and above all expenses.

SONOMA COUNTY.

Gold at Santa Rosa.—*Democrat*, Nov. 7: Last summer two brothers named Pickett, of San Francisco, were hunting in this vicinity. Their attention was attracted to the ledge, they had assays made, which proved the rock rich in gold. An agreement was made with Mr. McGuire, the owner of the land, in regard to title; a quantity of the rock was taken to San Francisco and the assay was still more satisfactory. Work was commenced regularly Wednesday of last week. The tunnel extends into the hill about 15 ft. Two tons of rock have just been shipped to be worked in San Francisco. The rock has a reddish color and through a glass presents a beautiful appearance. If the half that is told is true the discovery is important.

TRINITY COUNTY.

Another Claim.—*Journal*, Nov. 7: The Weaverville D. & H. M. Co. will work the Ware mine on Sydney hill and the Ward mine on Oregon Gulch mountain the coming winter.

TUOLUMNE COUNTY.

The Kincain.—*Union Democrat*, Nov. 7: This claim is again in operation; the huge banks are being torn into pieces with a fierce stream of water. Soon after commencing piping on Tuesday suddenly the water stopped to the surprise of all hands; on taking the pipe apart a dead fox was found forced into the muzzle. Reynard had a tight fit with several hundred inches of water on his earthly remains.

Spring Gulch Mine.—A car track from this mine to the mill was commenced on Tuesday, when the first rail was laid, and a new shaft is being sunk on the lead. The railroad is to be a mile and a quarter in length and requires three weeks for completion. When finished the reduction of ore will be uninterrupted, unless at some season for want of water. The prospect for the mine is splendid and will return its owners a handsome profit.

Nevada.

WASHOE DISTRICT.

Consolidated Virginia.—Gold Hill *News*, Nov. 5: Daily yield, 300 tons of ore. The ore breaste on the 1,300, 1,400 and 1,500-ft. levels are all looking splendidly, and are being carried forward as usual. The north drifts on the 1,300 and 1,400-ft. levels, running ahead of the ore breasts, are still in ore of a rich character. On the 1,500-ft. level the east and west cross-cuts have developed the ore vein 128 ft. in width, with the face of both still in rich ore. The ledge on this level shows a steady swell in the width, which seems to increase to the northward toward the California line. The face of the north drift on the 1,555-ft. level is still in ore of the richest character, the extent of which is yet entirely undetermined in any direction whatever. The new mill is covered in, and much of the machinery in place. The immense compound engine is on the ground, and it will now be but a very short time before the mill will be ready to start up.

Ophir.—Daily yield, 100 tons of ore, which can be easily doubled whenever mills can be obtained to crush it. The mine is looking splendidly throughout. The development of the ore bodies on the 1,300-ft. level is daily establishing the mine on a more promising basis. The ore at the bottom of the winze in the east crosscut No. 2, on the 1,300-ft. level, is still of the same rich character, and there is no longer a doubt but that the rich ore development in the east crosscut No. 2, on the 1,465-ft. level, 60 ft. further to the westward, is a continuation of the same body. The yield of the mine for the past month was a little over $80,000, which will probably be doubled this month, as it is the expectation that the company will have three mills running on ore from the mine before the close of the month. Car samples assay from $90 to $220 per ton.

Woonville.—The mine is looking well throughout. During the past week a fine body of ore was struck going southward on the 300-ft. level. This ore lies further to the southward than anything yet found on that level. The ore carries a large percentage of gold, and promises a fine rich body of ore. The ore body on the 300-ft. level has been developed 143 ft. in length. The mill is kept steadily running on ore from the mine. The average assay of the pulp from the batteries is about $40 per ton.

Gould & Curry.—The water has been reduced to the 1,700-ft. level with a fair prospect of soon having the lower levels again drained ready to resume prospecting in that portion of the mine. The usual amount of crosscutting and prospecting is being done on the 1,500-ft. level.

Kossuth.—Sinking the main shaft is making the usual good headway. No water to interfere with the progress of the work.

Original Gold Hill.—New building over the hoisting works advancing towards completion. The ore indications in the face of the west drift at the 340-ft. level still showing finely.

Sutro.—Main west tunnel driving ahead without change of interest to chronicle.

Indus.—The incline being sunk from the tunnel level is now its full size in ore and improving.

Sierra Nevada.—Sinking the new shaft is making steady progress. The ore body, in the north drift from the Sierra Nevada tunnel, is opening out splendidly and promises a fine yield of good ore. Daily yield, 65 tons of ore, keeping the mill steadily running.

Daney.—The main west drift on the 400-ft. level night before last cut the ore vein, causing a strong flow of water and exposing some fine white Comstock quartz and ore of a very promising character. The flow of water has been so strong since that no progress has been made with the drift. As soon as the water is drained, crosscutting the ledge will be commenced.

Baltimore Consolidated.—The water has been drained and sinking the main shaft resumed. The crosscuts on the 400-ft. level north are showing some very favorable indications of ore. The flow of water from the east crosscut, on the 750-ft. level, has almost entirely ceased, and work has been resumed in the face of the drift. The indications of finding ore in this drift are very favorable.

Leo.—Rock in face of main tunnel somewhat softer again, so that better progress is being made this week.

American Flat.—Work has again been resumed. The prospects of finding ore in this drift are much more favorable, as it is likely to strike the main ore vein in a few days more.

Julia.—The machinery will soon be in condition to work the mine to a much better advantage than it has ever been heretofore.

Utah.—The flow of water at the bottom of the shaft remains much the same as for the past month. The prospecting drifts north on the 400-ft. level have developed a considerable body of quartz of a lively encouraging character, but nothing that will yet pay the cost of extraction and reduction.

Dardanelles.—Drifting for the ledge and making good progress, although the rock is hard.

Imperial-Empire.—The main east drift on the 2,000-ft. level is being pushed with all the energy possible, with every indication of soon cutting the ore vein. Both the north and south winzes on the 1,850-ft. level are still in fine ore.

Dayton.—Daily yield, 50 tons of ore, keeping the Woodworth mill steadily running. The ore stopes on both the second and third stetione are looking well and yielding the usual amount of good ore.

Mint.—The bottom of the shaft is still in quartz of a fine character, and the indications are that a good ledge will soon be cut.

Savage.—Sinking on the main incline, below the 2,100-ft. level, is being pushed ahead with all the energy possible. Sinking the winze from the south drift of the 2,000-ft. level goes steadily on.

New York.—The several prospecting drifts on the 550-ft. level are still driven vigorously ahead. The main west drift on the 700-ft. level is still pushed vigorously ahead to cut the ore vein on that level.

Hale and Norcross.—Sinking the main incline below the 2,100-ft. level is making fine progress. It is now down 39 ft. Daily yield, 40 tons of ore from the old upper workings.

Lady Bryan.—The new pumping machinery is nearly ready to run. As soon as it is completed sinking the shaft will be resumed.

Union Consolidated.—The east crosscut from the main north drift on the 1,300-ft. level is showing steady and favorable improvement.

Bullion.—The north drift on the 1,700-ft. level of the Imperial shaft still shows a steady improvement and there is but little doubt that when crosscutting of the ledge shall take place some fine ore developments will be made.

Chollar-Potosi.—Daily yield, 80 tons of ore, the assay value of which is $28 per ton.

Overman.—Sinking the main shaft below the 1,200-ft. level is making good progress. The prospects of the ore body in the north drift on the 1 200-ft. level continue quite favorable.

Succor.—Driving the main west drift to cut and prospect the ore vein on the 550-ft. level of the Grant shaft is making good progress.

Rock Island.—The main west drift on the 200-ft. level has cut through the body of clay recently encountered, into a body of fine looking quartz and low grade ore.

Lady Washington.—Sinking the main shaft is making good progress.

Phil Sheaidan.—West drift from the shaft in 62 ft. Face in porphyry, quertz and blue clay, with some little increase of water since last report.

Senator.—The prospecting drifts on the 400-ft. level are still driving vigorously ahead without change of interest to record.

Yellow Jacket.—Sinking the main incline is making fair progress. Nothing new to report of the prospecting drifts on the 1,740-ft. level.

Buckeye.—The mill is kept steadily running.

Justice.—There is but little change in the mine during the past week. Work progressing as usual at all points.

Pictou.—Tunnel driving ahead at a lively rate with two shifts of men working. Rock softer then it was last week.

Gennessee No. 2.—Bottom of shaft in hard blasting ground, consisting of porphyry and quartz mixed.

East Belcher.—New shaft sinking at the rate of about two ft. per day.

Iowa.—The west drift running for the ledge is making good progress.

Belcher.—Daily yield, 550 tons of ore. The ore breasts on the 1,200, 1,300 and 1,400-ft. levels are all looking well and yielding the usual amount of good ore. A delay of one day was caused by the burning out of the timbers of the new air shaft on Friday last. The delay was only temporary, all the men being at their work in the different portions of the mine the next morning. The mills are still running up to their full working capacity, and the mine looking well and prosperous throughout.

Crown Point.—The mine is looking well throughout. Daily yield, 500 tons of ore. The ore breasts on the 1,400-ft. level are yielding splendidly, while those of the 1,500-ft. level are opening out better every day. The face of the south drift, on the 1,500-ft. level, is still in fine ore. The 1,600-ft. station is about completed, and a drift started for the ledge on that level. The mills are all running up to their full capacity.

California.—The north drift on the 1,500-ft. level from the Consolidated Virginia is pushed vigorously ahead, about half the face of the drift in ore which assays from $15 to $30 per ton. The face of the north drift on the same level from the Ophir is also in low grade ore.

Florida.—Putting up the new hoisting and pumping machinery is going ahead, although somewhat retarded from having to wait for the proper timbers.

Refining Metals.

The many disadvantagee attending the dry procese of refining metals hsve long been generally acknowledged. The loss which it entaile, owing to the large percentage of the metale which is carried away in the slsg, forms eo eerious an item in low grade ores, the proportion increasing with the poornes of the material, as to make their redniction along with the other coste ntterly nnprofitable. In the case of refractory ores, even when comparstively rich, the amount thus lost ie also increaeed from the fact of the fluxee used tend to facilitate the nnion of the metale with the refuse or slag. This ie particularly remarkable in lead ores, it heing almost impossible to separate the lead from many of the other metale with which it ie usually fonnd in combination. For thie reason, lead oree, which have a emall admixture of eilver are not highy valued, the quantity of silver extracted not cooveriug, in many instances, the heavy ontlays for fuel, manipulation and lose from the cansee mentioned. A large number of low grade copper ores also cost so much as to render them worthless. Various different inventions have been made with the object of effecting a saving and turning such oree to profit. Thoee which are termed wet processes have proved the most satisfactory. We have now to notice a new eystem applicable to lead oree, which ie related in the *Chronique de l'Industrie*. It owes its origin to Messrs. Payen & Reux, of Maraeilles, who, after having epent a considerahle time in perfecting their system, have now erected works at the city mentioned, where they are reported to treat successfnlly the hard lead of Greece, which containe 2½ per cent. of antimony, 1 per cent of arsenic, ½ per cent. of copper, and from 1 to 2 per cent. of iron and sulphur; as also the hard Spanish lead which is known to contain large qnanties of foreign euhetances. These qualities of lead are generelly much disliked by refiners, who are uuable to make from their treatment such profits as thsy consider repay them for their labor and ontlay. The process of refining, according to the eystem of Messrs. Payen & Reux, ie said to be effected with the grestest ease and comparatively trifling outlay. In addition the great advantage is stated to be secured that all the foreign metals can be collected, ehould their valne make it worth while to save them. In the case of ores which are rich in the precious metsls or in copper, thie is most important, ae, though the quantity in the metals may he relatively small, it is all profit, no extra expense being required for its extraction beyond that which is necessarily made for refining the lead. This will be more apparent when the eystem is explained.

The procese of Mesere. Payen and Reux depends on the property which melted caustic hydrated alkali posses-es of oxidizing all metals except gold, silver and lead, and converting them into a soluble scoria in a state of igneoue fnsion. In the melted alkaline, both the metale oxidize according to their affinity for oxygen. This action is, however, modified by the particular affinity which certain metale have for soda, and also by the action of affinity of the metal which is present in greater abundance. Curious examplee are presented in the metals of tin and platinum, which, though both much more diffionlt to oxidizs than load or copper, are rapidly attacked and acted on before the latter in the eoda bsth. The cause of this ie that both tin and platinum hsve a peculiar tendenoy to act as electro-negative elements. For this reason the copper alwaye oxidizee firet in alloys though they may be very rich in lead It is aleo worthy of remark that with reagents the oxides act in the eoda hath exactly as the common metallic salts do when diesolved in water. In this igneoua solution the metals are thne precipitated according to the degree of their insolnbility in regular order, and ineolnble agents for reducing may be ueed in the bathe with perfectly eatisfactory reeults. If taken in the direct order of their solubility they materially prevent their oxidizstiou. The metals which are united with lead ore are, owing to the propertiee stated, removed one after the other by the melted soda: and the action of the bath is maintained by a steam jet which keepe up the supply of water of the hydrate which furnishes the metale with oxygen. Where the metals oxidize slowly the action is atimulated either by a blast of air or by the addition of nitrate of soda at the end of the operation. There are eaid to be no difficulties attending the process, and that it may be csrried out enccessfully by any one only snperficially acquainted with chemistry.

The principle is applicable, saye the *Mining World*, not only to refining lead, but also to the extraction of silver from lead and argentiferone scoria, by the zinc process, ae well ae to the treatment of argentiferous copper, of old oomplex alloys, and of the oree of platinum, gold, silver, chromium, and a variety of other metale. It opene up, indeed, a new field to the metallurgiet, and will enable oree which were formerly rejected to be reduced and refined with profit. Such chemical applications as the present, and the nsscent copper processes, are great and valnable inventions, which are destined to play no mean part in the future progreee of mining enterpriee. They may, and probably will, be the meane of giving a freeh impetne to mining interests in this country, which have been languishing for a considerable time past, and they will make many mines profitable which are now being worked at a lose. There are also many classes of oree in this country which are not now worked, but which, by the adoption of thie process, might be tnrned to advantage. The pecnliar action of electricity in such processes is a point deserving of most careful inquiry. We have already a system of reining by its nee alone, but the great qnestion to be eolved is the method of so regnlating the electrical condition of the metale to be treated that they may he entirely subjected to the active influence of the agents employed. Thie will doubtless be accomplished, and when it is, we ehall have learned how to prepare and refine onr metals by methods at once eimple and inexpeneive.

New Concentrating Works.

The *R. R. Reveille* eays: The Manhattan company have just completed the purchase of the Boston mill, in which they propose erecting a Krom concentrator of 50 tons capacity. The concentrations from these ores (abont 16 tons) will be worked at the Manhattsn mill, together with the first claee oree produced in the district, which do not require concentration. When these works are completed and running, the monthly production of ore in this district will be increaeed to 1,600 tone, the extraction of which will, of course, greatly increase the underground work and give employment to a large additional force of miners.

It is with mnch pleasure that we snnounce the inauguration of this enterprise by the Manhattan Co., the completion of which will doubtless be a vast benefit to the community at large. But whether it will he a euccess and thereby a profit to the company, time alone can determine; as the effective working of the ores of Lander hill by this process has not yet been demonstrated. The process hae proven successfnl in working the ores of other localities, and we see no reason why it should not be similarly so here, ae our ores are not more refractory than hase metal carrying ores of other districts. Should the concentrator prove a euccess it will reeult in material advantage to onr town, adding to our population, increasing the demand for labor, fuel and other supplies, and will utilize immense quantities of low grade oree now lying idle and useless.

Incombustible Paper.—Another attempt has been msde—and it is claimed euccessfully—by a foreign inventor, to produce an incombustible paper; not an article that ie absolutely indestrnctible by fire of any degree of fiercenees, hut one which will, under such circnmetances as fires in housee, factories and other buildinge, be measnrably fire-proof, and thus insure a ressonable obance of preservation. This paper ie prepared from a pulp consisting of vegetable fiber, asbestoe, alum and borax, in the following proportions: Vegetable fiber, one part; asbeetos, two parte; borax, one-teuth part; and slnm, two-tenths of a part. The vegetable fihere are minutely divided, and treated in the manner usnal in the prodnction of ordinary paper; the aebestos is also divided as much as possible, and the two are then intimately mixed with the alum end borax in a sufficient qnantity of water to make a pulp of the reqnisite oonsistency, which is then made into paper by any of the usnsl processes. The proportions given above may, of course, be varied according to the quality and nature of the deeired product. In eome cases, also, silicate of eoda may be used, in order to insure hardness and coherence in the substance of the paper after it has been acted upon by a fire. If the sheete be made of linen or othsr woven fabric, and coated on both eidee with the incombnstible paper, great strength and flexibility are obtained.

Improven Engraving Prooess.—Some novel and interesting facts, oheerved by M. Gourdon, in the action of acide upon zinc covered with certain metals, have been commnnicated by him to the French Academy of Sciences. Zinc plunged into dilute solutions of eulphnric, hydrochloric and acetio acide, ie attacked only at the points where other metale are preeent, the metels which prodnce thia phenomenon with most intensity being cobalt, platinum, nickel and iron. Now, ammoniacal chloride of cobslt renders it possible to perforate zino with water contsining only one ten-thousandth part of eulphuric acid; and M. Gourdou applies these results, in a very iugenioua manner, to various proceduree for engraving. He states that, by writing upon zinc with different metallic inks, making nee of the most active, containing salts of cobalt, for the blackest parte, and passing it then into acidulated water, an engraved plate is obtained. To reprodnce leaves or plants, they are soaked in eolntions of metallic salte, and applied to the zinc, which is then treated with weak acid. M. Gourdon hse also discovered a new kind of heliographic engraving by transferring the eilver from an ordinary photographic proof npon the zinc, which can be attacked by the acids in the parts where the eilver has been deposited—a discovery evidently eusceptible, when fully developed, of interesting reeults.

The Largest Mauine Enoine in the World. The *Messager de Cronstadt* says thst on the 30th nlt. the engines of the new armor-plated double tnrret-ehip "Pierre le Grand" were tried in the basin at Cronstadt. This colossal engine ie of 1,400 horee-power nominal, and ie the moet powerfnl that has yet been placed in an armor-plated ship, 1,350 horse nominal being the power of the enginee in the English ehipe "Minotaur," "Northumberland" and "Agincourt." The enginee worked from the first moment admirably, and were kept going for eight houre without any necessity arising for etopping them.

Darmouth Mine.

Thie mine hae been apparently to outsidere idle eince last July. The mill hss been standstill since that date, not for the lack of material for it, hut for want of water. We fonnd, on viciting the mine the other day, that Capt. Miller, the euperintendent, has not been idle during the summer snd fall, but hae driven a bedrock tunnel a distance of about 300 feet, hss conetructed, beeide, about 400 feet of open ditch, 10 feet deep, hae put down a large, plank drain flume, and refitted the ditch to its former level. The object of all this work being to abandon an old circuitone tunnel that he feared might prove treacherous when most needed during the winter. Henoe the precautionary step. This work mskea the drainage of the Darmouth complete and safe, through a continuous drain tnnnel of 1,200 feet, liberating the mine from all water contingencies growing out of Alta hill. The company have also enlarged and newly timbered their ehaft, eo ae to be able to uee a cage hereafter, instead of buckets as heretofore. Thie change will enable them to raise three timos the quantity of material that they did with buckets. A new boiler has been eet up in the place of the old one. We find also that Capt. Miller has sunk a prospect shaft, 70 feet deep, in bedrock, directly under the bluff, and from the bottom of the shaft is running a drift into the hill, with the view of cutting and teeting a quartz ledge which is known to exiet in the Darmouth ground. The mine will become, therefore, a well developed quartz mine as well as a number one gravel mine. The prospects for such a result are good. Captain Miller, the superintendent of the Darmouth, directs the affairs of the company here with all energy, and we think in the proper manner to achieve good reeulte. We wieh the town had more active proepectors like him.—*Grass Valley Union.*

A New Quartz Crusher.—We were ehown yesterday a model of Cowlee & Johnson's new quartz crusher, for which its inventore and proprietors claim great superiority over all other mills in nee. It consists merely of a lsrge wheel or drnm, twelve feet in diameter aud eighteen inchee face, to weigh twenty tons, revolving in a hed or trough a trifle wider than the face of the wheel, made of eegments of the hardest iron. This wheel is revolved by gearing placed near its outer circumference, worked by steam or other power. It is calculated that the weight of thie wheel (twenty tone) rolling over any ordiasry rock will crnsh it, at once, fine enough for amalgamating purposes, or at leaet ae fine ae it usually comes from the stamps of the common etamp mill. We need hardly say that if this mill will do what ie claimed for it, it will revolutionize quartz miniug entirely. The comparative coet will be about one-tenth that of the stamp-mills now in use for the eame capacity in tone. One of these mille is now in course of conetruction in this city at the foundry of Wm. Guttenberger, on the corner of Front and N streets, to be completed in about five weeke, when its proprietors expect to demonstrate its practicability.—*Sacramento Record.*

The gold-bearing quartz of Nova Scotia ie moetly undistinguishable in color, structure, general appearance, or associated minerals—which are chiefly galena, blende, arsenical copper and magnetic pyritee—from the qusrtz of other gold regions, except, perhaps, that it is richer in vieible gold. One species of dark-grey laminated, exceptionally rich quartz, occurring only in veins of six inches and under, doee appear to be peculiar to the province, ae it has not yet been matched from any other country. The director of the Geological Snrvey of Canada etatea that "it ie now generally admitted auriferous quartz veins present no features which wonld serve to distinguish them from any other claes of ore lode, either in their origin or in their mode of occurrence;" and on theee grounds he hae long held the opinion, that there is no *a priori* reason why ench veins shonld not contain gold in sufficient quantity to be profitably extracted at any depth to which ordinary mining operatione can be carried.

Coal Fielns of Spain.—M. Grand, in deecribing the coal fields of Spain to the Paris Society of Engineere, eetimated their area at 150,000 hectares (the hectare being abont 1·47 aoree), from which only 500,000 or 600,000 tons are annually extracted, while Belgium, with the eame area, yields 10,000,000 tone. The Spanish cosl fields are situated in Castile, Leon and Asturias. The processes are described as being very rough and imperfect. M. Delesse etated that the coal of the Asturias wae chiefly nsed for gas making.

Montana Mines.—The Helena *Independent* says: The amonnt of quartz sold in Helena during the past eix months has placed over $150,000 in circulation. It is thought that the amount will reach hslf a million next year. There is no longer any excuse for minere being idle in winter. They eell in this market all the ore that they can tske out, or if they prefer to do so, get advances on all they choose to ship. We predict that hundreds of lodee will be worked the coming winter and tho number increaeed each enceeeding year.

Russian Navy.—The Russian anthoritiee having decided upon abolishing wooden ships from their navy and eubstituting iron ships in their etead, have disposed of the whole of the former, and the laet of their once celebrated frigatee hae been eold to Messrs. Wilson, M'Lay & Co., of London and Glasgow, who are dismanting her at St. Peterebnrg.

The Mining Academy of Frieberg.

Thie institntion ie famed, eaye a sporting correspondent of the *Field*, and justly eo, all over the world. Studente of every nationality are fonnd here, and there is no donbt that if a msn likes to work he can learn a great deal, as eome of the moet celebrated profeseore in Germany are teachere. The only reqnieite for a etudent entering the academy ie that he ehould know a little German. This rule ie not very strictly observed, and any one of ordinary intelligence ought to pick up the requisito smount in a month, or six weeks at the onteide. There are different courece open to the option of the student—such as an assaying course, chemical course, eurveying and mining couree, etc. These are eeoh charged separately for, the fees ranging from £3 to £5 each. The plowpipe course, given by the famons Profeseor Richter, is £6. Foreign students are charged £5 yeerly extra; German etudente are exempt from this tax. Living in Frieberg ie excessively cheap. I pay 33s. a month for a sitting-room, bed-room and bath-room, partly furniehed, with attendance. Theee roome would cost at the very least £1 a week in England. Very good roome can be had for eight thalers, or 24s. a month, furnished, with attendance. Esting would cost about 1s. 2d. for dinner. At preeent I eat with four other friends in a private room, and I psy 1s., or 10 groschens a dinner. Very good beer costs nearly 2d. an imperial pint. Altogether a young fellow can live perfectly well in Freiberg on £10 a month, or on £150, naying lectnre fsoe. The whole course lasts three yeare; but I imagine that a man wonld do far hetter by picking out a few particular lecturee and finishing in 18 months or two yeare. Now, after the course, what return has a man for his money? I unhesitatingly answer that a man who hae worked hard for two years at Frieberg ought to be able to go anywhere in any mining district in the world and command his £500 a year. So many people are troubled with queetione as to what to do with their younger sons, that I am snre that sending them to Freiberg, and giving them a first-clase profeesion in two yeare for £375 or £400, is well worth their consideration. To ench a msn, *i. e.*, one well educated at Frieberg, the whole of the American continent, and indeed moet of the world, is open. Now that England is eo "blocked" it has become a neoessity to go farther afield; and probably mining engineering and ssaaying offer about the very best openings to an enterprising man. Immense deposite of metsl are daily being diecovered in Colorado, and the eouth-western States, while Chili and Peru are short-handed.

Mining in Humboldt.

The mining proepecte in Humboldt never looked better since the "wild cat" daye of '63. Old claims, that have for eeveral years been abandoned as worthlese, are being worked, and, in moet cases, are paying their owners. The Pride of the Monntain, in Winnemncca district, ehows a good vein of rich ore, and the owners are making it pay them a good profit. The Pride of the World, aleo, hae an excellent proepect. In Sierra district, Twies & Co. are egain teking ore from their mine, and believe they are through the elide. There are otner claims in this district ehowing eome good ore. The Tullulah company are eoon to resume work on their mine. At Unionville, the Million dire, owned by O. K. Stampley & Co., ie developing into a eplendid mine. The vein has laid nearly flat, but has now become nearly upright, and ie pitching down the hill, eo that a short drift will reach it from the enrface. The rock ie from eighteen inchee to two feet thick, and the boye are eacking every pound of it. There eeems to be no resson why this mine ehonld not make the fortnne of its owners, if energetically msnaged. The Arizona ie nnder a cloud just now; not much ore coming ont, and what there is being difficult to work. The Eagle mine, at Spring Valley, improves every day. We learn that the lode is 12 ft. wide at the croee-cut, near the bottom of the winze, that is down 90 ft. The lode has 5 ft. of ore that aeeaye over $65 per ton, and ia pure milling ore. Samplee of the pooreet rock in the mine, worked by mill procese, in San Francisco, yield $18 per ton. The company's new fifteen-stamp mill will be at work in about two weeke. Claime on the esme lode, to the north and south of the Eagle company'a gronnd, are being worked snd show fine proepects. From Golconda, Paradise and Bartlett oreek we have encouraging news. The mining intereste of Hnmboldt are looking up, and all we want ie capital, to make this one of the first bullion producing conntries of the State.—*Register.*

Australian Mining Statistics.—For the quarter ending 30th of June last: Central division of tho Ballarat mining district.—Alluvial miners: 1,621 Europeans, 275 Chinese; quartz miners: 802 Europeane; total, 2,698. Total quantity of gold, 16,358 oz. 2 dwt. 7 gr.; alluvial, 10,237 oz. 7 dwt. 13 gr.; quartz, 6,120 oz. 14 dwt. 18 gr. Total nnnnber of steam engines, 119—3,945 horse power. Total value of plant, £418,230. Average price of gold, £4 2s. 9d. per oz. Tons crnshed, 21,957; average per ton, 5 dwt. 13·69 gr.; previous quarter, 5 dwt. 20·10 gr.

Austin Bullion.—Wells, Fargo & Co. ehipped from Anstin for the month ending October 31st, 1874, for acconnt of Manhattan S. M. Co., 57 bare of bullion, weighing 5,838 pounds, and valued at $72,800.

Good Health.

One Hundred Years.

HOW TO ARRIVE AT THAT AGE.

It has been said that the human frame, as a machine, is perfect; that it bears no mark within it by which we could predict its decay; that it is apparently calculated to go on forever, and that only by experience have we learned that it will not do so. A French writer has tersely remarked that, nenally, men do not die—they kill themselves. There is a great deal of truth in the latter, and there is a great deal of encouragement in the former saying. That our organism is so perfect that the seeds of decay are not observable within it, affords ground for hope that man may add to the average number of his years. And this is rendered all the more probable as it is well established that the average of human life is longer by a very considerable fraction than it was a century ago.

An English physician has lately published a work on the means of prolonging life after middle ago. In common with a great many of his profession, Mr. Gardner, the physician referred to, seems to believe in the possibility of man's adding to his years. Flourens has formulated the law of natural organic life, and claimed that it is capable of extension to five times the period of growth. Assuming this law to be true, man's natural years should be from 90 to 105 years. Dr. Gardner seems to have fully coincided with Flourens. Reasoning from the analogy of anesthetics, he sees no cause to despair of the discovery ultimately of a genuine *elixir vitæ*. Meanwhile he would prolong the reign of youth by tranquility of mind, sobriety and uniform temperature. He would have no one fret or worry.

Dr. Duncan Gibbs, who has written a work on the physical condition of centenarians, and who had personally examined six persons over 100 years of age, confirms Dr. Gardner's views, in this latter respect at least. In all six, Dr. Gibbs found the lung perfectly whole, also the heart. All six had good "bellows-power," as evidenced by the firmness, sonorousness and clearness of the voice. In each the cartilage at the top of the wind-pipe was in a vertical position. The skin was in each case tough and silvery. There was no case of enlarged or fatty heart. The digestion was perfect, and so was the calmness of mind. The bodily senses and mental faculties were unimpaired. Drs. Gardner and Gibbs agreed that climate was unimportant as regards longevity. When bordering on old age, the advice given is to stay at home, to keep warm, to have pleasant occupation, to take proper exercise and diet, to avoid starch of potato, malt liquor and cheese. Dr. Gardner would not undertake to lay down rules by observing which each one could make himself a centenarian. The task is an impossible one; and yet his advice is not wholly to be disregarded. It may if scrupulously followed out make centenarians of us all, which perhaps would be a great misfortune for the world; but it will be calculated to make sexagenarians of those who might have died in their thirties or forties.

If a man would add to his years let him take care of his lungs by properly exercising them, of his heart by avoiding all undue excitement, of his brain by cultivating tranquility. Let him be temperate and pay a proper regard to the cleanliness and temperature of his person, and he will have done more for himself than a doctor and the whole pharmacopœia can do. If he will do all this, some future Dr. Gibbs may find him, at the age of hundred or thereabouts, with lungs and heart perfectly whole, with good "bellows-power," a firm, clear and sonorous voice, with tough and silvery skin, and the cartilage at the top of his wind-pipe in a vertical position, and with his senses and his faculties as keen as those of a man in his prime—with his children and his children's children around him. Virtue is the basis of longevity, as of individual prosperity and national greatness.—*Chicago Tribune.*

SORE THROAT—TIGHT COLLARS.—Says an exchange: An eminent physician, who devotes his whole attention to diseases of the throat and lungs, told us the other day that about three fourths of all throat diseases would get well by wearing very loose collars, and no necktie at all. He said that often singers came to him for throat diseases and loss of voice, and he would tear open their cravats and cure them, with no other treatment whatever. "The pressure of the collar on the arteries of the neck is very bad for the health," said he. He also added: "If you have a disease of the throat, let nature do the curing, and the physician as little as possible."

HAIR OIL.—Are hair oils good things to put on the hair? No! Some of them are poisonous, and others filthy. The *Laboratory* says: "Many hair oils are colored with aniline red, instead of the long used anchusa, which answers every purpose, and should be continued. A hair dresser had been accustomed to use hair oil composed of castor oil, colored with aniline red. A patron, whose head had been dressed with with this oil several times, became aware of a disagreeable itching in the scalp, similar to that produced by arsenic. Inquiry traced the presence of arsenic in this aniline coloring, and by a discontinuance of the oil the eruption disappeared."

RAW FRUIT.—Does fruit agree better with the stomach cooked rather than raw? A writer in an English paper says: "An almost universal prejudice prevails against the free use of uncooked fruit. It is looked upon as very unwholesome. The prejudice is easily accounted for. Suppose any one eats a good dinner, and forthwith sits down to a second, the second dinner would assuredly disagree with the first. This is exactly what has happened in the case of fruit. Ladies and gentlemen dine freely off a great variety of food, and many afterward eat sufficient fruit as dessert to have sufficed for a temperate meal. The result is discomfort or deranged function, followed by an outcry against the use of fruit. But supposing the fruit to have been eaten as, instead of after, a meal no such consequences would have followed. A moderate quantity of apples, pears, plums, cherries, grapes, with a slice or two of bread, form a cheap, pleasant, wholesome and satisfying meal. Without entering into their chemical composition, it may also be affirmed that fruits are tolerably nutritious, and as an alterative they are exceptionally wholesome. Of course there are those with whom raw fruits disagree, just as there are many who are unable to eat pork or veal. But these can have their fruit cooked. Stewed pears, apple pies and puddings, plum or currant tarts, with plenty of bread, would furnish a dinner fit for a king, without the preliminary of meat, fish, etc. In fact it is the mixture that proves injurious. Few fruits if eaten alone disagree with healthy stomachs. Only bread and light cake should be eaten with them. The food of a large portion of mankind, broadly stated, is bread or rice, which is almost the same thing, and fruit."

OVERWORKING THE BRAIN.—Softening of the brain is becoming a more common disease than formerly; as it is utterly incurable, attention should be given to its causes. The softening is caused by an inflammatory condition or a gradual degeneration of the substance of the brain, arising from intense mental excitement, as a result of study, of the use of spirituous liquors, or allowing the mind to dwell upon one subject unpleasantly, especially when there is no real cause, or conjectured injuries, or injustices and the like, moping over them, cherishing thoughts of them. This lamentable malady comes on at one time with a sudden head or ear ache, at another with difficulty of speech, or numbness, or convulsions, or paralysis, or actual insensibility; or at other times there is simply a decline of the power of the senses, sight, hearing, speech, and the mental powers generally. The same disease is caused by want of something to do, when there is no compulsion to mental effort or muscular exertion. To ameliorate a malady arising from causes so diametrically opposite, antipodal means should be employed—less work to the over-worked, more work for those who have nothing to do.—*Hall's Family Doctor.*

PLAIN DIET BEST.—It is possible to satisfy all the demands of nature at a very small cost. In many parts of the continent the average wages of the laboring classes, taking the year throughout, is not more than fivepence a day, or half a crown per week; yet these classes are on the whole healthy and robust, although meanly clad. It has been proved over and over again that healthy life can be maintained on cheap and plain food, and that the longest livers and surest workers are those habituated to plain diet. The Scotch are a notable instance of this; a hardier, stronger, more enduring race probably is not to be found; and the staple of the Scotch peasant's food is oatmeal, the cheapest as it is the most nourishing of grains. "A Highlander," says Findley, "will traverse the mountains all day upon a diet of oatmeal stirred in fresh water from a gushing spring, with his finger, in a leathern cup." An English navvy who boasts of eating a pound of beefsteak for dinner, would starve on oatmeal and water, while all the beef he could devour, and the beer he could drink, would not enable him to keep up with the Highlander for a single day.—*Leisure Hour.*

THE GRAPE CURE.—What is termed the "Grape cure" has not as yet become very popular in this country, owing probably to the lack of grapes suited to the purpose. In Europe the fruit used is of quite a different character from that of our native varieties. The skin of foreign sorts employed in the grape cures adheres firmly to the flesh and it would be a difficult matter to separate it in eating, but the flesh being brittle and firm it readily breaks open under pressure allowing the seed to drop out if the consumer desires to reject these indigestible pellets. But whether swallowed or not will depend somewhat on the patient's stomach, as well as the disease to be treated. A person consuming from three to ten pounds of grapes daily—which is not considered extravagant at the grape cures—would have to possess the stomach of an ostrich to safely carry the stones from the quantities named. As a rule it is safe to reject the seed, although they are not considered injurious in moderate quantities.

A FRENCHMAN has discovered that a stream of water directed from a force pump against a spot visited by neuralgia will relieve it. The operation is painful, but "patients call for a repetition on a return of the disease."

Useful Information.

Breeze Coke.

A new industry has sprung up in our city in the last year or two that gives employment to quite a number of men, and, at the same time, utilizes one of the waste products of our mills which, heretofore, has been thrown away as useless. The technical name of the article is "Breeze Coke." The ashes from the furnace ash-pits are hauled into one place, and the first thing to do is to separate the larger particles of coke from the finer ashes by the use of a rake. They are then placed in a large tank of water, and all the coke that is fit for use floats on its surface, while the heavy ashes and cinders fall to the bottom. The breeze coke is then taken off the surface, and any light cinder that did not sink, taken out by hand, when the coke is ready for market. It is used principally by blacksmiths, and is the best article known for a forge fire. Messrs. Lewis, Oliver and Philips use 125 bushels a day for their forges, for which they pay five cents per bushel, having furnished the ashes for them free, and allowing the breeze washers to sell all that they do not use for their own profit. Mr. Rodgers, of the firm of Rodgers and Day, informed us that the company shipped a car load a week ago into the state of Ohio, besides furnishing many of our local shops with them, while other firms have shipped three car loads a week. As most of the shops are at present doing but little, the breeze coke business, of course, is not so brisk, yet the three firms that are operating in the city find ready sale for all they can make. Mr. Schultz, the Carson street bridge builder, uses a large amount of the coke for his forge fires. The price ranges from 6 to 6¼ cents per bushel.—*Pittsburgh Leader.*

INVISIBLE INK.—If we write with a very dilute solution of chloride of copper, which has scarcely more color than pure water, the characters are invisible; but if gently heated, they become distinctly yellow, and are easily read. Let the paper cool, and they vanish; and they may be made to appear and disappear an indefinite number of times. If heated too strongly, the compound is decomposed, and the writing becomes permanently brown from the deposition of the copper. The chloride of copper may be conveniently made by mixing solutions of sal ammoniac and blue vitriol. The change of color in this and kindred cases is due to the removal of the water of crystallization by the heat. In chemical combination with the water, the salt is transparent; without the water, it is opaque. The salt, being very deliquescent, rapidly absorbs moisture from the air when cool.—*Boston Jour. of Chem.*

HOW TO FASTEN RUBBER TO WOOD OR METAL.—As rubber plates and rings are now-a-days used almost exclusively for connections between steam and other pipes and apparatus, much annoyance is often experienced by the impossibility or imperfection of an air-tight connection. This is obviated entirely by employing a cement which fastens alike well to the rubber and to the metal or wood. Such cement is prepared by a solution of shellac in ammonia. This is best made by soaking pulverized gum shellac in ten times its weight in strong ammonia, when a slimy mass is obtained, which in three to four weeks will become liquid without the use of hot water. This softens the rubber, and becomes, after volatilization of the ammonia, hard and impermeable to gases and fluids.—*American Artizan.*

PETROLEUM PRESERVATIVE.—We do not think that the value of crude petroleum as a preservative of wood is properly appreciated, especially among farmers. Even for implements, fences and buildings which are to be painted, it is a good plan to give one or two coats of petroleum first. It is very often the case that when the first coat of paint is placed directly on the wood that it is injured by the too rapid absorption of the oil by the dry wood. One or two coats of petroleum will prevent this, and save both oil and paint. For fork and shovel handles nothing can be better.

BRONZING WOOD.—Saturate the article first with hot parchment glue, previously filtered and not too weak; and when dry, coat white slightly warm, with red ochre mixed with a little yellow, and when perfectly dry coat a second time. Then rub the whole carefully with moistened shave grass and apply, with a brittle brush the bronze, of copper and brass or tin, mixed with alcohol. The article, as well as the bronze must be kept warm during the operation, either in the sun or near a fire. Two or three coats are necessary to produce a perfect effect.

RENOVATING BUGGY TOPS.—Enamel leather tops which have become hard, but have not lost their color, can be softened and much improved in appearance by oiling them with pure castor-oil. This oil is readily absorbed by the leather, and will not fry out in the sun. When the leather has turned gray, apply a coat of hatters' blacking, after the oil has struck in, and rub well with a cloth to bring out the polish. Most varnishes dry too hard to be used on tops, shellac varnish being the only kind that can be used with safety, but this will crack unless the coat be applied very thin.

Domestic Economy.

Tasteful House Furnishing.

The following, which we clip from an old number of Blackwood, may not be counted strictly as household "economy." In our time and place and with our actual ideas and actual wants, such rooms as are described below may be considered typical; they represent the highest form of realization of modern taste without its faults, or rather with as little of them as is consistent with the expenditure of any given amount of money and thought:

The Dining Room.

In the dining room there is an atmosphere which we do not often breathe elsewhere. All is dark brown cloth and ebony; but the weakened daylight which struggles in through the heavy curtains finds resting places, and marks points on the angles of the old *faience* which stands upon the dresser, on the steel hinges of the sideboards, which flicker vaguely on the yellow and dull blue of the hanging lamp. Brown walls set in black beading frame in the room, and lend its aid to its austere but grand effect.

The Drawing Room.

The drawing rooms are painted in a tint which the catalogues of color do not define—something between a fading China rose and half-ripe Indian corn. Narrow banks of faint pearl grey enrrounded each panel, and here and there a thin line of gold relieves the gentleness of tone. Chairs of varied shapes, all made for comfort and suited to the position which each sitter may wish to take, stand about in pleasant irregularity. They are clothed in different stuffs of all the finer sorts, so that the varying sheen of damask, silk and satin may prevent the uniformity of one material; they are embroidered with fantastic flowers of every hue, but calculated so that each shall mingle with and neutralize the other, the object being to subordinate each part to the whole effect. As the French say, "nothing screams," for all fits well together.

And plants with variegated leaves, and books whose very binding has been calculated for the place it is to occupy, and the thousand trifles which lie about, and the work basket from which skeins of wool are cunningly allowed to overflow, because their colors will serve a purpose, and the laced handkerchief left trailing there in the angle of a sofa, in order to light up by its whiteness a too dark corner—all these things show thought; all are contrived with skill and art, with the one object of creating a thoroughly charming room, where the mistress asserts herself in her own handiwork.

The Bed Room.

Now go to the bedroom, and from the doorway observe it with your eyes, for never have you seen a picture so complete. The walls, the hangings, and the seats, are all in pale blue satin, edged sparingly with velvet of the same shade, and embroidered daintily with pale moss rose buds, swathed in still paler yellow leaves. But this description, though exact, gives no idea of the effect produced by that woudrous tissue, of the incredible effect of delicacy and thorough feminine elegence which it sheds around. The room is filled with a vague floating perfume of charm and grace; its every detail is combined to aid and sustain the almost fairy aspect it presents. The bed is shrouded in thickly wadded satin curtains, inside of which hang others made of muslin so vaporously filmy that its folds seem almost mist; the coverlet which hides the lace trimmed sheets and pillows, is in blue satin, lined with eider down, and covered with the same veil of floating white hanging down in a deep flounce over the wood work of the bed. The toilet table is the same—a nestling mass of transparency and lace, with blue beneath; and knots and streamers of mingled satin and velvet round. On the chimney piece stands a clock and candlesticks of Sevres china. The piano is in pale *boise de rose*, (not rose-wood, which is a very different thing) inlaid with plates of Sevres to match. At night light comes from above, where hangs a lamp of Sevrea again.

GRUEL.—We give the following from the *Health Reformer* concerning what seems a very simple matter—the making of gruel. It is important that every woman should know the best way of preparing that which is both food and medicine for the sick: "Several articles may be used, but wheat-meal is preferable. Have the water boiling. Make a paste of the meal and cold water, and stir it slowly. It must not stop boiling for a moment; if it does it will have a raw taste, which you cannot remedy by cooking for hours."

POTATO PUDDING.—With a pound and a quarter of mealy potatoes boiled very dry and mashed perfectly smooth while hot, mix three ounces of butter, five eggs, a few grains of salt and the grated rind of a lemon. Pour the mixture into a well buttered dish, and bake in a moderate oven three-quarters of an hour. When done sift some sugar in it.

WASHING WINDOWS.—In washing windows or other glass, never use soap, unless it can be thoroughly rinsed off; wash off the dirt in clean warm water; after the glass is dry, rub with a little paste or whiting and water, in the center of each pane. With another cloth rinse over the glass, then rub it with a dry cloth till it shines like crystal.

MINING AND SCIENTIFIC PRESS.

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Mining Accidents.

A man named Horgan, better known as "Cap Johnson," was killed at the Sierra Buttes mine last week. Another man had his foot crushed and still another lost the first joint of his fingers at this mine, all in the same week.

At the Soulsby mine, Tuolumne county, a water bucket fell on a man in the winze, injuring him severely.

On the 5th inst., W. H. Faust, in the Consolidated Virginia mine, on the Comstock, was severely injured by falling down a chute.

Thomas Molton was on the same day severely injured by a blast in the Belcher mine. He was passing by a drift as the blast went off.

James Jenkins was badly injured by a cave in the Consolidated Virginia mine on the 5th inst., by a mass of earth falling upon him, breaking his leg and otherwise injuring him.

William Upham, another of the men who were caught in the blazing drift on the occasion of the late fire in the Belcher air shaft, died last week.

THE various coal mines above Nanaimo are doing well, judging from the amount of coal which they are turning out. Dunsmuir's mine and the Victoria coal company's mine are taking out about 140 tons per day.

IT is estimated that 1,000 men are employed in working and prospecting in and about Pina Flat, Sonoma county.

Profits of Drift Mining.

One of the peculiar and interesting features of the mining interest of Sierra county is its "drift claims." This class of mines consists of locations in the ancient river beds covered by the great volcanic outpouring which succeeded the pliocana period. The system of work pursued is by means of tunnels, generally run through the side or "rim rock," at sufficient depth to tap the channal. The main tunnel is carried on "up stream," and "gangways" are run toward either bank, the gravel being run out by cars and washed by sluice boxes, and the worked out ground being allowed to cave and fill up as the main tunnel, which is secretly protected by timbers, progresses. The depth of gravel which it is found will pay by this system, is from three to five feet, including from three to six inches of bed-rock, which is picked down and washed with the gravel. The lower stratum, including the bedrock, is invariably the richest. This branch of mining, formerly pursued with great success in various portions of Sierra county, had of late years fallen into decadence, until it was revived in 1872 and 1873 by the remarkable results following the opening of the Bald Mountain claim, at Forest City. Prior to the development of this mine in 1872, Forest City, once a lively and prosperous town, had degenerated into an almost abandoned mining camp. Houses and lots were to be had for the payment of taxes, and in one instance a well furnished house sold for $75. The results of the first clean-up of the Bald Mountain claim, however, changed, for a time at least, the destinies of the town, and now it has resumed all its former prosperity and given a strong impetus to surrounding camps.

Mr. W. A. Skidmore, depnty for R. W. Raymond, U. S. Commissioner of Mining Statistics, has recently visited Sierra county and prepared a very elaborate statement for the next annual raport of the Mining Commissioner. He has given us the liberty of making extracts from this, which we take pleasure in publishing. At Forest City the principal claim up to the period of the development of the "Bald Mountain" company's ground, was the "Live Yankee." The "Live Yankee" owns 2,600 feet in length on the channel, most of which is now worked out. This ground yielded during the nine years in which active mining was carried on (from 1855 to 1863 inclusive) the sum of $698,534, of which $370,106 was expended in opening up the claim, etc., and the dividends disbursed were $328,368. For several years thereafter and until the ultimate exhaustion of the company's ground, the dividends averaged $10,000 per annum. For a period of seven consecutive years after the opening of the mine, and preceding the symptoms of exhaustion, the dividends averaged $49,191 per annum. The total product of the ground may be safely estimated from the date of opening the mine to the suspension of operations, at not less than $1,000,000, of which probably one-half was disbursed as dividends; and this was during a period of high-priced labor, and in the pioneer days of drift mining.

About the time of the decline of prosperity of the Live Yankee (1867-68) Mr. M. Redding, a practical miner of Forest City, who had worked in the Live Yankee, observing an easterly trend of channel in that ground, formed the opinion that the main channel of the "Blue Lead" diverged from its N and S course and passed in a N. E. direction toward and under a high mountain capped with basaltic lava, lying east of Forest Hill. Acting on this theory he acquired by location and purchase the present ground of the Bald Mountain company. Finally, being unsuccessful in getting capitalists to invest, after much perseverance and the display of remarkable tenacity of purpose, he succeeded in forming a company consisting of practical men whose only capital was their labor, and vigorous operations were commenced in the fall of 1869. A shaft was sunk at a point considerably east of what was popularly considered the course of the blue lead. The blue colored pay stratum was reached at 260 feet in depth, and bed rock at 269 feet. By strange fatality the particular portion of the channel tapped by this shaft was in the poorest ground in the mine, and some of the owners parted with their interests at a loss. Had the shaft been sunk 10 feet in any direction from its position, it would infallibly, as proven by subsequent developments, have struck gravel of remarkable richness. In fact a 40-ounce nugget found in the company's boxes in 1873 is supposed to have come from this portion of the ground.

Mr. Redding and his associates, however, were satisfied with the gravel, and determined on running a tunnel to connect with the shaft and open the ground. This tunnel was commenced in June, 1870, and prosecuted with periods of interruption to its completion in April, 1872, a period of twenty-two months. The distance was 1,800 feet. The work was accomplished by manual labor, single-hand drills and Giant Powder, and cost, including the prospect shaft, about $20,000—being $1,000 to each original interest. This represents the outlay of the company on their mining venture. No further assessments were levied, but something over $200,000 in dividends have been disbursed between April, 1872, and January 1st, 1873. Mr. Skidmore has obtained a tabulated statement from the company, of the receipts and disbursements at the claim, from which we make some extracts. The total yield from July 1st, 1872, to July 1st, 1874, amounted to $328,352 38. The dividends during the same time were $164,000. From July 1st, 1872, they had extracted 115,950 carloads of gravel, which paid $2.76 per carload, or $1.09 per square foot. They worked altogether in this time 292,200 square feet. The per-centage of dividends to the gross amount taken out was 50 per cent. They estimate that there are 7,232,000 superficial feet contained in their claim, which if it pays as it has done, $1.09 per foot, will yield $7,882,880. We may state here that the claim is not for sale.

The first clean-up consisting of dirt taken from the tunnel yielded only $132. From this time the returns steadily increased, in July of the same year amounting to $1,000. This gradually increased until with progressing development the present remarkable yield was reached, and attention thereby called to this long-neglected branch of mining. On April 25th, 1874, two years after the first modest return of $132, the result of the clean-up was $13,733.24, and one week after (May 1st), $14,694.76. As will be seen by the foregoing statement the total yield up to July 1st, 1874, was $328,352.38. From July 1st to Sept. 30th, 1874, there was taken out only $16,726.84. This was owing to a scarcity of water—the dirt being allowed to accumulate in the yards. The actual bullion product therefore at the time of Mr. Skidmore's visit in October, 1874, had been $345,079.22 from a piece of ground about 1,000 feet long by 500 wide, exclusive of the unworked ground within this area, and not including the value of the gravel piles in the company's yards.

The term "drifting," as applied to the class of operations pursued at this mine, relates to the mode of extracting the auriferous gravel by means of tunnels and gangways, or galleries; and washing dirt in sluices. This system is rendered necessary in consequence of the capping of volcanic matter overlying the ancient channels, and rendering hydraulic operations impossible. In hydraulic mining the entire face of the bank is removed by the pipe; in drifting claims only the lower stratum of gravel lying on the bed rock is mined and washed. The average depth of pay gravel when mined in this manner is about three feet.

The gravel in this channel is exceptionally rich. Mr. Skidmore informs us that the Bald Mountain claim is one of the best managed gravel claims in the State, being a model in this respect. The Superintendent is Mr. H. Wallis, an intelligent, practical miner. The pay roll of the Bald Mountain company generally contains from 90 to 100 names. Of these 85 are miners, receiving $3 per day. Thirty cars are employed in running out the gravel, which is dumped in the yard, at the mouth of the tunnel, and thence into the flume. This flume is 6,600 feet long, 17 inches wide, and 18 inches high, paved with blocks 16x16, and four inches thick. The gold, being as a general thing coarse, settles in the interstices of the blocks. No quicksilver is used in this class of mining. The usual head of water of the company is from 100 to 150 inches. The flume is cleaned up in sections, about twice a month, and a general clean up is made twice a year, when the worn out blocks are turned over or replaced. A set of blocks will last about ten months; but during this time they are turned over. The company own one mile of the bed of Oregon creek, below the end of the flume. The flume is built on a grade of six inches to 12 feet, equivalent to a fall of 225 feet for the entire distance of a mile and a quarter. The main tunnel is six feet three inches on the bottom by three feet eight inches on top and six feet in hight. The cars are four and a-half feet long, two feet wide, and two and a-half feet high, containing one cubic yard of loose dirt, which is equal to about half a yard of ground in place. Therefore, the result of $2.76 per car load by this company from April, 1872, to July, 1874, would be equivalent to $5.52 per cubic yard of standing ground.

In the same vicinity of this claim, Messrs. Hanlay, Crane & Co. are running a bed-rock tunnel, using a Burleigh drill and air compressor. North of Bald Mountain the Ruby company, a San Francisco company, Captain Wm. Irelan, Superintendent, are engaged in mining a bed-rock tunnel also.

PROFESSOR HILGARD ACCEPTS.—We are happy to announce that Prof. Hilgard has accepted the professorship of agriculture in the University of California. The State generally, and our great agricultural interests in particular, are to be congratulated on securing the services of one whose record gives assurance of competent ability to fill the high position which has been tendered him, and that he is an earnest practical worker, as well as a thorough scientist.

THE Consolidated Virginia mine extracted 1,584 tons of ore for the week ending Nov. 7th. Of this 1,713 tons were sent to the mill, and 756 tons remained in the ore houses. On the 7th inst. 59 bars of bullion were shipped from the mine, valued at $192,378.91.

DRIFTING has commenced on the bar at the entrance of Wilmington bay, although the work is progressing slowly.

Hammers.

Few people in using a simple hand hammer ever think of it as an engine giving out tons of force, concentrating and applying power by functions which, if performed by other mechanism, would involve trains of gearing, levers or screws; and that such machanism, if employed instead of hammers, must lack that important function of applying force in any direction tha will may direct. The general characteristic of all forging machinery is that of a great force acting through a short distance. The conditions of short range and great force are best attained by what can be called percussion machines, which act by blows instead of gradual pressure; and hence we find that hand and power hammers are the most common tools of a smith's shop. A hammer head may by its momentum give a blow equal to a dozen tons, and absorb the reactive force that is equal to the blow; but if an equal force was to be exerted by screws, levers or hydraulic apparatus, a very strong abutment would be required to withstand the reactive force.

This principle is somewhat obscure, and the nature of percussion forces not generally considered. Mr. J. Richards, of London, who is writing a series of articles on the principles of shop manipulation, for engineer apprentices, in *Engineering*, directs attention to percussive agents generally, and illustrates his subject by investigating the action of a simple hand hammer. He says that a simple hand hammer is in the abstract one of the most intricate of machanical agants; that is, its action is more difficult to analyse than that of many complex machines involving trains of machanism; but our familiarity with hammers makes us overlook this fact, and they have even been denied a place among those mechanical contrivances to which there has been applied the mistaken name of machanical powers.

Let the reader compare a hammer with a wheel or axle, inclined plane, screw, or lever, as an agent for concentrating and applying power, noting the principles of its action first, and then considering its universal use, and he will conclude that if there is a mechanical device that comprehends distinct principles, that device is a common hammer. It seems, indeed, to be one of those things provided to meet a human necessity, and without which mechanical industry could not be carried on. In manipulation of nearly every kind the hammer is continually necessary, in order to exert a force beyond what the hands may do unaided by mechanism to multiply their force. A carpenter in driving a spike requires a force of from one to two tons; a blacksmith requires a force of from five pounds to five tons to meet the requirements of his work; a stonemason applies a force of from one hundred to one thousand pounds in driving the edge of his tools; chipping, calking—in fact nearly all mechanical operations consist more or less in blows, and blows are but the application of accumulated force, expanded through a limited distance. As a mechanical agent a hammer concentrates the power of the arms, and applies it in a manner that meets the requirements of different kinds of work. If great force is required a long swing and slow blows accomplish tons; if but little force is required, a short swing and rapid blows will serve; the degree of force being not only continually at control, but the direction at which it is applied also. Other arrangements, if employed instead of hammers to perform the same duty, would from their nature require to be complicated machines, and act in but one direction or in one plane.

Machines or tools operating by percussive action, although they comprise a numerous class, and are applied in nearly all mechanical operations, have never received the amount of attention in text books that their nature calls for, nor their extensive use warrants. Such machines have not even been set off as a class and treated of separately, although the distinction is quite clear between machines with percussive action and those with what may be termed direct action, both in the manner of operating and in the plans of their construction.

STEVENS BATTERY.—On the 1st inst. the Commission appointed by the Legislature to sell the Stevens battery met at Trenton, N. J. and opened the bids received for this famous war vessel, which has been in construction since 1843 at Hoboken. Ten bids were received, and the bid of the United States Government of $125,000 was accepted, subject to the condition that an appropriation be made by the next Congress for the amount.

MINE SALES.—Advices from Unionville, Nev., state that Stumpley & Co. have sold the Millionaire mine to Hill Beachy. The price is said to be $40,000. Beachy has let a contract for a long tunnel to strike the ledge in a new place. Several sales of mining ground in the vicinity of the Eagle mine have been lately made to Oakland men.

COL. BUELL'S mill at Wallapai mountain, Arizona, is now in successful operation, under the management of Charles Pletz. No doubt, it is but the forerunner of other and larger mills.

IT is stated that an ice making machine, which will turn out ice at a remarkably small cost, will soon be put in operation in this city.

An Extension of the "Sphere."

An item is now going the roande of the press to the effect that four ladies of position in London have become house decorative artists. They undertake the whole furnishing, upholstering, and all that tends to embellish the interior of a dwelling. They are said to be remarkably clever and very successful. They have served a regular apprenticeship, and acquired a thurough knowledge of the business. We do not know why this idea could not be followed with success in other places than London. It certainly opens a new field of employment for women, and one which they are eminently fitted to fill. It is not, however, by any means necessary that they should be "ladies of position," but simply that they should possess what is called good taste. "Ladies of position" only too often lack this quality, and are apt to become "loud" and lavish of display. It is a great mistake to suppose that only people of wealth have good taste, because we see at their residences elegant furniture, paintings, carvings, etc., for this only shows that they have money to purchase the decorations for their houses. Of course possession of wealth is not a proof of lack of taste, since a majority of persons of wealth have had the advantage of a good education, which in itself amounts to a great deal in this direction.

There are plenty of women of cultivated tastes in the middle classes of society, who, with means at command, could embellish dwellings as elegantly as people of higher position. We often see evidences, in humble dwellings, of superior powers of discrimination in the arrangement of furniture, ornaments, etc. Women generally have a more delicate sense of the fitness of things in the interior of dwellings than men do, and are much more competent to attend to the necessary details. In most of our large cities employment of the kind referred to, would be found for a few women who made a business of it. A reputation in this line once acquired would be worth a fortune to the possessor. Naturally the wealthy classes would be the customers, and many of this class would be glad to give up the bother and annoyance of fitting up their dwellings, to some one who was competent to superintend the matter.

It often occurs that furniture dealers in large cities are commissioned to select carpets, curtains, furnitare, utensils and everything appertaining to domestic comfort, for parties who are fitting up new houses. These men can, being in the business, purchase at much less cost than casual customers, and the purchaser, after paying commissions, really saves money. This would be the case also if "female decorative artists" were common; as they could purchase from the wholesale men, or at reduced rates, and their fee would be saved by the buyer in the reduced price of his articles. The business would require no capital, and after a woman made a start and furnished a few houses in such a manner as to show her taste was good, she would have enough to do to keep busy most of the time. This is a branch in which women could make money respectably and easily. Of course it could only be followed in the cities, and there might be danger of overcrowding; but those with good judgment and taste could soon make a reputation for themselves, and have no fear of too much competition.

The Pacific Mail Steamship Co., several of whose vessels have lately broken their propellers, have come to the conclusion that it is cheaper to make repairs by means of a coffer-dam than by putting the vessels in the dry dock. The "Costa Rica" lately arrived with a broken shaft, and the expense of docking and loss of time would be considerable but for the adoption of this method. The coffer-dam was placed under the stern of the ship one day this week, and, by means of three steam fire engines, pumped out in less than two hours. The men can work with perfect safety in this box, detaching the propeller and do other repairs necessary, while the company by this simple contrivance, saves at least $5,000.

Wheeler's Expedition Reports. — Lieut. Geo. M. Wheeler, of the Engineer Corps of the United States, will soon have ready the first volume relating to natural history—collections and observations made during his famous explorations. The work is in course of preparation by Dr. Garrow, the naturalist, and the plates will be prepared by Prof. Ridgeway, of the Smithsonian Institute.

A large amount of railroad material is going forward to Sparta, the present terminus of the Southern Pacific track, and it is understood that the company intend pushing on the road to Cerro Gordo pass, a point fifty-two miles from Sparta.

A well known resident of Napa valley claims to have discovered a fine ledge in Calistoga district, the croppings from which assay a large amount in gold and silver, principally the latter.

Paid Off.—The Belcher mine disbursed among its employes last week the sum of $95,000, the Crown Point paid $82,000 and the Yellow Jacket $13,000.

The New Mint.

The old mint on Commercial street, in this city, was closed last week, and on Thursday of this week the new mint building on the corner of Mission and Fifth streets was opened for the reception of deposits. The work of removing the machinery from the old to the new mint has been completed, and General La Grange has taken possession of the new quarters. The "old mint" was built in April, 1854. It cost $300,000, and it was for some time regarded as a complete institution of its kind, until the increased yield of precious metals demonstrated the need of of a larger establishment and the introduction of the trade dollar proved its inadequacy to supply the wants of commerce in this direction.

The new building, which has a front on Fifth street of 217 feet, and on Mission of 160 feet 6 inches, stands on a concrete foundation of four feet in depth, and is what is called a two-story and basement. The basement walls are built of Folsom granite and are four feet thick. The exterior of the other stories is built of free stone, steel colored, or what may be more properly designated a light gray. They are three feet thick. The hight of the basement story is 12 feet in the clear, the first story 18 feet and the second 16 feet. The extreme hight of the parapet wall is 56 feet. The pediment is 19 feet high. The two main chimneys tower above the roof 68 feet, and are richly ornamented with cast iron to a hight of 24 feet. The frame of the roof is iron, which is covered with copper and tinned on both sides. The building forms a square around an interior court, 43 feet 9 inches by 42 feet 6 inch.

The appropriation for this mint was $1,500,000 and on its completion there was $30,000 left, a somewhat surprising fact in these days. There are four engines in the building and four boilers. The machinery was all made in this city by H. J. Booth & Co. The boilers are each 48 inches in diameter and 15 feet long. Each boiler has a steam drum 36 inches in diameter and 10 feet long, and a mud drum 20 inches in diameter and 7 feet long. The water is fed to each and all the boilers with two of Knowles' steam pumps; diameter of steam cylinders 10 inches, and of pumps 3¼ inches; length of stroke, 6 inches. In addition to the feed pumps each pair of boilers are supplied with a No. 6 Giffard's injector, as an additional security in case of accident to the feed pumps.

The largest engine, No. 1, is of the vertical beam type, with bed-plate 6 feet 4 inches wide, 20 feet 4 inches long and 24 inches deep, and weighs 22,000 pounds. The main shaft is 10 inches in diameter and 19½ feet long. The band pulley is 15 feet 2 inches in diameter and 32 inches face, turned inside and out, and weighs 16,000 pounds. The fly-wheel is 18 feet in diameter and weighs 20,000 pounds, and is turned on its face and edges. The cylinder is 20 inches in diameter and 45 inches stroke. It has a steam jacket cast around the outside to prevent the condensation of steam, and is cased with felt 1½ inches thick and covered with black walnut, held in place with silver bands 3 inches wide. This engine is 150 horse power. Engine No. 2 is a horizontal engine with a 12-inch cylinder, 24-inch stroke, and is used for running the drawing and punching machines, machine shop and grinding room. The third engine is used to run the machinery of the sweep cellars, and is a first-class design of a vertical engine. The cylinder is 8 inches in diameter and 12-inch stroke. Engine No. 4 is used for the assay office. The cylinder is 6 inches in diameter and 18-inch stroke.

Everything in and about the mint has been arranged in first-class permanent style. The machinery is not only strong and durable but elegant in design and finish. The various departments in the mint are perfectly fitted up and all the various appliances are the best of their kind. The building is very strongly built and is the largest and most elegant mint building in the world.

The Krom concentrator at Mineral Park is said to have done all that was claimed for it. It is now steadily at work on ore from Miaeral Park. Some of the ore from the Tigress mine at Cerbat was sent to the concentrator, and then tried at the Buell furnace at Cerbat, and there is now some talk of sending to San Francisco for one of those concentrators, to attach to the furnace.

There are 40 tons of ore at Los Angeles from the Surprise valley mine, at Panamint, which is to be sent to England by steamer via Isthmus. The ore is very rich.

PASSENGER PIGEON.

Territorial Pioneers.

Pioneer societies are institutions peculiar to this coast. People who came here in the "winter of '49 and spring of '50" want others to remember the fact, and are very tenacious of the distinction. There are quite a number of pioneer societies in the different towns of this State, and others have been formed in Nevada and elsewhere. The largest one of this class is the Society of California Pioneers, of this city. They draw a very close line as to who are pioneers and who are not, which does not suit everybody, so a new pioneer society was organized this week, under the name of the "Territorial Pioneers of California."

Its objects are to collect and preserve historical facts and information in connection with the early and subsequent history of the Pacific coast; to form a library for the diffusion of useful knowledge among its members, by means of various books of history and science, periodicals and journals published throughout the world. To form a cabinet of such minerals, geological and other natural substances as shall be obtained by the association. To pursue such literary and scientific objects, by means of lectures or otherwise, as shall be deemed expedient by the Board of Directors. Furthermore, to form a more perfect union of the pioneers of California in the bonds of friendship, and to cultivate social intercourse between them.

The by-laws provide that all white males who were residents of the Territory of California prior to the 9th day of September, 1850—the day of the admission of the State into the Union—and the male descendants of all such, of lawful age, shall be eligible to membership; all white persons, residents of this State, who served the United States in the war with Mexico in 1846 and 1847, through which war California was acquired, shall be entitled to honorary membership. The association may elect as honorary members such persons as shall have rendered distinguished or important service to the association or State. Members desiring the names of their children entered as "Junior Pioneers" shall deliver to the Secretary their full name, age and place of birth, to be recorded in the Book of Registry.

The officers for the first year are as follows: Capt. J. M McDonald, President; David Meeker, 1st Vice-President; D. A Kneass, 2d Vice-President; Dr. Williard, Secretary; C. M. Boyd, Treasurer; John Stratman, Marshal; Board of Directors: L J. Hardy, H. W. Byington, General Winchester, F. A. Bonnard, W. K. Black, T. Rogers Johnson, A. S. Iredale, C. W. Davis, John Wade and Messrs. Morton and Pearson.

The Passenger Pigeon.

The passenger pigeon, or wild pigeon, of America, ranges far to the north and south of the United States, and westward to the Rocky mountains; but is very rarely met with, except in communities of millions or billions, requiring for their roosting-place an immense forest, the trees of which are soon crushed and blighted by their weight. This extraordinary gregariousness is wholly inexplicable.

The home, or roosting-place of this pigeon, is selected with reference to the abundance of beech and oak mast in the vicinity; that is to say, within a few hundred miles; for it is alleged of them that they fly at the rate of a mile a minute. Indeed, although they digest rice in twelve hours, food of this kind, which must have been procured in the fields of South Carolina or Georgia, has been found undigested in the stomachs of passenger pigeons killed in New York. They do not regard climate, except as it affects the supply of food; and only change their place of resort on this account, notwithstanding that men with nets and guns capture and destroy them, or rake their lodging trees with poles, burn sulphur under them, cut down the trees, and by various other devices slaughter them by thousands. Sometimes they remain in a region of country for years, and are then absent from it as long, or until their new range evinces a scarcity and their former one becomes abundant.

In the evening the air is sometimes darkened by these birds, as by an eclipse of the sun; a rushing noise is heard, in the midst of which the sound of a gun cannot be distinguished; and the air is put in motion by the flutter of their wings.

As the supply of food alone determines the migrations, they do not occur at any particular season. The power of flight enables these birds to traverse and survey an astonishing extent of country in a very short time; their power of vision seems to be as great, enabling them to perceive with certainty the resources of the country with respect to the food they seek. Thus, in passing over an inviting field they at once descend near the earth, but as promptly ascend to take a more extended range, when a sterile region is beneath them.

Their period of breeding is not influenced by season; the place is selected with reference to the contiguity of food and water. Forest trees of great hight are chosen, and upon these a hundred nests are often built, frail structures composed of a few dry twigs crossing each other, and supported by forks of the branches.

The New Vegetable Market of San Francisco.

In a recent number of the PRESS we gave a brief notice of the opening of the new vegetable market of San Francisco, promising to give our resders a more detailed account of the organization under whose auspices the market was erected, with a description of the structure. Although the vegetable business of San Francisco has been immense, it has until recently been transacted under difficulties to which such men as compose the bulk of our vegetable producers would not submit. Fate seems to have pitched their tents, or their vegetsble wagons, on Sansome street, between Commercial and Pacific streets; sometimes extendiug beyond these boundaries, including four blocks. The location of the vegetable market at this plsce msy be accounted for by the fact thst the old Washington Market, once *the* market of San Francisco, wss in this vicinity, on the corner of Washington and Sansome streets. This old market embraced nearly all the meat, vegetable and fruit trade of the city, and included various other products. But the expansion of the city in size and general prosperity, necessitated the erection of mest markets in other localities. The principal part of the fruit business, however, still remains in stores in this vicinity, and custom seems also to have kept the vegetsble here, scattered slong the street, ss we have previously described. But he location wss not satisfsctory to any psrties concerned. The merchants of the neighborhood were annoyed by the obstructions which the vegetsble trade occasioned, and made strenuous efforts to accomplish its removal, but with little satisfsction. The seversl efforts that were made to trsnsplant those mountains of vegetables were failures; for the interests and convenience of the majority seemed to demand that the trade should remsin there until its removal could be effected in a more legitimate manner.

Meanwhile the market men and their customers were quite ss desirous of a change as the business men in the neighborhood; for in the rainy sesson especially they were subjected to much discomfort and inconvenience; and dnring the past summer messures were adopted which resulted in the erection of the new vegetable market. This wss opened under the most favorable suspices and with appropriate ceremonies, on Suudsy, October 4th.

The msrket is owned by an incorporated compsny, of which P. Limi is President, aud F. G. Picosroli, Secretary. The building is located on the block bonnded by Pacific street on the north, Clark street on the sonth, Front street on the west and Davis street on the east. The dimensions of the hnilding are 275 feet by 120 feet. It has 76 stalls of uniform size, esch heing 9 feet by 23 feet. None but ranchers and gardeners are allowed to occupy a stall, and every occupant must be a stock owner. The stalls are not rented hut all occupsnts are subject to a monthly assessment. Every stsll is now taken. Of the occupants of the 76 stslls 71 are Italisns, and 5 are Frenchmen; yet although the Italian nationality greatly predomiuates in numbers there is nothing clsnnish in the least ahout the establishment.

The entrances proper to the market are on Front and Davis streets. These are sufficiently wide to allow two wagons to go abreast. They are covered hy high and tastefully constructed arches and closed hy drop gates. On each side of this central passage the stalls are located; those on the north side opening on Pacific street, those on the south side opening on Clark street—tbese openings are also closed hy drop gates the full width of the stalls. All these gates, including those of the regular entrances, are closed and locked during all but business hours. They are opened from 4 to 6 P. M. to admit such wagons as arrive over night, and from 3 to 10 A. M., they are opened for marketing. Many of the occupsnts vacate their stalls before the allotted time, and as each wagon departs the men who have charge of the premises sweep the vacated stalls; and when the hour of closing a'rives, the well planked floor is swept clean of all vestiges of the hundred tons and over of vegetables that have been disposed of then and there. As was stated in our account of the outdoor market on Sansome street, the sales at this market are made almost exclnsively to those who huy to sell again, owners of local markets in all parts of the city, and peddlers who dispose of their stock in the suburbs.

The building is high and roomy. It is painted inside and out with white, with the exception of the gates, which are of green. The ground upon which it ie located was leased by the company for a term of ten years. Up to the present time $12,000 has been expended upou it, and further improvements in the prospective. The enterprise thus far has heen quite as successful as anticipated, and the company is in a flourishing condition. A large portion of the vegetables sold here are grown in gardens in the county og San Francisco; the balance is from ranches in San Mateo county. San Francisco's vegetable display has hecome renowned even as seen under the disadvantages of the old outdoor market on Sansome street. Now, thanks to our enterprising Italian vegetable growors, we have a place worthy of the splendid exhibit, and those who visit our city will now he able to eee another of its sights with appropriate surroundings.

Rich Quartz in Eureka Township.

There is considerable excitement at present in Enreks township, over recent discoveries in quartz. Mr. Snapp, who formerly kept a hotel at Eureks, hss locsted a claim on a ledge on the stage rosd, between Shan's Station and Eureka which is over a hundred feet in width. It is composed on the surface of decomposed quartz, slate, cab and dirt, and any of the dirt prospects very rich. A panfull of dust taken from the road which crosses the ledge, when washed showed a good prospect. It is thought the whole mass would psy twenty-five dollars a ton if washed off hy hydraulic procees. The discoverer has had many offers to put up machinery and s mill for an interest, but as yet he has made no move in that direction.

Another Discovery.

Phillip Foy, Mike O'Brien, John Egan and others, have recently discovered a large ledge which is situated about two miles east of Eureka near the Erie mine. It is ssid to be eight feet in thickness and pieces of free gold as lsrge as a ten cent piece are frequently seen in it. The parties were working in a ravine near hy, and one of them ascended the hill one dsy to a cliff of rocks near the top. While carelessly hammering whst was supposed to he a granite boulder a piece flew off and upon examination it proved to he qusrtz. The discoverers went to work and rnn a tunnel and have found what they suppose to he a ledge of great value. Extensions were recorded in the Recorder's office yesterday.—*Nevada Transcript.*

THE Flsgstaff mill, at Parley's Park, Utsh, is rspidly approsching completion, and Mr. Howland, the superinteudent, hss a large force of men taking out rich ore to be ready to start the mill when completed.

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Luxurious, well lighted and well ventilated Day Coaches, and pleasant lounging and smoking cars; all built hy this company in their own shops. The cars sre all equipped with the

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PATENT BUFFERS AND COUPLINGS,

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And every other appliance that hss been devised for the safety of pssenger trains. All trains sre run by telegrsph, and are so regularly on time that one can safely set his watch hy their arrivals or departures.

IN A WORD, THIS

Great California Line

Has the

BEST AND SMOOTHEST TRACK,

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Elegant and Comfortable Equipment

Of any road in the West, and has no competitor in the country. It is eminently the favorite route with Californians traveling East, and is ackoowl dged by the traveling public to be the popular line for

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10v8-1am-1y

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Ayer's Sarsaparilla,

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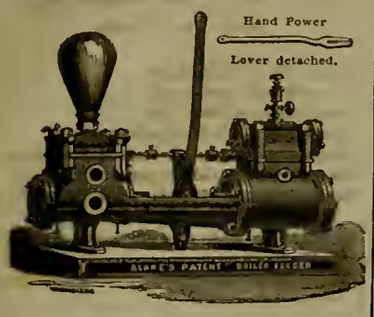

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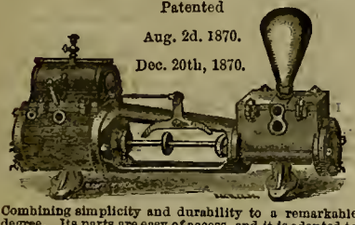

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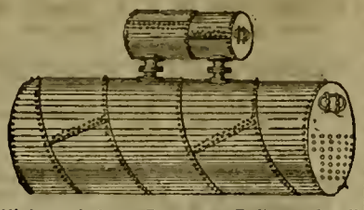

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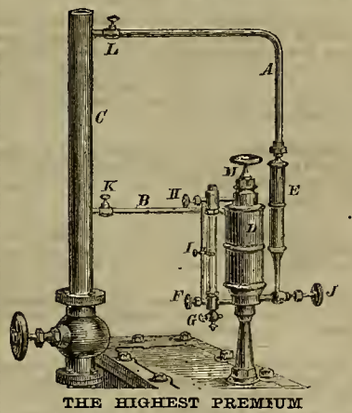

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Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23t

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SWEEPING DREDGE,

A NEW AND VALUABLE

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Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a *basis* of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

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Have always on hand a large Stock of

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Webster's Patent Combined Wrench

This tool can be used as a Pipe Cutter Ordinary Wrench, (by removing the tools,) also as a pair of Tongs for screwing up Pipe, Iron Rods, etc., combining three tools in one, at one-third the expense of the tools to do the same work. They are made of the best material, in the best manner.

12 inch, complete with tools, takes	⅛ to ¾	pipe,	$48	₱ doz.
15 " " " "	⅛ to 1¼	"	60	"
18 " " " "	⅛ to 1½	"	60	"
21 " " " "	⅛ to 2	"	72	"
	⅛ to 2½	"	84	"

Liberal discount to the trade. Address

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Receive consignments of Gold, Silver and Lead Bullion, and make Cash advances thereon.

Invite Correspondence from Bankers, Mining Companies, Merchants and Smelting Works.
12v27-1y

French Savings and Loan Society,

411 Bush street, above Kearny..... SAN FRANCISCO

4v27tf G. MAHE, Director.

General News Items.

Increase of Population.—Ths incrsase of popnlation to California is grsater from yesr to year. Our popnlation is now only about 800,000, wbile we have ssvsral single countiss each nearly as large as the State of Massschusetts, wbich contains a population of 1,500,000, San Bsrnardino county is larger than Massachussttş. To show how San Frsncisco isgrowing we may ssy tbst one singls building associstion in this city —tbe Resl Estate Associstes— havs erected 267 houss during the past ysar, all ssparate gsntsel dwellings two and three stories higb; whils they sxpsct to erect svsn a larger number nsxt year. California will, in a few ysars, becoms ths riobest and most popnlous Stats in the Union.

Large Bunches op Grapes. — A bnnch of Black Hambnrg grapes was lately sbown at the Great Internationsl Horticultnrsl Exhibition, at Belfast, which weighed 20 ponnds 12 onnces. This was fnrnished by Mr. Hnnter, of Lambton Castle, and exceeds the wsight of Speechly's cluster of Syrian by about a pound. Setting asids the fact that the latter variety is a mnch coarser graps, bearing large clnsters nnder the most ordinary cultivation, the analogy between the two grapes in this case is similar to that existing between a Queen Pins and a Providence. This clustsr is the largest as yet grown in Britain, and, like the celsbrated fifteenpond Providence Pioe grown at Gunnersbury by Mills, will long be remsmbered as a triumph in ths history of fruit culture.

Hay for Fuel.—The bay in some parts of Iowa is so abnndant and cheap that it has bsen found more economical as a fuel for steam purposss, than peat or any otber substancs. One enterprising invsntor wishes to know if he can obtain a patsut for the idea of using hay for fnel in steam boilers. He thinks it new in the annals of steam enginsering to nse hay for firing. Patents have been taken out in California for nsing straw for steam fuel —the same will, of course, apply to bay—moreovsr, snch fnel has been fonnd both effective and economical.

More Land Fon The Market.—Ths oommissioners appointed to inspect the U. P. R. R., will soon report that the road has besn compellsd in accordance with ths Act of Congress; when the land grant—some 12,000,000 acres—will he confirmed to the company. Much of this land will nndoubtsdly be soon sold to settlers, which will rapidly increass popnlation in that direction. This can scarcely prove otberwise than bsnefi.ial to the State.

A Terrible Tragedy.—One Edward Maguire, a shosmaker, of this city, who has livsd apart from his wife, sought her out on Sunday last; found her at hsr temporary home with a respsctable family, chased her from the bouse with a gun, and finally shot her in the midst of her flight and cries for assistancs. Tbe brute was arrested by witnesses upon the spot, and waa to hsvs had an examinatiou on Thursdsy.

Holding Back Grain.—Like the farmers of California those of the West seem disposed to hold tbsir graiu rather than sacrifice it at rates at present ruling, and a Chicago paper lately reported five miles of cars side tracked upon three of the rosds centering in that city, for lack of work.

The Three Brothers.—This nohls ship, which left San Francisco October 12th, 1873, witb the largsst cargo of wheat wbich was ever put on board of a single ship, returned again the past wsek, having hsen absent 380 days. The "Three Brothers" is now the largest sailing ship afloat.

Our California spring bas come. In Oakland tbe strests are already linsd with new green grass. Dandelions are in perfect bloom. The latter, contrary to their Eastern sisters, go to sleep daily, about nine A.M., in snnshiny weatber.

Land Suit.—An important land suit has bsen commenced by George W. Dent, against the Pacific railroad, John B. Felton and othsrs for possession of the marsh laud composing the Oakland and Alameda water front.

The Postoffics Department hss abandonsd the idea of making tbst Department self-sustaining, for the pressnt at least. The great difficulty in ths way of rstrenchment liss in the qnestion of newspapers and other printed mattsr.

Won't Give it Up.—An exchange says: Three-card monte sharps have made up a pnrse to fight the Union Pacific and Central Pacific Railroad companies, and intend to employ eminent connsel.

The late political ontbreak of popular npinion has created considsrabls snrprise and no little consternatiou in England and tne Europsan Continent. Its msaning is not yet fully understood.

The Young Prince Napoleon Betrothed. Ths marriage of the Princs Imperial to a danghter of the Russian Grand Duchess Marie is mentionsd in Bonapartist circlss as a probable event.

The Palace Hotel.—Work npon this strnctnre is progressing with the ntmost vigor. The force employed upon ths hotsl, sxclnsive of ths snperintsndent and his staff, clsrks, mssssngers, book kespers, etc., is about 1,300, of whioh number about 160 ars hoys who are engagsd as apprentiess in lathing. In sddition to this nnmber, a large contract forcs ars sngaged on the cornice work, and many mors directly in tbe msnufactnrs and transportation of material. The cslcnlation is made that no less than 10,000 persons, men, womsn and children, srs at present depsndent npon the cnrrent disbursmsnts of the Palace Hotel enterprise. Moreovsr, when this work is completsd, ths ssms parties havs in contsmplation other imnrovements on a similar gigantic scale, whicb will requirs tbe ssrvices of all those peopls for years to coms. Ths era of great and psrmanent improvsmsnt bas now fairly dawned npon Californis, and will continne to inorease for generations to come.

Rye por Hay.—As sesding time is approaching, we wish to give a hint abont raising rye for hay. Mr. Snndsrland, of Murphy's cañon, west of Gilroy, has sowed rye with the best of sncsss for several ssssons. It is liked as well as whsat. After one season's use by livery men thsy considsr it desirable. One important thing in its favor is the fact that sqnirrels do not molest it nnless it is allowed to fully ripen. On the billy land in that section it produces a larger crop. It requires cntting promptly at a season before ripe, and should not be allowed too long in tbe cock. Rye shonld he tboronghly tried by all hay raissrs on footbill lands.

Oregon has now an unpaid Board of Immigration Commissioners, appointed by the Governor in accordance with an act pssssd by the Stats Legislature during its recsnt session. The nbject of the Board is to sncourags immigration into that State.

Heavy Tolls.—Tbe farmsrs of Sntter county complain of ths tolls on the Feather river bridge.

Wm. Thomas, of Los Angeles, is msking arrangsments to plant an orcbard of 50,000 acres.

The Central City *Register* says tbe valns of the gold bullion shipped by the banks of tbat city for the week ending Novembsr 4th, was $45,000. This is $19,200 in exoss of tbe preceeding week's shipments, and $1,000 above the avarags of weekly shipments for ths cnrrent year.

According to ths newspapers they are finding ladges in Napa county the croppings from which assay $7,000 per ton. Tbe man who makes the statsmsnt to the Vallejo *Chronicle*, although a well known rssident of Napa valley, refnses to lst his name bs used. Ssnsible in ons thing, at any rate.

The safsty cage of the Ophir mine was well tested the othsr day, whsn a oage witb a car of ore was being hoisted and the cable broke. The cage did not fall half an inch, tbrongb tbe efficiency of the safety apparatns.

They are finding free qnicksilver in the bottom of wells in Sonoma county. Tbey will find it ready "flasked" next; bnt why don't tbey find enough of it to bring the prics lower than $1.55 per ponnd.

Jas. S. Kelly, assayer, of Seattle, reports lats discoveries of silver mines on Silver creek, a tribntary of Skykomish river, and also of placsr mines. A company will he organized to work the new mines.

The Redington quicksilver mining company shipped during the month of October 1,000 flasks of qnicksilver. Ths nsnal shipment has been about 600 flasks.

Several chrome iron mines havs lstely heen discovered in ths vicinity of Calistoga. The hills south of tbe town are reported to contain large qnantities.

There was coined at the Carson Mint dnring October $541,000 in gold and silver, the largest amount ever coined at tbat instituton in a single month.

During the month of October 2,798 car losds, or 19,585 tons of ore, were shipped over the Virginia and Tnckee railroad to mills at Silver City and on the Carson river.

The amonnt of qnartz sold in Helena, Montana, dnring the past six months has placed over $150,000 in circnlation.

Prepanations ars being actively made to open np a number of hydraulic claims in the vicinity of Jackson, Amador county.

A gold bearing ledge bas been discovered in Santa Rosa township, Sonoma county.

Rich quartz discoveries have been mads lately in Eurska Township, Nevada county.

Sonoma county has nine tanneries in operation.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Nov. 10th, 1874.

For Week Ending Oct. 27th, 1874.*

Machine for Molding and Pressing Bituminous Compounds.—Rodman Gibbons and Robert Skinnsr, S. F., Cal.

Heater for Cheese Vats, Etc.—Geo. Harris, Pstalnma, Cal.

Ben Lounge.—John Hoey, S. F., Cal.

Apparatus for Suspending Tobacco.—Sebra Mathswson, Gilroy, Cal.

Scale for Weighing Coins.—Wm. Schmolz, S. F., Cal.

Stone-Splitting Machine.—Stephen S. Brooks, S. F., Cal.

Machine for Turning Globular Forms.—Andrew J. Kane, S. F., Cal.

Dust Cap for Watch Regulatobs.—Wenzel H. B. Sebmied, Napa, Cal.

Socket for Broom Handles.—Henry Anderson and James F. Houghton, Sacramento, Cal.

Gate Latch.—Edward Halsey, San José, Cal.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issne.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time poesible (by telegraph or otherwise) at the lowest rates. All patent bnsinees for Pacific coast inventors transacted with perfect security and in tbe ehortest time possible.

From an Inventor.

The following lsttsr, which was rscently received from an old client of Dewey & Co., now residing in one of the Eastern States, speaks for itsslf, and will do more, perhaps, to convince inventora of onr capacity for business than any nnmber of local compliments. We extract as follows:

Gentlemen: It was throngh your house that I secured my first patent, and although I have since done bnsinsss here in the Atlantic States with tbe ahlest patent solicitors—gentlemen who have done ms justice—yet I have often regretted that yon wers too far off to advise with me in my cases. It has taken a longer time with every patent I have taken ont since I left California and cams Esst, than in ths cases you preparsd for me in San Francisco, which is certainly vsry creditable to you.

By the way, one of my patents has passed the ordeal wbich is the essential test of a patent's valne. I mean that of a trial in tbe conrts, and it stood the battling of ons of the best lawyers in the conntry. The specifications and claims wsre completely made out and there was a psrfect comprehension of its principle dnring the trial. Since giving it this test we thought that we wonld make it even stronger, if possible, and submitted it to one of the best patsnt solicitors for advice. After a careful examination of tbe oass he advised ns to let it alone as it stood, saying that whoever made np those papers nnderstood their bnsiness. I then informsd him that they were drawn np by Dewsy & Co., of San Francisco, and he replied that he knew you well by reputation. * * * * * Very truly yonrs,

L. L. Sawyer.

Meriden. Conn., May 16, 1874.

Copper Smelter.—A new furnace has been built at Riverside, Utah, to smelt coppsr ores from San Francisco district, as that metal is fonnd in large qnantities in that camp. This furnace was bnilt, and is owned and now managed by Mr. W. Willlams, a gentlsman who has had yeara of expsrience.

Mining Sales.—A sale of soms good mining property in San Francisco district, Utah, has recently been effected with some moneyed men from the East.

During October the nnmbsr of throngh passengsrs nver the Csntral Pacific railroad was: Going East, 2,456; coming West, 7,495.

The largest plats of glass ever mannfactured in the United States was recently cast in Indiana. It is 184x91 inches.

A collection of minerals from all tbe mines in Nevada will be represented at tbe Centennial exhibition.

Ma. Alvinza Hayward retnrnsd from Japan on the last steamer, with rsstorsd health.

At Salt Lake, October 31st, the first iron evsr mannfactnrsd in Utah was shipped Esst.

Plaven Out Nostrums—Will codfish oil cure consumptive cough? No! Will opiates? No!! Will inhalation? No!!! Can such a cough be cured at all? Yes, it can. Reject all these nostrums; they have been weighed in the balance and found wanting. Try *Hale's Honey of Horehound and Tar*. Thousande upon thousands are using it. Millions have tried it. So far it has never disappointed any man or woman who took it for a cough or cold however violent.

Pike's Tooth-Ache Drops—Cure in one minute.

DEWEY & CO.,

American and Foreign

Patent Agents.

No. 224 Sansome St.

SAN FRANCISCO.

Patents Obtained Promptly.
Caveats Filed Expeditionsly.
Patent Reissnes Taken Ont.
Patents Secursd in Foreign Lands.
Assigamsnts Msde and Recorded in Lsgal Form.
Copies of Patsnts and Assignments Procured.
Examinations of Patents made here and at Washington.
Examinations made of Assigaments Recorded in Washington.
Examinations Ordered and Reported by Telegraph.
Interferences Prosecnted.
Opinions Rendered regarding the Validity of Patents and Assignments.
Rejected Cases taken np and Patents Obtained.
Every Legitimate Branch of Patent Agency Bnsiness promptly and thoronghly oondnoted.
Send por Cirgular.

Hints about Advertising.

If you have goode to eell farmers, how mnch better will it pay you to advertise in a farming paper, closely read by 15,000 intelligent farmers, than in miecellaneous daily or weekly journals with 30,000 readers, comprising only 2,000 farmers. A mining journal in California with 15,000 readers reaches more intelligent miners than any other 10 papers in the Union.

Purchasers are more likely to look for information in the advertising columns of a paper devoted to their special interests, than elsewhere, when ready to buy. Some will not read advertisements upon any other occasion, but seek the best paper when wanted.

If you happen to be the only advertiser in your line of business in a paper, all the better. But if several firms advertiee the same, your own jndgment will question whether you can best afford to go unrepresented.

Weekly journals are read most leisurely and carefully, and at a time when the subscriber is most favorably inclined to examine advertisements. The newspaper most especially representing your particular branch of industry is usually best entitled to your patronage, and the most profitable medium you can employ.

An advertisement in an honest and handsome sheet is favorable to the reputation of the advertiser. The readers of the Press are a superior and industrious class, who are able to purchase and who seek to patronize the best and fairest dealing tradeemen.

Advertising in cheap priced mediums (of limited circulation) is like bnying goods at retail when you could as well take them at wholesale.

Information imparted to a list of superior and intelligent and active and industrious readers (naturally looked up to by others for information), is seed sown in good soil for the advertiser.

Fame and fortune are gained, nine times in ten, by liberal and judicious advertising.

Our Agents.

Our Friends can do much in ald of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none bnt worthy men.

L. P. McCarty—General Agent.
W. H. Rattenbeary—California.
Chas. W. Cite—Contra Costa County.
Chas. T. Bell—Alameda, Santa Clara and Santa Cruz Counties.
J. W. Anderson—Orange and Santa Ana, in Los Angeles County, Cal.
Hoon Alston—San Luis Obispo, San Bernardino and San Diego Counties.
Jas. Kearney—Amador, Calaveras, Tuolumne and Mariposa Counties.
B. Goodwin—Sacramento County.
S. G. Crawford—Nevada, Sierra and Plumas Counties.
J. G. Kelley—For Washington Territory.
B. W. Crowell—California.
F. B. Alderson—Nevada.

The Scientific Press.—This valuable journal entered upon the seventeenth year of its publication on the 4th of July. The steady advance in character, that every reader has noticed in the paper, renders it unnecessary to make any splurge of improvement, and the publishers simply content themselves with the announcement that they will continue to make their paper as interesting as possible. That it is interesting to a large class of readers, the wide circulation and extensive influence of the Press, is sufficient evidence.—*Placer Argus*.

New Inventions!

Of real merit, if brought plainly before the pnblic when fresh, are most likely to become profitable to the patentee. For this reason, patentees (of worthy devices) should have the best of Engravings Made, and published in the Press. Snperior Engravings Made, at reasonable rates, by artists in this office bp-tf

THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchass of Placer and Qnartz Mines and Agricultural Lands in Mining Districts of the U. S., printed in circular sheet, for sale at this office. Sample copies, 25 cts

Wand Cuts for Sale.

We are willing to sell a large number of the wood cuts and electrotypes which have appeared in the Press, on very liberal terms to publishers abroad, and would invite correspondence on that business.

Truckee, Cal., July 10, 1874.

Messrs. Dewey & Co.—*Gentlemen:* My patent is just received, and is entirely satisfactory. Permit me to tender you my sincerest thanks for the care and attention, the promptness and interest you have displayed in managing my affairs. Gratefully yours

O. F. McGlashan.

For State of Nevada.—We have appointed Mr. F. B. Alderson our especial agent and correspondent for the State of Nevada. He will visit our friends and patrone there soon.

METALS.

WEDNESDAY M., Nov. 11, 1874.

American Pig Iron, ₱ ton	—	@	42 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig, ₱ ton	—	@	42 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ lb	—	@	— 3½
Refined Bar, good assortment, ₱ lb	—	@	— 4
Boiler, No. 1 to 4	—	@	— 5½
Plate, No. 5 to 9	—	@	— 5½
Sheet, No. 10 to 13	—	@	— 5¾
Sheet, No. 14 to 20	—	@	— 6¾
Sheet, No. 24 to 27	—	@	09 —
Horse Shoes, per kg	7 50	@	8 00
Nail Rod	— 9½	@	— —
Norway Iron	— 8	@	— —
Rolled Iron	— 6	@	— —
Other Irons for Blacksmiths, Miners, etc.	—	@	— 4½
COPPER.—			
Brazier's	— 31	@	— 32
Copper Tin'd	— 45	@	— —
O. Nail's Pat	— 50	@	— —
Sheathing, ₱ lb	—	@	— 24
Sheathing, Yellow	—	@	— 25
Sheathing, Old Yellow	—	@	— 12½
Composition Nails	— 24	@	— —
Composition Bolts	— 24	@	— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	13 00	@	14 50
Plates, I C Charcoal	12 75	@	14 50
Roofing Plates	11 50	@	14 00
Banca Tin, Slabs, ₱ lb	31	@	33
STEEL.—English Cast, ₱ lb	20	@	25
Anderson & Woods' American Cast	10	@	17
Drill	18	@	22
Flat Bar	18	@	22
Plough Points	16	@	17
ZINC	—	@	—
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	— 5¾	@	— 8
QUICKSILVER, per lb	—	@	1 45

GENERAL MERCHANDISE.

WEDNESDAY M., Nov. 11, 1874.

BAGS.			
Eng. Stand Wht	—	@	12
Detrick's Machine			
Sewed, 21x36 E	—	@	12½
do 22x36, do E W	—	@	13½
do 20x40, do A	—	@	13¾
Flour Sacks ½s	9½	@	11½
" " ¼s	6	@	7
Stand. Gunnies			
double seam	15	@	15½
single seam	13¾	@	14
" Wool Sacks	60	@	67½
Barley Bags 24x36	—	@	14
do 22x40	—	@	14½
do 24x40	—	@	15
do 24x36	—	@	16
Oat Bags, 24x40	16	@	16½
do 28x36	—	@	17
Hessian 40-in. gds	9½	@	10
do 45	10½	@	11
do 60	—	@	15
CANNED GOODS.			
Assted Pin Fruits			
in 2¼ ₱ cans	2 75	@	— —
do Tablin do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	—	@	3 50
Sardines, qr box	1 85	@	— —
do half boxes	3 25	@	— —
COAL—Jobbing.			
Australian, ₱ ton	10 50	@	11 00
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11 —
Cumbsrl'd, cks	—	@	18 00
do bnk	16 00	@	17 00
Mt. Otablo	6 25	@	8 50
Lehigh	—	@	11 00
Liverpool	10 50	@	11 —
West Hartley	9 50	@	10 00
Scotch	10 00	@	11 00
Scranton	—	@	11 00
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ sk	76	@	—
Coke, ₱ bbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Osntral Americ'n	19	@	20
Costa Rica per lb	19	@	22½
Guatemala	19	@	20½
Java	—	@	27
Manilla	19	@	20
Grounds in cs	—	@	27
Chicory	9	@	10
FISH.			
Pac. Ory Cod, new	5	@	—
cases	—	@	—
do honeleee	11	@	12
Eastern Cod	—	@	—
Salmon in bbls	9 00	@	25
do ½ bbls	4 50	@	4 75
do 2½ lb cans	3 00	@	—
do 2lb cans	2 65	@	2 75
do 1lb cans	1 75	@	—
Do Oil, ½ lb	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No. 1, ½ bbls	8 00	@	8 50
" Extra	9 00	@	9 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½ bbs	12 00	@	—
Sm'k Herr'g, hf. bx	50	@	60
NAILS.			
Assorted size, lb	4 37½	@	7 50
OILS.			
Pacific Olne Co.			
Neat Pt's No. 1	—	@	90
Pure	—	@	—
Castor Oil, No. 1	—	@	75
do do No. 2	—	@	1 60
Cocoanut	—	@	65
Olive Plagrol	5 00	@	—
do Possel	4 75	@	—
Palm lb	9	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in cs	82½	@	88
Sperm, crude	—	@	1 40
do bleached	—	@	2 20
Coast Whales	60	@	—
Polar refined	50	@	55
Lard	1 15	@	1 30
Coal, refined Pet	37½	@	—
Cleophina	20	@	23
Devoe's Brill	25	@	28
Long Island	20	@	23
Eureka	—	@	—
Devoe's Petro'm	20	@	23
Barrel kerosene	20	@	23
Olive	4 80	@	9 50
Downer Kerosa's	—	@	37
Gas Light Oil	—	@	26
PAINTS.			
Atlen. W. Lead	6	@	10
Whiting	—	@	2
Putty	4	@	5½
Chalk	—	@	2½
Paris White	2¾	@	—
Oohre	2	@	6
Venetian Red	2½	@	—
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ₱ lb	6½	@	6¾
do 2, do	5½	@	6¾
Japan	—	@	6½
Siam Cleaned	5½	@	—
Patna	5¾	@	5¾
Hawaiian	7¼	@	8
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	22 00
do coarse	16 00	@	—
SOAP.			
Castile ₱ lb	10	@	11
Local brands	5	@	8
SPICES.			
Cloves	45	@	50
Cassia	25	@	27
Citron	25	@	30
Nutmeg	1 20	@	1 25
Whole Pepper	18	@	19
Pimento	—	@	13½
Gr'nd Allsp'ice	—	@	12½
do Cassia do	—	@	1 50
do Cloves do	—	@	1 50
do Mustard do	—	@	1 20
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	2 00
SUGAR, ETC.			
Cal. Cnhe per lb	11½	@	—
Parz' Pro. Cnhe			
hhl or 100 lb hre	—	@	11¾
do in 50 lb bxs	—	@	12
do in 25 lb bxs	—	@	12¼
Circle A crushed	—	@	11½
Powdered	—	@	11¾
Granulated	—	@	11
Dry granulated	—	@	11½
Hawaiian	8	@	10½
California Bact	—	@	—
Golden C	—	@	—
do Reg'r grade	—	@	60½
Cal. Syrup in bls	—	@	70½
do in ½ bls	—	@	67½
do in kegs	—	@	75
Hawaiian Molasses	25	@	27½
TEA.			
Oolong, Canton, lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moynne	60	@	90
Gnnpo'der, Cant	30	@	42½
do Pingsney	50	@	90
do Moynne	65	@	1 25
Y'ng Hy, Canton	29	@	40
do Pingsuey	40	@	70
do Moyone	65	@	85
Japan, ½ ohests, bulk	30	@	75
Japan, lacquered hxs, ½ and 5 lbs	45	@	67
Japan do, ½ lb hxs	45	@	90
do pl'n bx, ½ lb	35	@	65
do ½ lb paper	30	@	55
TOBACCO—Jobbing.			
Bright Navys	50	@	55
Dark do	50	@	55
Dwn f Twist	65	@	70
12 inch do	60	@	70
Light Pressed	65	@	75
Hard do	50	@	60
Conn. Wrap'r	35	@	40
Penn. Wrapper	30	@	45
Ohio do	15	@	20
Virg'a Smok'g	45	@	75
Fine cut ohewing, hue's	85	@	90
Fine cut ohewing, hue's	75	@	90
Banner fine cnt	90	@	9 25
Eureka Cala	—	@	9 00
TURPENTINE.			
Eastern	65	@	70

LEATHER.

WEDNESDAY M., Nov. 11, 1874.

City Tannsd Leatbsr, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@28
Country Leather, ₱ lb			24@25
Stockton Leather, ₱ lb			25@29
Jodot, 8 Kil., per doz	$50	00@	54 00
Jodot, 11 to 19 Kil., per doz	66	00@	90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55	00@	72 00
Cornellian, 12 to 16 Ko	57	00@	67 00
Cornellian Femaies, 12 to 13	63	00@	67 00
Cornellian Femaies, 14 to 16 Kil	71	00@	76 50
Simon Ulmo Females, 12 to 13, Kil	60	00@	64 00
Simon Ulmo Females, 14 to 15, Kil	70	00@	72 50
Simon Ulmo Females, 16 to 17, Kil	73	00@	75 00
Simon, 18 Kil., ₱ doz	61	00@	63 00
Simon, 20 Kil. ₱ doz	85	00@	87 00
Simon, 24 Kil. ₱ doz	72	00@	74 00
Bohnt Calf, 7 and 8 Kil	35	00@	40 00
French Kips, ₱ lb	1	00@	1 15
California Kip, ₱ doz	40	00@	50 00
French Sheep, all colors, ₱ doz	8	00@	15 00
Eastern Calf for Boots, ₱ lb	1	00@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9	00@	13 00
Sheep Roans for Linings, ₱ doz	5	50@	10 50
California Russett Sheep Linings	1	75@	4 50
Best, Jodot Calf Boot Legs, ₱ pair	5	00@	5 25
Good French Calf Boot Legs, ₱ pair	4	00@	4 75
French Calf Boot Legs, ₱ pair	4	00@	—
Harness Leather, ₱ lb		30@	37½
Fair Bridle Leather, ₱ doz	48	00@	72 00
Skirting Leather, ₱ lb		33@	37½
Welt Leather, ₱ doz	20	00@	50 00
Buff Leather, ₱ foot		17@	23
Wax Side Leather, ₱ foot		17@	23
Eastern Wax Leather		—@	— —

The Mining & Scientific Press

Started in 1860, is one of the oldest weekly journals now published in San Francisco. It has been conducted by its present proprietors for ten years, during which period it has been repeatedly enlarged and constantly improved. The active and steadfast efforts of its publishers have gained for its conduct an amount of practical experience greater than any other publishers have accumulated on this coast, of a weekly journal.

The sum paid by us for the best editorial talent obtainable for our special class journal; for engravings, for interesting news and correspondence, and for printing a large-sized, handsome sheet, is unequelled by that of any other American weekly west of the Mississippi.

As a PRACTICAL MINING JOURNAL it has no rival on this Continent.

It is the only MECHANICAL, and the only SCIENTIFIC Journal of the Pacific States.

Miners, Assayers, Millman, and Metallurgist in the United States should take it.

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Mining Engineers, Superintendents, Metallurgists, Mine Owners and Mine Workers throughout the world should profit by its illustrations and descriptions of New Machinery, Processes, Discoveries and Record of Mining Events.

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No. 224 Sansome street, S. F.

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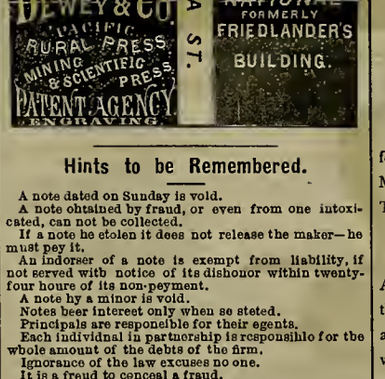
DEWEY & CO., Publishers,
No. 224 Sansome St., S. F. 3p-tf

Location of Dewey & Co.'s New Offices since July, 1874.



Hints to be Remembered.

A note dated on Sunday is void.
A note obtained by fraud, or even from one intoxicated, can not be collected.
If a note be stolen it does not release the maker—he must pay it.
An indorser of a note is exempt from liability, if not served with notice of its dishonor within twenty-four hours of its non-peyment.
A note by a minor is void.
Notes beer interest only when so steted.
Principals are responsible for their egents.
Each individual in partnership is responsible for the whole amount of the debts of the firm.
Ignorance of the law excuses no one.
It is a fraud to conceal a fraud.
The law compels no one to do impessibilities.
An egreement without consideration is void.
Signetures in leed pencil are good in law.
A receipt for money is not legally conclusive.
The acte of one partner bind all the others.
Contracts made on Sunday can not be enforced.
A contrect made with a minor is void

FROM AN INVENTOR.

PLACERVILLE, October 3d, 1874.

MESSRS. DEWEY & CO.—*Gentlemen:* Yesterday I received from you my Lettere Patent for my Hydranlic Mining Lamp, and I berewith tender you my grateful acknowledgements for the energy and promptness which you heve displayed in working seid invention through the Patent Office for me; and shall in the fui re, as well as the past, recommend all parties having inventions, to go direct to the office of Dewey & Co., and ask for Mr. Boone, in the Patent Department, and if he cannot procure a patent for them they will find it useless to try further. Yours Respectfully,
O. B. BROWN.

THE MINING AND SCIENTIFIC PRESS, San Francisco, we regard as the best paper for miners published anywhere in the world. Subscribers should be careful to put on file each number; and each year's edition, bound in a volume, would prove a most valuable book to all reading men engaged in mining or in the reduction of ores.—*Boulder News.*

Scientific and Practical Books on Mining, Metallurgy, Etc.

Published or issued, wholesale and Retail, by DEWEY CO., MINING AND SCIENTIFIC PRESS Office, S. F.

BY GUIDO KUSTEL,
MINING ENGINEER AND METALLURGIST.

Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quick silver. 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus.

It is a work of great merit, by an author whose reputation is unsurpassed in his speciality.

Price $2.50 coin, or $3 currency, postage free

Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

This work is unequaled by any other published, embracing the subjects treated. Its authority is highly esteemed and regarded by its readers; containing, as it does, much essential information to the Miner, Millman, Metallurgist, and other professional workers in ores and minerals, which cannot be found elsewhere in print. It also abounds throughout with facts and instructions rendered valuable by being clearly rendered together and in simple order. It contains 120 diagrams, illustrating machinery, etc., which alone are of the greatest value. PRICE REDUCED TO $5.

Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada, with full explanations and directions for all metallurgical operations connected with silver and gold from a preliminary examination of the ore to the final casting of the ingot. Also, a description of the general metallurgy of silver ores. 1864.

As its title indicates, this work gives a wide range of information, applicable to all vein miners and workers in precious metals, affording hints and assistance of exceeding value to both the moderately informed and the most expert operator.

Price, $5 in cloth; $6 in leather—coin.

BY OTHER AUTHORS.

The Quartz Operator's Hand-Book; by P. M. Randell. 1871. Revised and Enlarged Edition. Cloth bound, 175 pages. Price, $2.

Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked; with a Chapter on the Blow-Pipe Assay of Minerals. By Wm. M. Barstow, M. D.; 1867; cloth bound, 114 pages. Printed and sold by DEWEY & CO. Price, $1; postage free. The best written work, and most complete work on the subject treated.

ANY OTHER BOOKS DESIRED will be furnished at the most reasonable rates by DEWEY & CO., Mining and Scientific Press Office, S. F.

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A portion of the work, which can be finished thereby more perfectly than by the eye and hand alone. Our patrons can depend upon first-class work always, and at reasonable prices. Samples can be seen at our office.

DEWEY & CO.

A COMPLIMENT.

PLAINSBURG, MERCED CO., CAL., June 22, 1874.

DEWEY & CO.—*Gentlemen:* I herewith tender my grateful acknowledgements for the energy, promptness and efficiency which you have displayed in procuring my patent.

Although you were entire strangers to me when I first communicated with you, I soon felt satisfied you were gentlemen of integrity, and shall always be happy to represent you as such. Very truly yours,
H. W. RUCKER, M. D.

To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874,** provides that in addition to the regular publication of the assessment and sale notices as heretofore.

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.
June, 1874.

Mining and Other Companies.

Cincinnati Gold and Silver Mining Company.

Location of principal place of business, San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-fifth day of September, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Clapp, R W	27	100	$2 50
Clapp, R W	28	50	1 25
Ganz & McLaren	63	100	2 50
Ganz & McLaren	64	100	2 50
Ganz & McLaren	66	100	2 50
Ganz & McLaren	67	100	2 50
Ganz & McLaren	68	100	2 50
Hinckley, G E	54	300	7 50
Hinckley, G E	66	25	63
Hudson, G B	24	100	2 50
Hudson, G B	42	400	10 00
Hudson, G B	46	250	6 25
Hudson, G B	74	500	12 50
Hudson, O B	76	250	6 25
McLaren, J C	48	25	62
Penniman, Mrs Mary	67	50	1 25
Penniman, Mrs Mary	68	50	1 25
Shrewsbury, Mrs L A	20	50	1 25
Whitney, Jacob	36	500	12 50

And in accordance with law, and an order of the Board of Directors, made on the 25th day of September, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the office of the Company, Room No 1, 531 California street, San Francisco, California, on the 24th day of November, 1874, at the hour of one o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. SMALL, Secretary.
Office—Room No. 1, No. 531 California street, San Francisco, California. no7-2t.

Confidence Mining Company---Location of

Principal place of business, San Francisco, California. Location of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 19th day of September, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Nemes.	No. Certificate.	No. Shares.	Amount.
James Bell	38	338	$101 40
H. Hampton, Trustee	2	562	168 60
H. Hampton, Trustee	5	225	67 50
H. Hampton, Trustee	6	225	67 50
	OLD ISSUE.		
William Sell	36	100	67 50
William Sell	37	100	67 50

And in accordance with law, and an order of the Board of Trustees made on the 19th day of September, 1874, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the Company, 217 Sansome street, San Francisco, California, on the 16th day of November, 1874, at the hour of two o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of the sale.

W. S. ANDERSON, Secretary.
Office—217 Sansome street, San Francisco, California.

Land Purchasers' Association—Office, No.

331 Montgomery street, Room 7, San Francisco, Cal.

Notice is hereby given, that at a meeting of the Directors or Trustees of this corporation, held on the 28th day of October, 1874, an assessment of ten dollars per share (being the 42d monthly installment on the subscription to the stock) was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at No. 331 Montgomery street, Room 7 San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 30th day of November, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on the 24th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

O. S. WRIGHT, Secretary.
Office, No. 331 Montgomery street, Room 7, San Francisco, California.

☞This assessment is levied to pay the taxes on the property for 1874 and 1875.

The Orleans Mining Company—Principal

place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of October, 1874, an assessment (No. 1) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary at the office of the company, Room 8, 315 California street, San Francisco.

Any stock upon which this assessment shall remain unpaid on the 24th day of November, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 15th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. F. NESMITH, Secretary.
Office—Room 8, No. 315 California street, San Francisco, California. oc24

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Julian Mining District, San Diego County, Cal.

Notice is hereby given, that at a meeting of the Directors held on the second day of November, 1874, an assessment (No. 3) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 4, Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the seventh day of December, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 28th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expense of sale.

FRANK SWIFT, Secretary.
Office, Room No. 4, Hayward's Building, No. 419 California street, San Francisco, California. no7-3t

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JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

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Chemical Apparatus and Chemicals,

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Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

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Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setters for themselves, at the office, 229 Fremont Street, San Francisco

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Ores worked by any process.
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Plans furnished for the most suitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

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Mining Engineers and Metallurgists.

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An experienced Gold and Silver Amalgamator for a Mill in Nevada. Send proofs of ability and sobriety to

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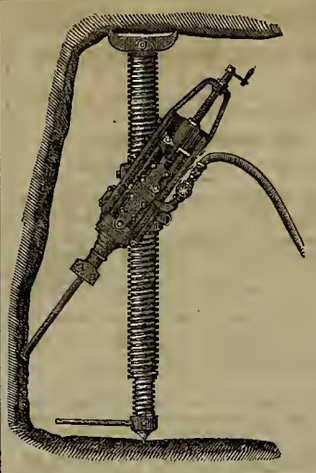

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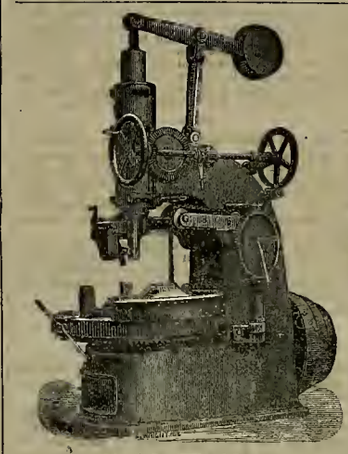

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We have the best and most complete assortment of

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98 Chambers Street, New York.

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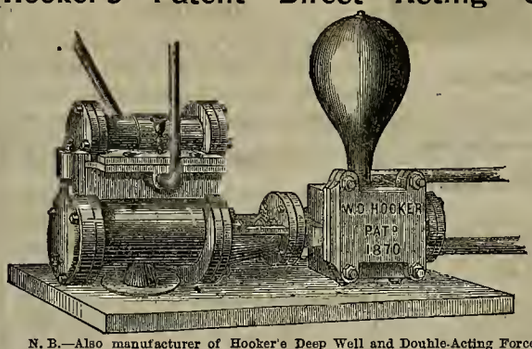
Hooker's Patent Direct Acting Steam Pump.



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SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.

The Best Pump in Use.

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N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump. Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco. 18v27-2am3m

Important to Miners and Mill Men.

Silver-Plated Copper Amalgamating Plates, for Saving Gold.

Of all sizes and in any quantity, furnished to order. Full instructions sent for operating. Particular attention given to plating goods for Builders, Plumbers, etc. Hotel and Restaurant work replated.

SAN FRANCISCO GOLD AND SILVER PLATING WORKS,
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2v26-3m E. G. DENNISTON, Proprietor.

California Assay Office—J. A. Mars & Wm. Irelan, Jr., Chemists and Assayers, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

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Inventors, model makers and amateure mechanics and students, will find the work valuable far beyond its cost. Published by DEWEY & Co., Patent Agents and publishers of the Mining and Scientific Press. Price, post paid, $1.

Buy Real Estate while at Low Rates.

NINE WATER-FRONT LOTS, CHEAP,
On Gift Map 4,

Forming about half of a block fronting on the broad ship channel of Islais Creek; will be sold so low as to make it an inducement to the buyer. Inquire for the owner, Room ——, No. 224 Sansome st., S. F. bptf

San Francisco Microscopical Society.

The regular meeting of this Society was held on Thursday of last week. W. R. Barbour was elected a resident member. The principal business of the meeting was a paper by Dr. Harkness, giving a description of a fungus found on the scorched willows in San Mateo county, and which was presented to the Academy of Sciences by Dr. Cooper at a meeting last month, supplementing the same by oral descriptions of fungoid growth, using the yeast plant and mushroom, which he exhibited under the microscope, to illustrate the subject. Dr. Harkness' paper was as follows: At the last meeting of your Society a specimen of fungus found attached to a gummy exudation upon the trunk of a willow was submitted to me for examination. Having given the subject a somewhat hasty examination I offer the following report:

The willow gum on which the plant was discovered is of a dark red color, is readily soluble in water, but insoluble in alcohol, and contains a considerable amount of salicine. Some few shrunken threads of mycelium are still to be traced upon its surface; it, of course, having served as the parent of the plant. The enlarged filamentous hyphæ is, however, the portion of greatest interest. The hyphæ is of a bright, orange color, of an inch or more in length, and is enveloped in a gummy substance amalgamous to that on which the plant is found. This gummy envelop is not soluble in alcohol, while in water this, together with the cell structure of the plant, is rapidly dissolved. The structure of the plant is not readily made out. By allowing glycerine to flow under the covering glass, using the spot lens and a ¼ objective, a faint trace of spiral tubes may be detected running through the long diameter of the plant.

Treated in the same manner under a ⅛-inch objective, indications of transverse striæ become apparent, marking the boundaries of cells. On applying a strong tincture of iodine these striæ become still more conspicuous. In almond oil slight traces of imbricated cells of the epiderm appear. Its method of growth is doubtless analagous to that of all other plants of this genus.

Its method or reproduction is by conjugation, as it would appear, although I am unable this evening to demonstrate the actual presence of the exhausted male plant. My conclusions, however, are based on the following facts: On placing a portion of a filament on an uncovered slide with the half-inch objective, and adding water, the plant immediately begins to swell, and slight protuberances appearing on one side, corresponding to those seen in the Zygnema and other varieties of the conjugating confervæ. As the gummy envelop is dissolved away from the protuberances, motile gonidia spores are discharged in enormous numbers. In this experiment we obtain no further proof (except by the appearance of the protuberances) of the existence of the male plant. In the confervæ we see the cells, exhausted of their protoplasm, lying at an appreciable distance from those of the spore-producing plant. In the present instance the exhausted cell is in such complete contact that the moisture which acts on the one instantly obliterates the other. If we use acetic acid in the same manner as in the preceding experiment, we find that the acid acts still more energetically than water; and on the instant of disruption we may occasionally catch a glimpse of the two bodies flying away in opposite directions.

The gonidia spores are exceedingly minute; oblong in shape, and in their shortest measurement being less than a twenty-thousandth of an inch in diameter. With a-half or a-fourth objective and a spot lens, if we allow glycerine and camphor water to flow gradually under the covering glass, the action is less violent, and we may at our leisure observe the spores as they swim away in the finid propelled by their moving cilia. Aside from their scientific value they form a very pleasing picture as the glinting light plays upon their sides with every change in position. I am unable to class the plant with any described variety, yet I dare not say that it is new to science. The characteristics which I have described, however, would seem to preclude the possibility of its complete development in any other than a dry climate.

STEEL DIRECT FROM THE ORE.—Mr. A. L. Holley, New York, read before the British Iron and Steel Institute, at its late meeting at Barrow, an interesting paper describing the rolling mills machinery arrangements in America, and showing the marvellous products of iron and steel which could be put forth in a day. The paper induced much discussion on the practicability of making steel at one fusion, but it was stated a Lancashire steel producing firm would shortly put down new blast furnaces, by which molten iron could be converted into steel direct from the furnace in which the ore was smelted. Mr. Holley also read another paper on the improvements in setting Bessemer converters, and noticed the simplicity and economy of time which has resulted in America by the process in vogue here.

HOT AND COLD ROLLED IRON.—Prof. Turner remarks that it is customary to attribute greater strength to cold rolled iron than to that which has been rolled hot. Although experiment has shown that such is the case with new iron, yet this is of little importance in practical use, because is does not last. The strength of such iron, says Prof. Turner, decreases gradually with time. This is a question which it would be well to determine by experiment,

Idaho Mine.

We paid a visit to the Idaho day before yesterday for the porpose of laying before our readers what was being done at our great mine. The first thing we noticed, after passing through the mill, where everything was running briskly and effectually, was the busy scene that was to be witnessed around the "old shaft." The shaft has all been retimbered and thoroughly refitted for the pump. It is 200 feet perpendicular, then it slopes off to a very steep grade. There will be no hoisting done through this shaft. To the east of the shaft they have put in a solid stone basement about six feet thick on which to place the pumping engine. This foundation is surmounted by brickwork for the engine itself. Two boilers are now being laid in brick. Everything bo okens substantiability. We learn that it is the intention to make the engine house of brick, to serve as a preventive of fire. It is situated between the hoisting works and mill, so that if either should burn the center brick building would serve as a safety for the other. Passing through this part of the works we saw the bob of the new pump. It is a massive structure—weighing between three and a half and four tons—and is made of one and a half inch iron. It was all made at the mine by Mr. Samuel Tyrrell, foreman of the blacksmith shop. It is strongly welded together and is of great strength. The gudgeon on which it will work is a nioe-iooh wrought iron bar. Great strength is required in this, as it will have to raise 700 feet of rod besides the water and resistance.

A large quantity of 14-inch pipe is already on the ground. This is larger than is really needed, but the far-seeing Superintendent has them large enough to provide for all reasonablo emergencies. Another bob is to be made to go underground of inch iron. They are pumping through the old shaft now, bnt are using the underground pumps, which are worked by steam conveyed from the hoisting works. Their water works are complete. A large tank, or more properly, a reservoir, gives a pressnre of 150 feet, and plenty of water to run hydrants, from each of which they have hose enough to reach any part of the mine. The shaft is now down about 870 feet, but the cages do not run further than the 200-foot level, at which level they are running two drifts—one east and the other west. The Burleigh drill is at work steadily in the east drift. Mr. Lacy, one of the agents for the drill on this coast, is at present instructing the miners how to run it. Three more are on the ground to be used as soon as practicable. Over 200 miners are now employed—more than at any time before, and the works underground are full of rock. The quartz in the bottom of the shaft is looking splendid—indeed it is very rich. They propose introducing yet another improvement in the mine, and that is firing the holes by electricity. An electric battery will he employed, and a dozen or more holes can be exploded at once. By this means it will add much safety to the men, as they can get out of the way before the machine is let loose.—*Grass Valley Union.*

Bear and Holcomb Valley Mines.

We condense the following facts from correspondence of the *Call*, from Bear valley: It is almost impossible for me to describe these two valleys with their immense quartz mountains. Holcomb valley is an old mining camp (placer), and is divided by a large mountain from Bear valley, some eight miles distant by the road, but only about three and a half miles by a new road, which, I believe, it is the intenion of the Gold Mountain mioing company to build. Holcomb valley is beautifully situated, and contains about one dozen honses. There is a five-stamp quartz mill and saw mill, but the quartz mill is shut down for the present. The mill belongs to an Eoglish company, which has been working a quartz mine in the neighborhood, under the snperintendency of Mr. Haley. The saw mill is run by Mr. McCaskell, and is ontting the lumber for the forty-stamp mi l of the G. M. G. M. Co. The camp is at present at a stand still, but I understand will open out with a new twenty-stamp mill in the spriog.

Bear valley is enclosed by continuons ranges of mountains, has a beautiful shallow lske at the south end of it, and is rapidly growing since the arrival of Mr. Gilson, who briogs the forty-stamp mill for the Gold Mountain gold mining company, aod under whose superintendency the mill is making rapid progress. The principal feature of this mining camp is the extraordinary cheapness of wood and water, and the easy access to the quartz rock.

The main belt of this district runs north and south, and I will endeavor to give your readers a faint idea of its extent. I will commence at the Rogers mine, the entire of the claim being situated in Jacoby Gulch, and owned by Sam Rogers, one of the oldest and considered one of the best miners in the State. The lead or lode in this mountain of quartz rock rnns about three miles in length and is from 1,000 to 2,500 feet in width. Some of your readers may think this incredible, but I have not only examined it but have prospected with a spoon and in almost every instance fonnd gold. I will merely give you the names of a few mines in this letter and will enter more fully into the particulars in the future. On the north of the Rogers mine are the Morrison, Valencia, Cynthia, Excelsior, Pidon, Hic Jacet, Big Tree, Omagh, and some others I have forgotten at present. On the south of the Rogers, on the same lead, are the Great Mogul and Mountain Chief.

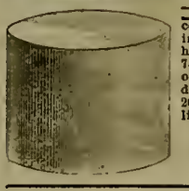
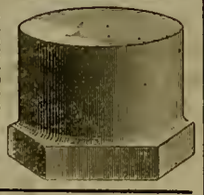
Improved Cast and Forged

STEEL SHOES & DIES FOR QUARTZ MILLS.

[PATENTED MAY 26TH, 1874.]

To Superintendents of Quartz Mills and Mining Men Generally.

We guarantee these SHOES and DIES to do the work of four sets of iron and to be at least 10 per cent cheapor. They are gradnally coming into use in all of the principal mills on this coast.

Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased valna of amalgam hy absence of iron dnst and chippings, and a saving of 75 per cent. in freight. They possess a similar superiority that steel rails do over iron rails. It takes 40 days to fill orders from the manufactory East. Price 20 cents per pound shipped at San Francisco. Terms liberal.

Address all orders, with dimensioos, to

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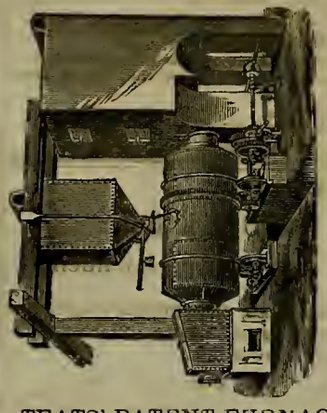

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TEATS' PATENT FURNACE

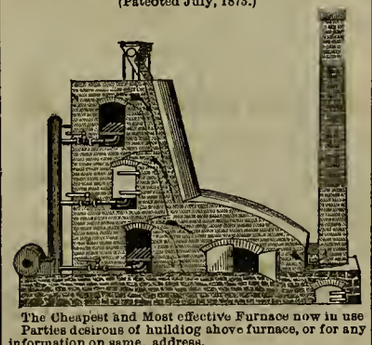
For Roasting, Desulphurizing, Chloridizing and Oxidizing Ores, etc. For the reduction of Gold, Silver, Lead and other ores, saving a larger percentage, at less cost, than any other invention now in use. Chloridizing Silver ore more thoroughly, in less time, with less fuel, salt and labor; also roasting Lead ors preparatory to smelting, better and cheaper than any other invention. The Furnace is so constructed that one man, of ordinary ability, tends five or more furnaces; controls them with ease, adding heat or air; stopping or starting at will; charging and discharging with ease. Also, Patent "Conveying Cooler," for cooveying and cooliog roasted ores, heating the water for amalgamation and the boilers at the same time. Saving the large spacs in mill (covered with brick or iron), and the labor of two men per day, exposed to the poisonous chlorine gases. Also, Patent Air Blast "Dry Kiln," for drying ores direct from the mins or breaker, saving fuel and labor herstofore nscessary in drying ores for dry pulverizing. For description refer to MINING AND SCIENTIFIC PRESS, No. 18, October 31, 1874. For particulars address

TEATS & BREED,
No. 12 West Eighth Street, Cincinnati, Ohio

Circulars, &c., will hs furnished, if required.
18v29-3m

EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)



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Stamp Mill For Sale at Ophir Canon.

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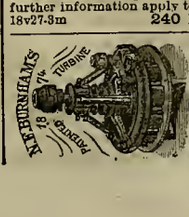

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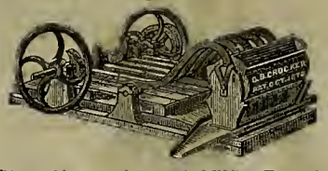

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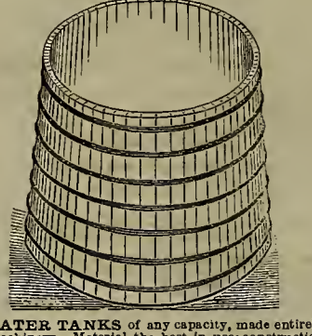

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Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

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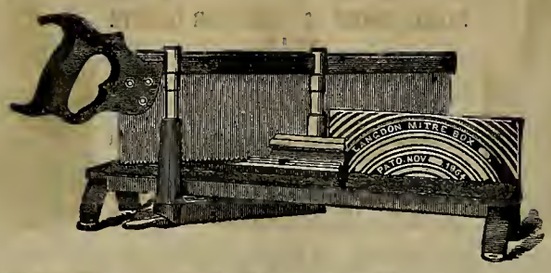

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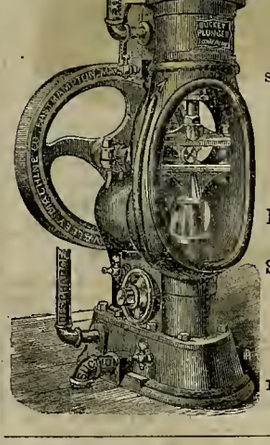

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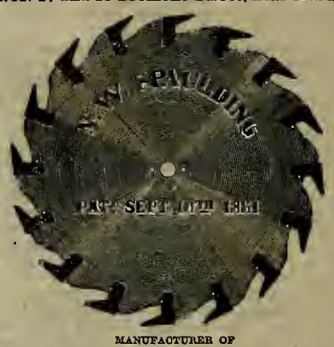

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SAN FRANCISCO, SATURDAY, NOVEMBER 21, 1874.

VOLUME XXIX Number 21.

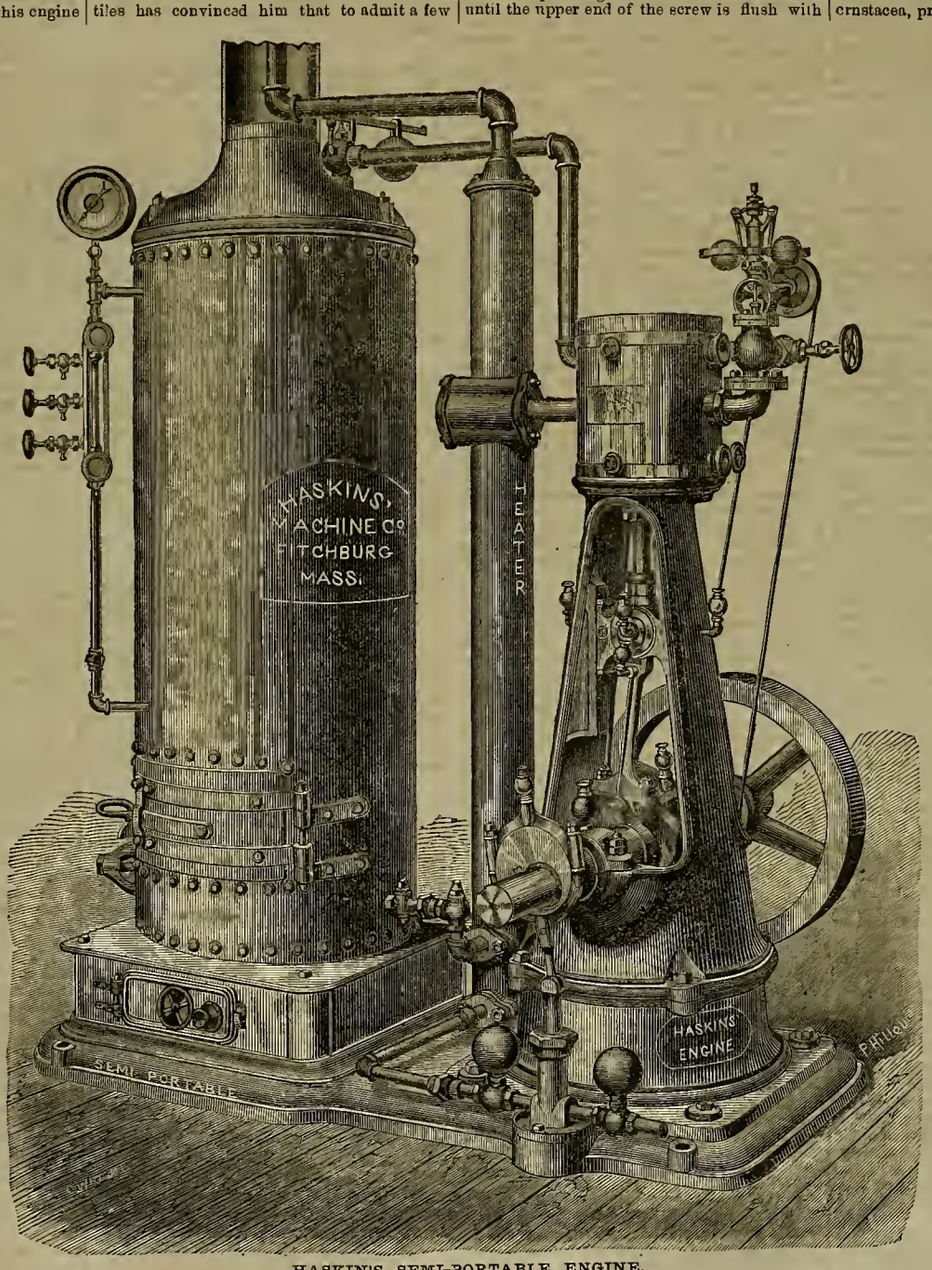
The Haskins Steam Engine.

The accompanying illnstration represents a semi-portahle engine of 10 horse-power, made by the Haskins Machine Co., for which Parke & Lacy, No. — Leidesdorff street, San Francisco, are agents. It is claimed for this engine that aside from this perfect system of mannfactnre, it has many points of excellence. One of these points is claimed to be its genoral ontline. It will be noticed that all strains are met by straight lincs, rather than cnrved ones which are regarded as elements of weskness. The valves used on these engines are the "piston valves" of Thomas S. Davis, long the snperintendent and msnager of the Jersey City Locomotive Works—which, though first constrncted and patented some ten years since, have stood the test of time thoronghly and successfnlly.

On small engines, nnless specially ordered otherwise, the valves are made to cut off at a point predetermined; on others, an sutomatic "cnt-off," controlled hy the governor, is applied, insuring efficiency equal to the hest.

For driving the valve the nsual eccentric is made nse of, with the exception of its mode of constrnction and adantation to this psrticnlar engine. It is msde fast on the shaft, permanently, not with set screws or keys, but is made an integral portion of the shaft, snd then, on its periphery is "shrunk" a reinforcing ring which is hsrdened and can he replaced in case of accident to its surface. No place is left for any adjustment of valve motion. Every part is made the exact length desired and pinned fast. No sorew or nut can be changed to alter the desired results. Thns is the perfection sought permsnently secured; for, so soon ss s change is allowed in the valve motion of an engine, jnst so soon are the resnlts of the originsl engineering skill lost. The main shaft, the connecting rod, and all other hoxes are composition, lined with best Babhit metal, and sre made interchangeable. Their wear does not therefore affect the framing or lining of the engine. The connecting rod and its pins are very large at the bearing points. The cross head is provided with adjnstahle composition gihs of very large surface snd self-centering. The piston rods and all the parts that reqnire it are of the hest steel.

A neat and efficient plan of getting rid of drip water from the cylinder is peculiar to this engine. The device is contained heneath the jacket. When in use the drip water passes down inside the post and ont of the hase, and it can thus he carried off to the sewer, without in the least soiling the floor.



HASKIN'S SEMI-PORTABLE ENGINE.

THE engineer of the Imperial mine was killed on Wednesday last. He was standing at the engine hoisting a cage np the shsft, when the cable broke and the upper section was hurled with great force against him, striking his hreast and knocking him down. He lived only a few minntes.

Illuminating Tiles.

Mr. William Lynch of this city is determined to provide proper means for lighting and ventilsting dark and unssvory places. A large experience in the mannfactnre of illnminating tiles has convinced him that to admit a few straggling sunbeams into an underground apartment will not purify the atmosphere or render it a healthy abode, neither will it prevent articles stored in snch apartments from heing affected by the dampness and closeness of the atmosphere. A short time since we described in the columns of this paper, an improved ventilating blank to be used alternately with the ordinary illuminating hlank in the manufacture of illuminating tiles which was patented hy Mr. Lynch. We now report the issnance of another patent obtained hy Mr. Lynch through the MINING ANN SCIENTIFIC PRESS Patent Agency, for an improvement in connection with those ventilating blanks. His present invention consists in tapping the hole in the ventilating blank with screw threads and adapting thereto a short screw which can bo scrowed np through the hold from underneath until the upper end of the screw is flush with the top of the blank, thus effectually closing the hlank in wet or frosty westher in order to keen the illuminated apartment dry.

Mr. Lynch is desirous of disposing of rights nnder said pstents. For particnlars, address Wm. Lynch, in care of this office.

COAL STOCK.—They talk of a coal stock hoard in Oakland now. They had better depend on their mines for their profits, than on stock transactions. People will have more confidence in the mines if they stick to legitimate mining.

Academy of Sciences.

The regular semi-monthly meeting of the Californis Academy of Sciences wss held on Mondsy evening last. The contributions to the mnsenm embraced a nnmerons collection of crnstacea, principally from the cosst of Japan, presented by Captain J. W. Fisher, of the United States Coast Survey; a specimen of the Foolish Guillemot, s sea bird common on the northwest cosst (this specimen being the only one known to have been canght on the coast of California), presented hy W. G. Blnnt; a specimen of the wood dnck fsmily designated *Anass ponsa*, heautifully mounted in a glass case, presented hy W. C. Reiter, M. D., of Pittsburgh, Penn.; specimens of the Chætodon, a onrions species of snn-fish, found in the Californis waters, presented hy T. R. Crnssea; specimens of the volcanic ashes from the recent volcsno in Plumas connty, described hy Dr. Hsrkness at the last meeting of the Acsdemy, presented hy that gentlemsn; photographs of Indian skulls, presented by Bradley & Rnlofson.

A new species of shell found in San Francisco hay was presented by Dr. Newcomh, with a technical descriptive paper.

Dr. Hsrkness presented a written report on his recent explorations in Plnmss county, particularly describing a recently extinct volcsno, and a lske snpposed to he of the highest sltitnde of any considersble body of water in North America. This is referred to at length in another column.

Mr. Lockington resd a paper describing new species of crustaces, snd Mr. Fisher read one dcscribing a now species of polyp. Both these pspers were technicsl.

Dr. J. G. Cooper read a psper on "The Eocene Epoch in California," which we shall give in onr next issue. He also called the attention of the Academy to the prognostications of a cold and dry winter, particularly in the early appearance of Arctic hirds in this latitnde, including some varieties thst were rarely seen as far south.

Dr. Blake resd a very valusble psper on the hest varieties of grspe adapted to wine making in California. He has made exhanstive experiments on the prices of different grapes with a view to determine the hest quality. We shsll give this psper in onr fntnre issne.

It wss thonght thst Dr. Harkness wss too modest in naming the lake discovered hy him in Plumas connty after Livingstone, and it wss resolved to name it "Lake Harkness." Dr. Livingstone already has one lake named after him in Africa.

IMPROVED HARROW. — Frank Donohue, of Mayfield, Cal., has recently patented an invention which relates to an improved harrow, and consists in so constrncting a componnd or double harrow, that the onter corners will hug the gronnd at all times, without using a weight or other contrivance to keep them down. Each section of the harrow he constructs in the shape of a rhomhoid. The hinges which connect the sections together are plsced on opposite sides of the line of dranght, by a pecnliar constrnction of the harrow, thns causing the weight of the corners or acnte angles to be nearly at right angles to the breaking line or joints of the two hinges, so that their superior leverage, owing to their greater distance from the hinges, will cause them to keep closely down to the gronnd.

Treatment of Lead by Steam.

M. Rozsu says in place of stirring the molten lead, eithsr by hand or by steam power, steam is introdnced and csuses a violent and oontinued boiling of the whole mass of metal in fusion, most favorable to the sepsration of the silver from the lead, and the purification of tho lattsr.

The above action is, of course, purely mechanicsl. As to its chemical sction, although feeble, on account of its being in the presence of metals which do not become decompossd at the tempsrsture at which tbe operstions are csrried on, thst is to ssy, about 330 degs. centigrade, it ie sensibly felt, for ths lead undergoes a refining sction indepsndent of tbat which results from its fusion at a dull red hest previous to crystallizstion, so much so that sll previous refining is dispensed with in the csse of modsrately hard lsad, though not when the metal is very hsrd.

If the chemical action of the steam wers *nil*, the purity of the lesd produced without previous rsfining could only he attrihuted to ths series of partial rsfining to which the lead is suhmitted, by ths fsct of a great nnmber of remeltings st a dull heat; but a fact which tsnds to show that the steam exercises a chemicsl sction is thst the oxides which are produced are yellowish snd earthy, but as the operstion proceeds, become hlack and heavily charged with copper, a circumstance which is not produced in the boilers of the ordinsry system in spite of the most vigorous stirring.

Toward the end of the operation, while the stesm is still in action, in the liquid portion in which are concentrated the silver, copper, antimony and arsenic, the lead is found to hsve been deprived of the copper which it contained. The antimony is gradually eliminated by the oxidation caused hy the air during the remeltings; soft lead gives even more oxide than hard lead contaiuing more antimony, which proves that the latter oxidizes first and preserves the lesd from oxidization.

The lesd produced by the steam method is perfectly soft, and beside a suppression of a special operation of refining, the employment of steam offers many advantages, as the saving of the cost of previous purification, reduction of oxidation of the lead, and consequently of waste. The economy ot time aud labor is due to the rapidity ot the operation, the smaller number of hands required, while superior workmen are necessary in the old system than in the preeent, and also more space.

When the lead to be dealt with contains not more than one-half per cent. of autimony, it may be operated upon hy the new system directly, and the purification becomes reduced to that of the rich dross, and the expense to about one-fifth the ordinary mode.

In the case of lead which contains a larger amount of autimony, previous purification is necessery, but this operation ueed not be carried so far es in the ordinary process; it may he arrested when only half per cent. of antimony remains in the lead. The arsenic having the greatest tendency to take the place of the silver, it has heen proposed to effect the purification hy means of sode.

The apparatus employed in the steam system consiste of an upper and lower boiler, each with its own furnace; the former, for the melting of the lesd and separating the eilver, will contsin about nine or ten tons, and the latter, which is for the crystallization, from fifteen to sixteen tons. A stage erected around the lower boiler allows the workmen to watch the operation and remove the oxides. The metel is run from the upper to the lower vessel through tubes fitted with fricion valves moved by mesns of a lever; and in order to prevent the leed from penetrating into the steamway pipe, a valve cock is sdopted.

The lead having heen melted in the upper hoiler is skimmed and run off into the lower one, and at that moment a small jet of steam is let in to effect the mixture of the crystals of the previous operation with the lead in fusion. A small stream of water throwu upon the surface of the lead at the commencement of the operation facilitates the formation of the orystals. The steam is introduced from a hoiler close at hand, uuder the pressure of three atmospheres, through a lateral tuhe near the bottom of the lower boiler, and is distributed uniformly hy means of a horizontal disc of cast iron placed over the nozzle of the steam pipe in the center of the lower part of the boiler. The hoiler is fitted with a cover in segments, which are opeued alternstely every five or six minutes, when a workman detaches such lead as has heen flung by the action of the escaping steam against the upper sides of the hoiler, and adhered there. Beneath the boiler are two small supplementary furuaces, which hring up the discharge tubes to the proper temperature, and are lighted just previous to the drawing off.

The workmen remove the oxides once only during the operatiou, betore the introduction of the stesm, but the top of the boiler is fitted with a chimney which places it in communication with the condensatiou chsmhers, where the steam arrives, carrying with it a part of the oxides, which are deposited in a pssty state.

The lead is run off when about two-thirds are in the state of crystals; the lead is received in couical vessels sunk in the grouud, the metal ways being furnished with gratings to keep back any crystals. Two pigs of 2½ tons eaoh are produced at each operation. The pigs obtained from successive operations are lifted by a steam crane aud arranged according to their quality, and those of superior quality are collected together until the quantity is large enough to commence a new eeries of operations, starting from the point reached in the former. When the lower hoiler is run off, the lead which has bean meltsd in the upper one dnring the cryetallizstion is turned into the former, and the operation is repeated.

When merchant lead or complemsntary lead are in a state of crystals, these sre melted by lighting ths furnace under the lower boiler, and the lesd is run off into ingots plsced in a balf circls, and filled by means of a gutter running upon a pivot.

Tbe word "operstion" is spplisd to the total of the work done hetween the drawing off the lead from the uppsr hoiler into the lower aud tbe running of the enriched lead into ingots. The time ot an operation is one hour snd a half. Tbe running of the merchsnt or complementary lesd counts for two operations, becsuse the time necessary for the melting of the crystals in the lower boiler is nearly douhle that occupied by the crystsllization, Ths number of operations representing this runuing is, for lead of 125 grsmmes, 24 to 30 psr cent. of the number of crystallizstion. The number of operations is, on an avsrage, 13 in 24 hours, but it sometimes amounts to 16 or 17, according to the nature of the fuel, the draught and ths proximity of the steam hoiler; it varies slso with the tenure. An apparatus dealing with lesd of 123 grammes produces 6 or 7 tons of merchant lead per 24 hours.—*La Metallurgie.*

Mining Prospects on the Comstock.

Never in the history of the Comstock did mining prospects sppear hetter thau at present. Recent developments at the nortbern end of the lode bid fair to equal in richness those of the Belcher snd Crown Point, and the time when the mines of Washoe ehall give out has been indefinitely postponed. Persons who have recently visited the Ophir, California, and especially the Consolidated Virginis, have heen astonished at the future prosperity of these mines, which is discernihle even to a casual observer. A well-known mining expert from San Francisco, who has been in this city examining the different mines for the last two weeks and retnrned home a day or two since, reported to his principals on his arrival that, so far from the Comstock being exheusted, the indications of its permanence and inexhaustible extent were greater to-day than at any previous period in its hietory. He stated that from what he had seen he was satisfied that the lode would not be worked out for 50 years, that the yield of bullion would increase annually, and that the Comstock would only be abandoned when the shafts had reached as great a depth as it was possible to penetrate into the bowels of the earth by modern machinery and engineering. This opinion is amply substantiated hy facts, and the present and future permanence and prosperity of this city aud Gold Hill are beyond all peradventure. Sagacious inve-tors do not hesitate to erect large and substantial buildings which would he a credit to any commercial metropolie in the country, knowing at the same time that if the mines should fail these very edifices would soon become the domicile of owls and bats, and Virginia City one of the things that were. There is no city of its size in the United States which combines elements of greater wealth .han are combined in the one source from which Virginia draws its sustenance, namely—the mines. The so-called rich meu in many towns of twice the population would stand agbast at the millions which some of our wealthy capitalists can roll up, and laborers end artisans find no place in the whole country where their work is better remunerated. And this state of affairs is destined to continue. The sudden fluctuations of 10 or 12 years ago, the hopes entertained hy the owners of outside claims of the fabulous richness of their properties, and the days of wildcat, are abont over. The business of the country has come down to a regular and permanent basis, hnt it is a hasis of ever-increasing prosperity, wbich, from present indicetions, hut few persons now liviog aloug the line of the Comstock will live to see fail.—*Enterprise.*

Saver of Fuel.—Harry Strout, manager of the Hoosac Smelting Works, says the Eureka *Sentinel*, has had one of the patent coil heatere from the Stockton Iron Works, put in position at his works, which already demoustrates its utility in saving fuel. Formerly it took three cords of wood each 24 hours to keep the water in the boiler at a proper heat; but hy the above appliance it now requires hut one cord for the same length of time. The new heater receives the exhausted steam from the engine, which is forced into the boiler at a temperature of over 200 degrees, and only sufficient fire is required under the boiler to mske the additional 12 pounds, a temperature of 212 degrees making stsam. The machine is the iuventiou of R. V. Hauks, now engineer at the above works, who has sold his patent to the Stockton Iron Works. The invention is in every way a valuable one, causing a saving of two-thirds of the amonut of fuel otherwise required.

Seven-Eighths of all the brass and German silver made and consumed in the United States, together with one-helf of the manufactured copper, is made in Little Naugatuck valley, Ct., which is not over 30 miles long. The annual consumption of copper by the twelve hrass and copper mills located in the vslley is not less than sixteen millions of pounds—more than one-half of the product of the copper mines of the conntry.

Owners of the Pine Flat Quicksilver Mines.

In a long article on the quicksilver mines, we find the following in the Petaluma *Argus* concsrning the ownership of prominsnt mines: A visit to the diffsrsnt mines was an agreeable task. It is estimsted thst 1,000 men are employed in working snd prospecting in snd about Pine Flat. We append below the names, owners, superintsndents, etc., of the more promising mines in tbat locality.

Annie Belcher,

Located about one mile and a half from Pine Flat. The superintsndent, Matt D. Carr, an old newspsper man, has shown his ability to superintend a mine as wsll as publish a newspsper. He was formerly conuected with the Marysville *Express*, a paper thst he published fourteen years. He is just erecting upon the Annie Belcher a thres-quarter Knox & Osborne furnsce that will he completed in about fifteen days. The mine is very promising.

Georgia.

Two miles from Pine Flst is the Georgia, ownsd by the Thompson Brothsrs, thst gives promise of proving one of the richest in the district. They have 150 tons of ore out, and are waiting to run it through the Annie Belcher furnace. The proprietors are deserving of a rich mine.

Edith.

This mine is located four miles from Pine Flst. It wss formerly known ss the Bscon, and is very promising. Wm. Pascoe, the superintendent, is a very clever and competent man.

Socrates.

Two miles from Pine Flst, on the Geyser Rosd. This mine wss kuown formerly as the Pioneer, snd was at one time sold to a New York compsny for $800,000. The present owners have been offered $300,000 for it. Sixteen men sre employed, and the company are surveying at present for their furnaces. W. S. Bell, the superintendent, has been in the locality eight years. The compsny will be at work with their furneces in the spring.

Sonoma,

Location three miles northwest from Pine Flat. The owners are General Dodge and others, of San Francisco. The mine has a fifteen-ton Luckhardt & Riotte furnace, and yields about $4,000 per month. Mr. Clark, lately connected with the Knoxville mines, is superintendent.

Rattlesnake,

Situated two miles northwest from Sonoma, is owned by Parrott, Lightner Bros., Robert Morrow, Adem Graut, Wm. Burling and others, all of Sau Francisco. The superintendent is B. P. DeNoon, en experienced miner. Oue hundred and twenty men are employed. The company have a fifteen-ton Luckhardt furnace, and have just commenced reducing. They bave one shaft in 200 feet and have 2,000 tons of ore in adobes under cover.

Missouri

Is located about seven miles from Pine Flat. The owners are Wm. A. Stewart, Aloxander Elder, W. S. Bartlett, G. P. Kellogg, Dr. R. J. Chase, W. P. Littleton, Thomas Bowen, Frank Frank Adams, James F. Stuart, et al. The Superintendent is J. B. V. Confert; foreman, Abraham Waters. The company have five retorts, but only two working. The yield of the mine is $3,000 per month. Several shafts and tunnels have heeu put in, and the mine thoronghly developed. We stopped over night at this mine, and return thanks to the superintendent aud foreman for favors extended.

Oakland,

Or what was formerly known as the "Lost Ledge," is just below the Missouri. The owners ere Forman, Show & Taylor, of the Eureka Consolidated mining company, San Francisco, Wm. A. Stuart, Alex. Elder and others. Superintendent, J. L. Cook. The company have six retorts, and the mine yields $225 a day, and thirty-seven men are employed.

Geyser,

Immediately below the Oakland. Owners, Edgar Mills and G. W. Gilbert of Sacramento; Hoyt & Sears, Flood & O'Brien, Wm. A Stuart and Alex. Elder and others of San Francisco. The superintendent is W. H. Rhoda; foremsn, Stephen Conkling. The company are just building a fifteen-ton Knox & Oshorne furnace.

Mercury.

Same owners as the Geyser, aud same superintendent. A very promising mine.

Kentuck,

Owners, L. H. Hopkins, John Cyruss, Wm. A. Stewart, Alex. Elder et al. This mine is prospecting well and is superintended by J. V. C. Comfert.

A Miner in Luck.—Wm. McLaughlin, a miner of this city, left last night for Scotland, his native country, with the snug little sum of $20,000 realized in a few months in mining stocks. Some of our miners who are worth from $30,000 to $50,000 are still pegging away in the lower levels. They want just a few dollars more.—*Virginia Enterprise.*

Mr. Stanley's special mission to Africa has begun well. He writes that he bas been pleasantly received by the Sultan of Zanzihsr, and was actively engaged in completiug preparations for his journey to the intsrior of the continent.

How Miners Brave the Perils of the Lower Levels.

Those of the men burned at the time of the late terrible firs in the Belcher air shaft, who are still living, are getting along finely and some of thsm will be able to he out in a few days.

We were present when they went into the mine that fearful day. At the moment when thsy descended a column of flame was darting upward to the higbt of 60 or 80 feet above the mouth of the burning air sbaft.

Tbs men went down the main working shsft, upon the roof of the huilding, covering which was falling a psrfect shower of live coals and burning cinders.

A lsrge rope had bsen stretched around the mouth of the sbaft at the distance of 15 or 20 feet in order to keep back the tbrong of outsiders. Inside of this rope were standing 30 or 40 miners.

The csgs, a three-decksr, came up from the lower lsvsls, and upon the lowsr deck stood an underground foreman. As the cage stopped the forsman ssid: "I wsnt 18 men to go down to the 1,000-ft. level with me."

The men knew that on the level mentioned wss the hottom of the perpendicular portion of the hurning sir shsft, but they did not know the situation at that point, nor did they know what they would be asked to do on arriving at their destination. Yet no sooner had the call for volunteers been made thsn there was a perfect rush of men to the oage.

The lower compartmeut was instsntly filled. The engineer, who stood with his hand on the lever ot his engine, dropped the cage until the next compsrtment was level with the floor, and this had no sooner been done than it was filled with men, and the same was the case as the last compsrtment came down; indeed, there wss a struggle among the men for a plaoe ou the cage, tuough not a word was said.

The men were sll brsve, determined-looking fellows. They all wore calm, firm faces—not a cheek was pale.

As the men were taking their places on the cage we called the attention of a gentleman of Gold Hill to them, and said: "Those are all fine, hsve men. See with what nerve they step upon thet cage to go down into the burning mine! It may be," continued we, "that some of those men will never reach the surface alive, yet not one ehows a sign of fesrl"

"Very true," said our friend, "hnt I don't think there is any real danger down there. The fire is confined to the air-shsft—all around it is safe enough."

Said we: "Men never go into a mine at auy time but they are in danger, and when there is anything wrong in a miue the danger is vastly increased—particularly when there is a fire in any of the lower levels."

"Well, but what can happen to these meu?" asked our triend.

"These men," said we, "will probably come out all right if no cave shall occur in the turning shaft while they are below; hut it is now about time for caving to begin."

Our fesr was that a cave would occur which would completely close np the shaft and suddenly drive the poisonous gases through the lower levels.

Lesving the shaft and the works shortly after the men disappeared on their dangerons mission to the bottom of the burning mine, one thonsand feet below the eurface of the earth, we retnrned to the town of Gold Hill.

As we entered Main street, we turned and looked in the direotion of the burning shaft. No sign of flame was visible there, hut up from the mouth of the shaft rolled a tremendous volume of inky smoke.

Said our companion: "The fire is gone out! See! It is all smoke now!"

"There has been a cave in the shaft!" said we.

In about half a minute the volume of flame agsin darted into the eir from the mouth of the shaft and instantly all the smoke disappesred.

It was at the time the smoke was rolling up from the shsft that the nine meu were writhing in the flames in the drift on the 1,000-ft level. The cave in the shsft had forced in upon them a sea of fire. When the column of flame agaiu appeered at the mouth of the shaft, was when it returned from the drift and resumed its natural course up the shaft. After this first cave there were several smaller ones, when for a half miuute or more smoke again rolled up from the shaft.

Nine of the 18 men we saw so bravely descend into the burning mine came up scarred and crisped; their clothes burned from their bodies and the skin peeling off in great flakes wherever they were touched.

When men are going into mines at such times of peril, it may he said, "O, there is really no danger!" hut it is only brave men that go to see whether or not there is danger—that go and take all the chances.—*Enterprise.*

The Oroville *Mercury* of the 18th inst. ststs: The Chiuamen are quietly huying up all the odd pieces of mining ground to be found in this part of the country that they can get ohesp. They are taking out a large amount of dust eaoh week. While there is less excitement than when the mines were first struck, there is a great deal of work done and good pay received for it. There are now about 4,000 Chinamen at work in the Lava Beds below towu, aud all seem to be doing well.

MECHANICAL PROGRESS.

Glass-Lined Tanks and Cisterns.

We have recently examined the application of an idea which may solve a difficulty felt in many trades. Mr. Hartley, a brewer, of Ormskirk, has suggested the use of a lining of glass to the vats employed for the fermentation of liquors, and has patented a means for attaching plates of glass to iron or other materials commonly used for the construction of such vats. The idea arose from his own requirements, as there is considerable difficulty experienced in perfectly cleansing wood, stone or slate, from the germs of organisms which accompany or induce putrefaction. With glass there is no such difficulty, and especially where no elevation of temperature is necessary this device of Mr. Hartley's appears to be satisfactory. The strength necessary to contain large bulks of liquid is of course given by the wood or iron basis of the vessel, while cleanliness is secured by the lining, which in many cases may be ordinary window glass, and in none need exceed three-eighths of an inch in thickness. Although primarily intended for the use of brewers, we do not see why the use of glass linings should not be extended, and it is likely to prove very valuable for house cisterns, as besides being more cleanly. A wooden cistern, glass-lined would probably cost much less than a zinc or leaden one, and offer no chance of corrosion or contamination.—*Iron.*

A Striking Sundial.—A sundial that strikes the hours is not seen every day, and many persons will doubt whether such a thing has ever had an existence. A dial of this description, however, has been invented and constructed by Abbe Allegret. It is simply a modification of what is termed the solar counter for registering the times at which the sun shines or is obscured. To effect this there are two balls—one black and the other yellow—fixed at opposite ends of a lever sustained by a central pivot. When the sun shines the black ball absorbs more heat than the yellow one, and the vapor of a liquid contained in the former is elevated to a higher temperature than that in the latter. As a result the vapor leaves the one ball, and being condensed in the other, this becomes the heavier, overbalances the equilibriam, and in doing so sets free a weight, giving motion to the requisite clockwork. In the sundial referred to, a pair of these balls is fixed at every hour-mark. When the shadow of the gnomon reaches any particular hour mark one of the balls is shaded, a preponderance of liquid enters the ball, the lever tilts, the mechanism is set going, and a gong sounded as many times as the number of the hour to be indicated. Of course, the sun must shine at the time of the hour mark being passed by the shadow, or the time will not be struck.—*Iron.*

Ironclad Vessels.—The invention of iron plates to protect vessels is far from being of as recent date as is generally supposed. During the 12th century, the Normans covered their ships from the water line up with an iron casing, terminating with a ram on the bow. Still earlier they had adopted a system of protecting the upper works with metal shields. In 1534 Peter of Arragon ordered his ships to be iron-plated, in order to protect them from the burning missiles then in common use. In 1530 the squadron of Andrea Doria contained a vessel built by the Knights of St. John, which was armored with several thicknesses of iron. At the battle of Lepanto several ships protected thier batteries with bars of iron. For two centuries no progress seems to have been made. In 1782, at the siege of Gibraltar, an engineer officer constructed six ships, which were the types of the modern ironclad. They were covered with an armor of hard wood, leather and bar iron. It is said that they resisted the fire of the forts for a long period, but were finally sunk by red hot shot.

Improvement in Saws.—Messrs. Branch, Crookes & Co., of St. Louis, are introducing a novelty in saws, invented by Mr. J. W. Branch, which is thus described: The inventor takes a circular saw plate and inserts about thirty small pieces of steel or iron in which is imbedded a bort or black diamond. The small pieces thus inserted are made fast by a steel rivet to the saw disc. The circular plate is 60 inches in diameter, holds 30 diamonds equidistant around its edge, and is capable of making over 650 revolutions per minute. This plate is affixed in the same manner as a regular circular saw for wood work, but has a rubber pipe fixed in such a manner that a spray of water is running on the side, edge and in front of the blade as it revolves, and answers the double purpose for cooling the saw blade and wetting the stone. The saw is fixed above a bedplate which has a feed movement with head blocks on rollers. The apparatus is portable and can be set up in quarries, as well as in shops and stone yards.

Cane Fiber for Felt.—A company in Virginia are manufactnring from cane fiber an article of felt which is said to be cheap, durable, impenetrable by rain or moisture, and a non-conductor of heat and cold. It is made either plain or resin-sized, and in either case is free from odor. As a lining under tin, slate or shingle roofs, or for deafening floors or lining carpets, or as a substitute for plaster, it is claimed to possess important advantages over the felt in ordinary use.

Sand Paper.—Formerly it was customary for the trades using sand paper constantly to make it for themselves as they needed it, ont of ordinary brown paper, glue and sand, as is done even yet in some parts of Europe. This business is now thoroughly organized in the United States. The paper is made of old rope, the best quality of glue is used, and, instead of sand, pulverized quartz or flint. By this means a superior article is produced, of a constantly uniform grade, at so low a price that the demand for it has become universal, large quantities being exported to Europe, South America, the Pacific Islands, and elsewhere. The amount made in the United States is very large, amounting to about 200,000 reams yearly, requiring a capital of at least $500,000. For emery paper and emery cloth a large demand has been created by the finished iron work in the steam engine shops, the sewing machine factories, and other similar industries which require them for polishing purposes.

Silent Fan-Blowers and Exhausters.—One of the defects of some fan-blowers is the howling noise they produced, which to some people is a real annoyance, especially when this noise is added to the other noises unavoidable in a machineshop or foundry. All will welcome, therefore, a new style of blower introduced by Van Brocklin & Aland, of Rome, Oneida county, New York, and which is perfectly silent. It takes the wind in at the center around the axis, like other blowers, but there is this difference, that if there is any excess of air which cannot be discharged through the blast pipe, it is discharged inwardly around the center opening, so as to inject air at an increased pressure into the center of the fan, thus forming a suction around the axis and increasing the supply and consequently the power of the blast.

An Ingenious Invention.—Mr. Atkins, Burmingham, England, has invented a process which admits of the filling of articles of brass with molten iron. The balance weights for chandeliers, pillers, columns and imperial weights may be made, advantage being taken of this process, at a much diminished cost. It is simply necessary to immerse the brass shells in water, and the molten iron is then poured in. The shell cannot, of course, obtain a higher temperature than 212 degrees, the boiling point of water, while the temperature of its contents may be about 3,000 degrees. In making imperial weights the shells are imbedded in iron filings, the high conducting power of which is thus turned to account. This process, simple though it be, is, from a commercial point of view, one of great importance as will be readily understood.

Instantaneous Extinguishment of Street Lamps.—The simultaneous lighting and extinguishment of street lamps is now effected by a very simple contrivance of some Belgian engineers. This is accomplished by affixing to the lamps an apparatus which is affected by the increased pressure of the gas at the gasometer, which is usually applied at the hour of lighting, and when in the morning the pressure is diminished at the main the gas can be either totally extinguished or let down to a mere thread. The lamp lighter of to-day may not be grateful to science for the disclosures; but it will be no less acceptable to the general public, for the effect of illuminating the streets and squares of a large city in an instant, without the apparent agency of man, would be magical indeed.

Alloys of Iron with Manganese.—The Terre-Noire, La Voulte and Bességes Iron Co. thus describe their improvements: With the following mixture: oxide of iron, 100; oxide of manganese, 750; lime, 20; oil, 500, a metal is produced containing from 75 to 80 per cent. of manganese, and a slag composed of the following: Silica, 12·2; aluminum, 3·7; lime, 7·1; barytes, 21; protoxide of manganese, 56. By increasing still further the proportion of oxide of manganese in the bath of metal, as much as 82 or 83 per cent. may be obtained; but a long time is required for its reduction, and the investigation into alloys so rich as this, has not the same interest.

Glycerine Instead of Steam.—An invention is now on exhibition in Liverpool by which oil or glycerine is made to perform the functions of steam by the same means—application of heat—which expands the oil placed in small cylinders, from which it is claimed a pressure of ten thousand pounds per square inch may be obtained without the danger of steam explosions, which prevents using a pressure of more than two hundred pounds to the square inch generally. In this instance an explosion would only crack the cylinder containing the oil, it is claimed. The application of this process has been made to the printing press and a punching and riveting machine, which are on exhibition.

A New Compound of Iron.—C. Burgess, of Portsmouth, Ohio, claims that by a mixture of fine cast iron with soft, gray cast iron he can make a new compound iron specially suitable for chilled or ordinary castings. By the adaptation of an ordinary gas puddling, closed or reverberatory furnace, and the employment of mineral coal therein, he produces a fine or partially refined cast iron for use in the foregoing process, and by a further continuation of the fining process he claims to convert cast iron direct into steel, in a common puddling or other suitable furnace, effectively and economically.

Ancient Use of Concrete.—Concrete was much used by the ancients, both as a foundation for roads and buildings, and for the interior of the walls of the latter. In some important instances, indeed, the walls were wholly composed of this artificial substance, but as it mainly consisted of lime, there was the drawback of the length of time it took to harden. The discovery in recent times of Roman, and better still of Portland cement, both of which set in a few hours, renders the use of concrete capable of great extension; and Mr. Hooper states that with the aid of the latter he has erected many buildings which promise to outlast those of equal size of any other material. The material is very suitable for fire-proof construction.—*Iron.*

Utilizing Waste.—It is said that the manufacture of mortar, beton and concrete, from the waste lime of gas purifiers—a discovery or invention announced only a short time ago—has already commenced on an extensive scale in England. The method of thus utilizing what has hitherto been considered an almost worthless refuse, consists, in this case, of simply grinding it up in an ordinary mortar mill or mixing it as common lime with sand, ashes, and similar material. The addition of Portland cement to the mixture is found to render the product—brick, slabs, etc.,—much harder.

A Monster American Locomotive.—The Pennsylvania Railroad Company claims to own the largest locomotive in the United States. She has twelve driving wheels and weighs 75 tons.

SCIENTIFIC PROGRESS.

American Weather Forecasts.—Mr. R. A. Proctor, who has lately been in America, speaks highly of the success of the Americans in weather prediction, which was discontinued in England after the death of Admiral Fitzroy. "The American papers publish daily, both in the morning and afternoon, the 'probabilities' as to the weather for the different sections of the eastern half of the United States. These announcements are now singularly accurate, the percentage of error being little more than ten or twelve, and constantly diminishing. Judging from all I heard, I believe that, notwithstanding the westerly situation of the British Isles with respect to the eastern continent, the system might be successfully introduced here. Of its success in America I can speak from experience. The probable weather for each day was a matter of considerable interest to me during my stay, especially during its latter half, as it chanced that I lectured nearly every day for the last three months of my stay in America (sometimes twice). I can only recall two occasions during all that time when the weather announcements were not strictly fulfilled by the event, and even in those cases the error consisted only in the announcement of a change in the weather a few hours before it actually occurred."

Rusting of Iron.—At a recent meeting of the American Association for the Advancement of Science, Professor S. S. Haldeman, of Harrisburg, Pennsylvania, read a paper, of which the following is an abstract: When railroad bars are piled beside a road they soon become rusted, while those forming the track are but little subject to oxidation; and when a rain of some hours' duration falls upon rails when in a state of rest, as upon Sunday, when trains do not run, they soon exhibit rust. This would seem to indicate that in chemical combination mechanical vibrations may interfere with the molecular arrangement of the elements. The accuracy of these casual observations should, however, be submitted to the test of experiment. In the discussion which followed this brief communication it was suggested that possibly the oil employed upon locomotives might be more or less spread in a thin film over the rails in use, and thus prevent their oxidation. This view was earnestly combated by other speakers. Professor Van der Weyde was quite certain that the suggestion of Prof Haldeman bore reference to a fact in physics. Molecular vibrations tended to prevent rust. A saw hung up, unused, would soon become rusty; if used, would keep bright. This was a general experience with tools.

Effect of Hydrogen in Impairing the Tenacity of Iron.—Iron or steel wire which has been acted on superficially by sulphuric acid is usually found to be altered in its properties. Its weight is increased, its tenacity is injured, so that, though originally soft and flexible, it easily breaks; and when a freshly-broken end is moistened by the tongue it effervesces as if acted on by a mineral acid. These effects after a time disappear. Prof. Osborne Reynolds, of Manchester, has ascertained that they are owing to the absorption of hydrogen generated during the chemical reaction which takes place when the wire is immersed in the acid. He found that, if an iron tube, closed at one end, be immersed in a dilute solution of sulphuric acid, hydrogen passes through the walls of the tube interior, and may be collected by attaching an India-rubber tube to the open end of the iron one, and passing it under a gas holder. Prof. Reynolds concludes that, whenever iron undergoes oxidation under water, it becomes saturated with hydrogen, and thus loses tenacity—an important consideration in the case of iron steam boilers or iron ships.

The Occlusion of Hydrogen in Iron.

A correspondent writes to the *Iron Age* as follows: The occlusion of hydrogen in iron may now be stated as a fact; and from recent investigations it has been determined that iron deposited galvanically contains very much hydrogen, with more or less carbonic acid, carbonic oxide, nitrogen and water, and that it may have occluded in it as much as 185 times its own bulk of these gases, principally hydrogen. These gases are evolved again on the application of heat.

This occlusion of hydrogen in iron is not an ordinary saturation; there appears to be no chemical action. It differs from the absorption of carbon, as the absorption of the latter does not in any case exceed 10 per cent. of the bulk of the iron, whilst the hydrogen is drawn with such force that 185 cubic inches of it may be packed and occluded in 1 cubic inch of the iron.

I conceive the cause of the absorption and occlusion of hydrogen in iron to be the molecular force of attraction, and that this force attracts the molecules of hydrogen, and compresses them within the physical pores of the iron.

The effect of the occlusion of hydrogen in iron is to make it hard and very brittle. The hardness is owing to the pores being filled with hydrogen of such extreme density, destroying the porosity of the iron. The brittleness is caused by the elastic force of the compressed hydrogen pushing against the sides of contiguous molecules of iron, thus reducing the resultant force of the physical structure, and causing the iron to be subject to a constant internal strain.

The occlusion of hydrogen in iron may seem to be of but little importance, but if the fact can be established that the occlusion is due to the force of attraction, it will explain many phenomena exhibited in the manipulation of iron and steel, which have not been satisfactorily accounted for.

Density of Hydrogen in Combination.—The avidity with which certain metals, as palladium, sodium and iron, absorb hydrogen is well known. The hydrogen thus absorbed forms a proper alloy with the metal absorbing it. Since, according to Graham, the elementary metals in alloys preserve the densities belonging to them when uncombined, it follows that, by comparing the ascertained density of any given metal with that of the same metal alloyed with hydrogen, it is possible to deduce the density of hydrogen itself in the solid state—a state to which it is impossible to reduce it by pressure or by reduction of temperature, or by both combined. This method has been applied by Messrs. L. Troost and P. Hautefeuille in the case of alloys of hydrogen with palladium and sodium; and the results are briefly stated in a recent number of *Les Mondes*. These experimenters found the density of palladium saturated with hydrogen to be 11·06, while that of the palladium itself, previously to the experiment was 12·0. From these data, combined with the increase of weight consequent upon the absorption of the gas, they deduced a density for hydrogen in the solid state of 0·62. A similar experiment made with sodium, gave for the hydrogen in combination, a computed density of 0·630. The two determinations very nearly agree, and the mean of them, viz: 0·625, may be taken as the probable density, which would give to hydrogen in the solid form a specific gravity somewhat above that of lithium, which is 0.50.

Effect of Heat on Germination.—It has hitherto been believed that a temperature of 150° Fahrenheit or upward is sufficient to destroy the germinative principle in wheat. Some experiments by Krasau, show that this is a mistake. In these experiments it was found that wheat thoroughly dried by very slow heat, with the help of calcium chloride, retained its capacity for germination unimpaired after being subjected to the temperature of boiling water for several hours. It need hardly be said, however, that this cannot be true of wheat which has not been dried. Boiling water promptly destroys the principle of life in all organisms which it can penetrate.

Luminous Apparitions or False Lights.—These are not due, as was long supposed, to the products of animal or vegetable decomposition, but are caused by insects which possess organs that become luminous at the time of their sexual congress. It is now well known that the phosphorescence of the sea is due to the presence of immense numbers of microscopic animals.—*Journal of the Chemical Society.*

Absorption of Gases by Iron.—John Parry lately read a paper before the British Iron and Steel Institute, in which he claimed that in addition to hydrogen iron and steel also absorbed zinc, cobalt, cadmium, bismuth, magnesium and arsenic. A very singular fact in connection with the absorption of arsenic was the circumstance that this vapor, when once absorbed, is not again cooled even upon heating the iron.

The Microscope.—The question as to the limit of capability of the microscope is investigated by Professor Abbe, of Jena; and he is led, by a series of physical deductions, to the remarkable result, that this limit is already as good as reached by our best microscopes, and that all hope of a deeper penetration into the material constitution of things than such microscopes now afford must be dismissed.

Cerro Gordo Mines.

EDITORS PRESS:—I have seen many noticee in the Ssn Francisco papers of the Panamint mining district iu this county, all very flattering, and I have no doubt very true. I have just visited Panamiut and believe the camp a good one, but do not see anything to pay for investment ontside of what is elready owned by the "Big Company"—Jones, Stewart, Relston and Parke. Thoy ere, as they eay, bound to have the whole thing, and already own the hest water snd wood rigbts and neerly all the mines that give any appearence of value. I do not therefore eee where outside capitelists have any chence of good investments in Panamint. Jones & Co. have a good thing, and they ought to have, as they have inveeted their money freely to open up a country which, but for their efforts, might have remained nnproductive for many years.

From Panamint I steered my way in a northerly direction about fifty miles to Cerro Gordo. Here I find a csmp that deserves credit for having supported itself and made money for ite miners and furnace owners from the heginning. There are two furnaces, esch about thirty tons ore capscity, now in constent operation—one owned by W. M. Belshaw and the other by V. Beeudry. The ore used by these furnaces ie snpplied almost entirely by the Union mine and the Ignacio silver mine. The base bnllion produced hy each furnace is ahout twelve and a half tons per day, and ie worth ahont $115 in eilver and $90 in lead per tou. The lead will pay expenses of mining, smelting and transportation to San Francisco, where its coet for refiniug is about $25 per ton, leaving a net profit of about $90 per tou. The Santa Maria and Omega minee, and the smelting works owned by the Owen's Lake Silver and Lead Company are now idle, but are expected to start up again soon. These mines are looking well snd ought to yield ae much as the Union.

To give eome idea of the profits made against the capital interested here since the smeltiug works were first started, I subjoin the following table, which I think is nearly correct:

Capital involved in furnaces, mines, bed-rock tunnels, etc., each year.	Total.	Bullion produced, tons	Net profits at $80 per ton.
1869.....$15,000	$ 15,000	1,000	$ 90,000
1870..... 15,000	30,000	1,500	135,000
1871..... 30,000	60,000	2,500	225,000
1872..... 15,000	75,000	4,000	360,000
1873..... 10,000	85,000	5,000	450,000
1874..... 16,000	100,000	6,000	540,000
Total			$1,800,000

The mines of this camp are not half opened, or even prospected to any extent. Between the Union mine snd the lower town of Cerro Gordo, a distance of about 3,000 feet, there are no less than ten parallel veins, or lodee, many of them, eo far as prospected, of equal promiee with the Union or Omegs.

To cut these lodes, as well ae all blind lodes on its couree, and to afford better facilities for working the mines now in operation, a company called the Potosi Miuing and Smelting Company was organized some time ago in San Francisco, and has commenced a tunnel, known as the Potosi tuunel. It commences in the lower town of Cerro Gordo, and has a couree of about 70° E., and will intersect these lodes nearly at right angles, and at depths varying from 500 to 2,000 feet, cutting the Union and Santa Maria about their southern line, at a depth of over 900 feet. Pending the arrival of their Burleigh drill mechinery, with which this company propose to prosecute their work, they are pushing the tunnel ahead by hand labor, and have already made a distance of about 450 feet, and crossed two silver-bearing quartz lodes, which they are now prospecting with good results. A fair supply of water hae also been etruck in this tunnel, the value of which cen only be aporecieted by those who heve to pay four cents a gallon for all they use, ae is the case in Cerro Gordo at present.

By careful eurveys of the surface, this company expect to strike mines at the following distances:

At 300 and 350 feet—Minee already crossed.

At 1,000 feet—Silver and gold miue, 500 feet below surface.

At 1,350 feet—Silver and gold mine, 500 feet below eurface.

At 1,600 feet—Silver and lead, 800 feet below surface.

At 1,750 feet—Silver and lead, 800 feet below surface.

At 1,900 feet—Silver and lead, 40 feet wide, 900 feet below surface.

At 2,100 feet—Silver and lead, 850 feet below surface.

At 2,500 feet—Silver and lead, Exteneion of Senta Maria, 900 feet below surface.

At 2,700 feet—Silver and lead, Union, 1,000 feet below eurface.

At 3,3000 feet—Silver and lead, Buena Viste, 2,140 feet below surface.

The cost of tbis tunnel will he about $100,000, and it is said will be completed in less tban one yeer from the time the machinery ie placed.

Here ie an iuvestment which it would seem ought to attract the attention of capitalists. This is no new camp, but has been thorongbly tested: the Union miue to a depth of 600 or 700 feet, and the Omega to a depth of about 500. These mines and others that have been worked have improved both in quantity and quslity of ore steadily ss they have gone down. All they now want is a means of getting their ore out below their present working.

To effect this object they have their choice of sinking a main shaft 1,000 feet, and erecting extensive and costly hoisting works, or paying the tunnel company fair royalty for the privilege of ruuning their ore out through the Potosi tunnel. If a shaft were commenced now, and work thereon prosecuted with vigor, it migbt possibly he got to the tunnel level by the time the tunnel reaches that point, and at the same expense which would have to be borue by the individual owners of one or two mines; but these mine owners are all in favor of the tunnel enterpri-e, and wisely conclude to wait for its completion, and in the meantime work with their present appliances. I shall visit Wancoba and other mining districts in this county shortly, and give your readers such information as I can communicate by letter.

A MINING MAN.

THE Clear Lake miuing district has been formed in Lake county. The boundarice are as follows: Commencing at the northeast portion of the Hawkins arm of Clear Lake, thence northerly to the msin creek in Long valley, thence up said creek to the top of the mountain, thence along the mountain to the head of the main fork of Clover creek, thence down Clover creek to Scott's creek, thence up Scott's creek to the mineral eprings, known as the Bynum or Adams springs, thence easterly to the place of beginning. Woods Crawford is Recorder.

THE Chinamen are quietly buying up all the old piecee of miniug ground to be found neer Oroville that they can get cheap. They are taking out a large amount of dust each week. There are now about 4,000 Chinamen at work in the Leva Beds below town, and all seem to be doing well.

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertieements in the Mining and Scientific Preee and other S. F. Journale.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Deling'nt.	Sale.	Secretary.	Place of Business.
American Flag M & M Co	Ely District	6	50	Nov 10	Dec 14	Jan 11	G R Spinney	320 California st
Belmont M Co	Nevada	4	1 00	Oct 9	Nov 10	Nov 30	C H Bogart	402 Montgomery st
Buckeye G & S M Co	Nevada	12	1 00	Nov 14	Dec 18	Jan 7	O A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	R Wagener	414 California st
Cedercerg G M Co	Cal		50	Oct 29	Dec 1	Dec 21	D M Sokee	215 Sansome st
Chollar-Potosi M Co	Washoe	5	5 00	Nov 14	Dec 18	Jan 7	W E Dean	419 California st
Daney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Empire M Co	Idaho	8	1 00	Nov 10	Dec 10	Jan 4	William Willis	419 California st
Empire M & M Co	Washoe	16	50	Oct 21	Nov 27	Dec 21	G R Spinney	320 Cal fornia st
Eureka M & Smelting Co	Nevada	4	2½	Nov 6	Dec 12	Jan 6	T P Beach	424 Montgomery st
Golden Charriot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaplan	Merchants' Ex
Huhn & Hunt S M Co	Ely District	10	25	Sept 24	Nov 2	Nov 25	T L Kimball	409 California st
Ida Elmore M Co	Idaho	16	1 00	Nov 16	Dec 21	Jan 12	William Willis	419 California st
Independent G M Co	Butte Co Cal	7	50	Oct 5	Nov 5	Nov 26	G T Grimes	240 Montgomery st
Julia G & S M Co	Washoe	20	2 00	Oct 30	Dec 4	Dec 23	A Noel	419 California st
Justice M Co	Washoe	12	3 00	Nov 13	Dec 15	Jan 15	J S Kennedy	Merchants' Ex
Knickerbocker M Co	Washoe	10	1 50	Oct 30	Dec 5	Dec 24	H Boyle	Stevenson's Bldg
Lady Bryan M Co	Nevada	4	50	Nov 11	Dec 16	Jan 13	F Swift	419 California st
Mahonney G & S M Co	Idaho	14	2 00	Nov 3	Dec 10	Dec 31	O H Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
Mint G & S M Co	Washoe	8	10	Nov 17	Dec 22	Jan 15	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	Nov 10	Dec 14	Jan 4	W W Hopkins	411½ California st
Newark G M Co	Ely District	9	50	Nov 4	Dec 7	Dec 28	Wm Willis	419 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 28	Thomas Derby	320 Sansome st
Occidental M Co	Washoe	2	50	Sept 24	Oct 30	Nov 23	J H Gager	507 Montgomery st
Original Hidden Treasure	White Pine		1 00	Oct 12	Nov 14	Dec 9	D A Jennings	401 California st
Pare & Pecuca S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	F Bush	Merchants' Ex
Pauper Co	Idaho	3	50	Oct 26	Nov 30	Dec 21	D Wilder	M rchants' Ex
Pictou M Co	Washoe	6	25	Oct 24	Nov 28	Dec 16	S Phillipe	408 California st
Raymond & Ely M Co	Ely District	2	3 00	Nov 3	Dec 10	Jan 7	T W Colburn	418 California st
Rock Island G & S M Co	Washoe	5	1 00	Nov 16	Dec 21	Jan 12	J W Clark	418 California st
Sandercock G M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Liedesdorff st
Silver Cord M Co	Idaho	6	50	Nov 5	Dec 7	Dec 29	Frank Swift	419 California st
Silver Hill M Co	Washoe	4	2 00	Oct 28	Nov 30	Dec 22	W E Dean	419 California st
South Chariot M Co	Idaho	11	50	Nov 5	Dec 11	Jan 5	Frank Swift	419 California st
War Eagle M Co	Idaho	8	1 00	Nov 9	Dec 16	Jan 8	L Kaplan	401 California st
Woodville G & S M Co	Washoe	8	1 00	Nov 9	Dec 14	Jan 5	W M Helman	401 California st
Yule Gravel M Co	Placer Co Cal	5	10	Nov 9	Dec 14	Jan 5	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Buena Vista Petrolenm Co	Cal	23	75	Oct 5	Nov 16	Dec 14	L Hermann	330 Pine st
Cbance S M Co	Cberry creek	1	50	Oct 7	Nov 18	Dec 14	J Marks	414 California st
Cherry Creek M & M Co	Nevada	1	15	Nov 10	Dec 14	Jan 7	D F Verdenal	409 California st
Cherokee Flat Blue Gravel Co	Cal	33	5	Nov 10	Dec 14	Dec 29	H Pichoir	603 Wasbington st
Cedarberg G M Co 1st S Ex	Cal	7	4	Sep 27	Nov 30	Dec 18	J N Webster	420 Mon gomery st
El Dorado Water & Deep Gravel Co	Cal	6	10 00	Oct 26	Nov 27	Dec 12	H Elias	416 Montgomery st
El Madre Quicksilver M Co	Cal	2	6	Oct 27	Dec 4	Dec 28	A Hilsey	312 Montgomery st
Excelsior G M Co	Tuolumne Co	Cal	14	15	Oct 20	Nov 25	Dec 19	E Chattin	442 California st
Gold Run M Co	Nevada Co	Cal	8	15	Oct 14	Nov 16	Dec 3	H O Palmer	41 Market st
Grey's M Co	Placer Co	Cal	1	50	Oct 7	Nov 9	Nov 30	W R Townsend	320 Pine st
Gualala M Co	Sonoma Co	Cal		5	Sept 29	Nov 5	Nov 25	James R Martin	Larue's Wbarf
Howard Hill G M Co	Cal			50	Nov 7	Dec 16	Jan 7	F J Hermann	418 Kearny st
Mount Sava e M Co	Utah		1	10	Oct 16	Nov 18	Dec 10	D F Verdenal	409 California st
North Fork M Co	Plumas Co	Cal	6	2 00	Oct 24	Nov 30	Dec 4	A Martin	520 Washington st
Omega Table Mt M Co	Cal		4	2½	Oct 15	Nov 23	Dec 14	D Wilder	Merchants' Ex
Oneida M Co	Amador Co	Cal	9	75	Oct 8	Nov 11	Nov 30	L Kaplan	Merchants' Ex
Orleans M Co	Nevada Co	Cal	1	1 00	Oct 10	Nov 24	Dec 15	J F Nesmith	315 California st
Owens G & S M Co	San Diego Co	Cal	3	1 00	Nov 3	Dec 7	Dec 23	Frank Swift	419 California st
Peerman G & S M Co	Idaho		1	50	Nov 13	Dec 18	Jan 14	William Willis	419 California st
Quintero M Co	Nyo Co	Nev	3	10	Sept 30	Nov 2	Nov 18	H C Kibbo	419 California st
Starr King S M Co	Nevada		8	25	Oct 3	Nov 6	Nov 25	L Kaplan	Merchants' Ex
St John G M Co	Kern Co	Cal	2	5 00	Oct 2	Nov 5	Nov 24	W R Pownsend	320 Pine st
Table Mt Blue Gravel M Co	Cal		4	30	Nov 4	Dec 7	Dec 24	W M Hellman	401 California st
Tolman & Miller M & M Co	Cal			30	Oct 9	Nov 12	Nov 28	J L Trask	306 Montgomery st
Victoria & Imperial T & M Co	Utah		3	10	Oct 17	Nov 11	Dec 5	W H Watson	30 Montgomery st
Watson M Co	Robinson Dist	Nevada	1	1 00	Nov 16	Dec 21	Jan 13	W H Watson	302 Montgomery st
Woodville M & M Co	El Dorado Co	Cal	1	25	Nov 10	Dec 19	Jan 6	J Glassman	335 Montgomery st
Wyoming G M Co	Nevada Co	Cal	4	30	Sept 30	Nov 2	Nov 23	W J Quinn	410 Montgomery st
Zacatero G M Co	Cal			50	Nov 4	Dec 7	Dec 29	L Hermann	330 Pine st

MEETINGS TO BE HELD.

Name of Co.	Lncatinn.	Secretary.	Office in S. F.	Meeting.	Date.
Andes S M Co		Edward Landers	507 Montgomery st	Annual	Dec 18
Cosmopolitan M Co	Nevada	D L Thomas	419 California st	Special	Nov 28
Kearsarge Quicksilver M Co	Cal	J McHaffie	408 California st	Annual	Nov 21
Kentuck M Co	Washoe	Frank Swift	419 California st	Annual	Nov 23
Shasta Bullion G M Co		F P Reynolds	117 Liedesdorff st	Annual	Dec 1

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Lnoation.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M Co.	Washoe.	H C. Kibbe,	419 California st.	3 00	Nov 10
Chariot M & M Co		Frank Swift	419 California st	40	Nov 16
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	Nov 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	Nov 12
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

The mining etock market has been in quite a buoyant condition for the past week, which etill continues. Stocks have not been very high, hut the market, nevertheless, shows considerable strength. Advices from the leading mines, especislly thoee on the Cometock, are favorable. In thet region they are now beginning to talk of 4,000-ft. shafts and if they carry out their ideas, which seems prohable, we will heve the deepest mines in the world. All this is good for the menufscturers in this city as well as the miners themselves. Assessments recently heve beeu very plentiful. Since our last week's table was made up the following assesements have been levied: Chollar, $5 per share, delinquent December 18; Mint, 8 cts.; Rock Island, $1 per share; Empire (Idaho), $1; Ida Elmore, $1; Justice, $3 per share; Lady Bryan, 50 cts. per share; Poorman, 50 cts.; Woodville, $1 per ehare; North Belmont, 50 cts.; Watson, $1 per share and Buckeye, $1 per share. The Idaho etocks at present make a bril iant showing in the sssessment list, while the names of none are on the dividend paying list. There are more of them under assesement just now than ever at any one time before.

THE Placerville *Democrat* says: Owing to a clesh between the San Francisco and London etockholdere, operations at the St. Lawrence mine have ceaeed, hoth in the mill and under ground. At the time of qnitting work the north drift was in the fineet ore ever seen in the mine. The euspeneion will result in the filling up of the mine with water and this will lead to a general caving in, which will be the utter ruin of a valuable and finely opened mine, the deepest in this conuty.

REPORTS from the engineers who are rnnning the preliminary lines for the Los Angeles and Independence railroad, are to the effect that they find the Cajon Pass the moet practicable, and that route will probably be eelected.

Sales at the S. F. Stock Exchange.

Thursday, Nov. 19.

MORNING SESSION.

280 Opbir.....88@90
1735 G & C.....23½@24
220 ....b 5.....24
3707 B & Bel.....21@22
500 ....b 30.....21½@22½
100 Jacket.....87½@ 8
Chollar-Potosi M Co
Daney M Co
Empire M Co
Empire M & M Co
Eureka M & Smelting Co
Golden Charriot M Co
Huhn & Hunt S M Co
Ida Elmore M Co
Independent G M Co
Julia G & S M Co
Justice M Co
Knickerbocker M Co
Lady Bryan M Co
Mahonney G & S M Co
Mammoth S M Co
Mint G & S M Co
Monitor-Belmont M Co
Newark G M Co
North Bloomfield Gravel M Co
Occidental M Co
Original Hidden Treasure
Pare & Pecuca S M Co
Pauper Co
Pictou M Co
Raymond & Ely M Co
Rock Island G & S M Co
Sandercock G M Co
Silver Cord M Co
Silver Hill M Co
South Chariot M Co
War Eagle M Co
Woodville G & S M Co
Yule Gravel M Co

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Buena Vista Petrolenm Co
Cbance S M Co
Cherry Creek M & M Co
Cherokee Flat Blue Gravel Co
Cedarberg G M Co 1st S Ex
El Dorado Water & Deep Gravel Co
El Madre Quicksilver M Co
Excelsior G M Co
Gold Run M Co
Grey's M Co
Gualala M Co
Howard Hill G M Co
Mount Sava e M Co
North Fork M Co
Omega Table Mt M Co
Oneida M Co
Orleans M Co
Owens G & S M Co
Peerman G & S M Co
Quintero M Co
Starr King S M Co
St John G M Co
Table Mt Blue Gravel M Co
Tolman & Miller M & M Co
Victoria & Imperial T & M Co
Watson M Co
Woodville M & M Co
Wyoming G M Co
Zacatero G M Co

AFTERNOON SESSION.

420 Imperial.....13¼@13¾
60 Union Con.....23@24½
90 B st & Bel.....21¾@21¾
50 Con Vir.....160
220 .....12¾@13¾
60 Yellow Jacket..99@100½
20 Overman.....60@65
55 Andes.....2¾@2¾
20 California.....85@90
300 Empire.....14¾@14¾
150 Gould & Curry ..24½@25
35 Eureka Con.....14
40 Balt Con.....8
50 Belmont.....8
100 Globe Con.....1½
100 Ida Elmore.....1½
50 Tyler.....1½
200 Senator.....1¼
55 C Point.....60@63½

Thursday, Nov. 12.

MORNING SESSION.

935 Opbir.....90@96
955 Gould & Curry...16@17½
100....b 30.....15
964 Best & Belcher.....20@22
400 ....b 30.....21@22
150 ....b 5.....21
531 Savage.....44½@45
330 ....b 30.....22½
50 ....s 5.....80
495 Chollar-Potosi.....66@67
230 Hale & Norcross.....46
1660 Crown Point.....44@47
20 ....b 30.....47
150 ....b 5.....44½@45
....s 5.....92
2520 Imperial.....12½@14
1170 Empire M .....14¾@14¾
50 ....b 30.....14¾
200 G Hill.....6
748 Kentuck.....18½@19
350 Alpha.....19@18½
990 Belcher.....58@55½
60 ....b 30.....56½@57
1405 Confidence.....28@26
515 Con Vir.....158@161
10 ....b 30.....161
685 Sierra N.....8¾@9
55 Exobeq.....23@24½
115 Sep Bel.....12½
525 Overman.....58½@59¼
10 ....b 30.....60
120 ....b 5.....59½@59½
50 Justice.....36
70 Succor.....2¾@2¾
240 Lady B.....3½@3¾
200....s 30.....3¾
330 Julia.....4@3¾
85 ....b 5.....3¾
570 Caledonia.....21¾@22½
210 Knicker.....4¼@4
500 Globe.....1¾
1070 B ls Con.....8¾@8¾
140 Bacon.....5¾@6
200 Bullion.....15½@16
400 ....b 30.....16¼
200 Utah.....3¾@3¾
2125 California.....38½@40
300 ....b 30.....90@86½
100 ....b 5.....87

AFTERNOON SESSION.

235 M Valley.....6 @5¾
165 Raymond & Ely.....16½@16¾
195 Eu Con.....12½@12
50 ....b 30.....12¾
900 Picoho.....8@8
230 Wash & Creolo.....10@7
60 Am Flag.....2¾@2
610 Belmont.....8¾@8½
400 Newark.....60c
275 Rye Patch.....3¾@3¾
200 St Patrick.....1¾
440 Chariot Mill.....6
600 ....b 30.....7¼@7¼
230 Golden Chariot..3¾@3¾
50 Belmont.....2¾
100 South Chariot.....1
550 War Eagle.....3@2¾
530 Silver Hill.....6¾@6¾
100 Eclipse.....7¾
....b 5.....5¾@5¾
130 Dardanelles.....17½@18
30 Trend.....6
365 New York.....2¾@2½
200 Occidental.....3
500 Senator.....1¼@1
120 American Flat.....9@8
1085 Union Con.....22@20
125 Tyler.....2¾@3
100 Rock Island.....4¾
685 Woodville.....2@1¾
240 ....b 30.....1¾
125 Mint.....300
680 Indus.....2¾
570 Koesuth.....2¼@2¾
200 Leo.....1¾@1
2050 Andes.....2¾@2¼
100 Pacific.....1
625 North Carson .....3@2¾

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco:

NORTH CALISTOGA M. Co.—Nov. 16. Location: Lake Mining District, Napa county. Directors—Wm. Burling, W. M. Lent, C. Hensch, A. P. Cox and James P. Sargent. Capital stock $6,000,000, divided into 60,000 shares.

PROVIDENCE M. & M. Co.—Nov. 13. Location: San Ygnacio Minlug District, State of Sinaloa, Mexico. Directors—A. Poulaix, B. Bompard, J. R. Lafaix, Felix Pyat and A. Fossard. Capital stock $120,000, divided into 1,200 sbares.

MAMMOTH Q. Co.—Nov. 16. Location: Lake and Napa conntie. Directors—J. W. Lynch, J. O'Farrell, A. Rodgers, J. B. McCue and C. J. Eaton. Capital stock $10,000,000, divided into $100,000 shares.

The following companies bave filed certificates of incorporation in the office of the Secretary of State, at Sacramento.

SONOMA AND MARIN R. R. Co.—Principal place of business, Petaluma; capital stock $1,000,000, in shares of $100 each.

SANTA CRUZ AND FELTON R. R. Co.—Principal place of business, San Jose; capital stock, $1,000,000, in sbares of $100 each.

INCREASE OF CAPITAL STOCK.—The officers of the Mount Savage Mining Company bave filed with the County Clerk a certificate of the increase of capital stock of that company from $6,000,000 in 60,000 sbares to $10,000,000, divided into $100,000 sbares. It is averred that the whole amount of the original stock is paid in, because it is represented by the mine. The liabilities of the company are stated to be the ordinary floating current accounts and $3,000 borrowed money.

Meetings and Elections.

NORTH CALISTOGA M. Co.—Wm. Burling, President; Wm. M. Lent, Vice-President; A. P. Cox, Secretary and Treasurer, and Mr. Frank Tagliabuc, Superintendent. Office, 24 Merchants' Exchange.

GIANT POWDER Co.—Trustees: Egbert Judson, Albert Dibblee, H. Brickwedel, A. Block and Levi Stevens. Subsequently, A. Dibblee was chosen President and H. Pichoir was continued as Secretary. Regular monthly dividends of 1½ per cent. bave been paid during the year.

THE emelting worke in Sacramento have been shut down for a couple of weeks, and will not start up again till the company have seoured the servicee of a thoroughly competent superintendent.

THE opening of the three new coal minee, the renewed ectivity at the gold sand mines on the Coquille, and the increase in the production of lumber, will all contribute not a little toward the development of the steamboat husiness on Coos Bay.

THE Consolidated Virginia mining company are making rapid proprese in the construction of their new sixty-stemp mill. Once it ie started up it will give steady employment to a large number of workmen.

A MINING district hee been organized in Mendocino county, including the newly discovered eilver mines of Mount San Hedrim.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

NUMBER OF CLAIMS.—Alpine *Chronicle*, Nov. 14: The number of mining claims surveyed in this county for the purpose of procuring a United States patent is eight, as follows: In Monitor mining district, Manchester, Winchester and Merrimac; Silver mountain, Pennsylvania and Exchequer; Alpine, Silver Cloud. The Adolphus and Pine Tree mines are to be surveyed, and that will close the business for this season. The Lady Franklin, Mountain and Silver Cloud companies have made applications for patents.

ODEN.—We have advices that the Ogden Mining and Smelting company of Chicago, will early next spring ship from that city machinery for a quartz mill, to be erected in this town. This company owns the George Washington mine. It is presumed that negotiations for the purchase of the Pennsylvania mine by this company will be resumed.

CALAVERAS COUNTY.

GWIN MINE.—Calaveras *Chronicle*, Nov. 14: Unusual activity is observable at the Gwin mine. New and powerful hoisting works have recently been added to the machinery. Sinking for the purpose of running a new level—the 1,000-ft.—has been commenced. A few years ago the croakers about "barren Calaveras" would have laughed at the idea of a shaft in a quartz mine ever reaching the depth of a thousand feet in this county. Now, actual development has proved the Gwin to be one of the most valuable mines in the State, and it is only one of a good many to be found within the boundaries of Calaveras.

SANDERSON MINE.—The main shaft, the sinking of which is steadily progressing, is nearly 400 feet in depth. The ledge shows from two to two and a-half feet in thickness, composed of an excellent quality of ore.

PRUSSIAN HILL MINE.—The new shaft in the Prussian hill mine, near Railroad, has reached a depth of 225 feet and rock is now being actively stoped out. The quartz is said to be rich and the ledge wide.

COLUSA COUNTY.

QUICKSILVER.—*Colusa Sun*, Nov. 14: The Abbott Quicksilver mining company recently made their second clean up, and took out 27 tanks of quicksilver. Each tank contains 76½ pounds.

HUMBOLDT COUNTY.

NEW MINE.—Mendocino *Dispatch*, Nov. 14: Jehiel Smith, who has just returned from his mine in Humboldt county, Nevada, has shown us some specimens of the ores from his mine. He has run a tunnel some 60 feet or more, and has struck the ledge about 15 feet from the surface of the ground, perpendicular, where he finds the ledge full two feet thick. In quality, the ore ranges from $90 to $800 per ton, in value. It is a mixture of lead and silver; in weight, the lead largely preponderating, but in value nearly equal. Mr. Smith brought 100 pounds of his ore to the smelting works in Sacramento, from which he expects a return within a few days.

LAKE COUNTY.

DISCOVERIES.—Napa *Reporter*, Nov. 4: Rodney Hudson was in town on Wednesday, and from him we learn that investigation has developed very rich mines some six miles from the Calistoga Silver mine and one mile from Cayote valley. A mining district is to be formed here immediately, and the names of the fortunates who lay claim to this district are David, Elbert and Rodney Hudson, W. McCormick, W. S. Whitton, N. P. Banks, A. Brunson, H. D. Serepture, W. H. Williams, Lanla Whiting, Hattie and Jennie Elam, Ada Linwood and Dana Brown.

BAKER MINE.—Lake county *Bee*, Nov. 12: Mr. Bolter, foreman of the Baker quicksilver mine, situated four miles below Lower lake, informs us that it is one of the best mines he has ever worked in, and he has been employed in many, being an old miner. They have now 500 tons of good average ore taken out of the mine. They have no smelting works as yet.

NAPA COUNTY.

MILL STOPPAGE.—Napa *Reporter*, Nov. 14: The recent storm caused a stoppage for a few days of the Calistoga quartz mill, but on Tuesday work was resumed, the mill crushing out its ten or twelve thousand dollars of bullion per week.

CALISTOGA MINE.—The mine still continues to crush out silver, spite of the fact that the bottom of the road between the mill and the mine has fallen out, and the ore wagons come in slowly. The ore averages by assay $100 to the ton, and the mill turns out from $85 to $87 for every ton thrown under its stamps.

NEVADA COUNTY.

PROSPECTING.—*Transcript*, Nov. 13: Prospecting seems to be going on at a lively rate all around. When prospect rock pays on an average $25 a ton, as it has here this summer, it would seem a profitable business to those engaged in it.

LUCKY MINE.—Foothill *Tidings*, Nov. 13: The management of this mine, we are glad to learn, this week passed formally into the hands of Captain John White as superintendent, who, it is expected, will put on a force of men and start up work if possible to procure a supply of wood for fuel at this late day in the season. This mine is situated about two miles from town, on Howard hill, and consists of about 1,500 feet on the Cambridge ledge. The vein is reached by a tunnel 400 feet long and thence worked through an incline shaft.

FROM the word go, is the way the Pittsburg claim out near Deadman's Flat has paid. We are informed that all the prospecting by shaft and drift, the hoisting and pumping machinery and other expenses have been paid from the proceeds of rock taken out and worked, and that there seems to be plenty of pay rock ahead. This is comparatively a new mine and in a district not heretofore prosperous, but it is said there are many locations in that vicinity that appear as well as the Pittsburg, which will be likely to receive attention as the result of this success.

STRIKE.—Johnny Schmidt, who owns a ledge out on Woods' ravine, near Nevada, is again in luck. The *Transcript* says he has been working his mine for several years, and at times it was very rich, but after incurring considerable expense some time since, in erecting hoisting works, and the mine subsequently failing to pay as well as usual, he found himself in debt, and had to mortgage the mine. He has continued work, however, and a few days since he struck some very rich rock. His son took out in a half day over a thousand dollars, enough in fact to pay off all his indebtedness. He has now two tons of rock out, from the same place and says it is very rich.

WHEAL BETSY.—Carpenters, engineers and laborers are now engaged in transferring the machinery of the old Heuston Hill mine to the Wheal Betsy, now owned by the Orleans Mining Company, where it is to be erected and work resumed on this once favorite claim. Wheal Betsy is located on Osborn Hill, and consists of five hundred feet of the Osborn Hill vein, lying north of the discovery claims.

EUREKA.—A visit to this celebrated mine this week enables us to contradict, so far as able to do so, judging by appearances, the report that it will soon go the way of the North Star—shut down. Judging by the woodpiles on hand it will be some time before such a dire result will be reached; and by the same token, considering the locality of said stacks of fuel, the main shaft will not be abandoned yet awhile. Then, too, the work of opening some new ground owned by the company, over west of the old works, seems to be proceeding with all due diligence and in a thorough manner. Machinery for pumping and hoisting is being erected and the pumping department was put in motion the day we were out, Wednesday. It took the water nicely, lowering it at a rapid rate while we were there. The power used is a small stream of water on an overshot wheel and when the hoisting machinery is added it will probably be the most economical mining rig about here.

Old miners laugh at the idea that the chute of ore originally found in the Eureka and pitching into the Idaho ground is the only one in all that region of well defined quartz veins, and we hope another year will not pass before the explorations below in the Eureka vein proper and upon several parallel veins in the vicinity, will prove their belief well founded.

PLACER COUNTY.

THE MINES.—Placer *Argus*, Nov. 14: The Orleans is looking well. The main shaft is down 100 ft. in good ore, and the ledge is fully five ft. thick. Two shifts of men are engaged in sinking, and good rock is being taken out. Crushing is suspended until the Eclipse mill gets in its new battery, which will probably be next week.

GREENE MINE.—The work of fitting up and cleaning out the mine is progressing favorably. Stoping on the 220-ft. level has begun, and good rock is coming out. The ledge runs about 20 inches, and is of good quality. The machinery has been repaired and fitted up, and is now in excellent order. It is the intention to move the mill from its present position up to the hoisting works, and add four more stamps. One of the engines will furnish the requisite power, leaving the other to do the hoisting.

ST. PATRICK.—The Crater Hill mine of the St. Patrick company is being opened out and cleared of the accumulated rubbish, ready for a vigorous campaign. The shaft is in good ore and the ledge is improving. The mill is running steadily on Crater ore, with good show for a rich clean up, the rock taken out being richer than was looked for.

YANKEE JIM'S.—Cor. Placer *Argus*, Nov. 14: There are two new mines that are being fitted up to work this winter. The Independent at Yonng America will be opened, and our old and esteemed friends, Dr. Smith, of Forest Hill, and James Hodges, of Yankee Jim's, are fitting up one at Forest Hill; I hope they will realize all they wish for. If anyone thinks our mines are worked out, they will be disabused of that idea by coming here and seeing the great improvements that are made every year. The Georgia Hill company have shipped from San Francisco, 700 kegs of powder, and will let off a monster blast about the 20th inst.

SAN BENITO COUNTY.

MINING SALE.—Gilroy *Advocate*, Nov. 14: Last week a sale was effected of the Stayton quicksilver mine, in the McLeod mining district, situated in San Benito and Merced counties. The stipulated price is $200,000, of which $10,000 was paid down, we believe, and the balance to come in regular installments. An English company of capitalists were the purchasers, and they propose to at once erect extensive works and commence the working of the mine in earnest. It is believed by experts that this will become one of the best paying mines in the State. With the present furnace, which has a capacity of reducing only about 900 pounds of rock per day, 76¼ pounds of quicksilver are extracted, worth at the present market price about $111. The expenses are light, and the daily profit can be easily estimated. The vein of the principal mine is 19 feet high by 12 feet thick, and there is said to be sufficient rock on the dumps and in sight to pay for the mine. There is another vein which will yield fifty per cent. of quicksilver, and various other undeveloped veins, which are believed to be rich.

SAN DIEGO COUNTY.

JULIAN MINES.—Cor. San Diego *World*, Nov. 14: The mining outlook is indeed very flattering for this time of the year. We have in Julian the Owens, Tom Scott, Helvetia and several other mines, all having flattering prospects. In the Cañoa and Banner, the Ready Relief, Hubbard and several other mines of lesser note are looking well and general activity seems to prevail throughout the two districts. Conat & Co. have an immense stock of merchandise on hand and are doing a thriving business, and in fact business of all kinds is much better than ever before in this section.

SIERRA COUNTY.

ROCK CREEK.—*Mountain Messenger*, Nov. 14: S. B. Ireland, the other day, took $7.50 worth of coarse gold from two car-loads of dirt, amongst which was a fine looking nugget, from the Ruby, formerly the Golden Gate mine. This claim adjoins the celebrated Bald Mountain, and promises well. In the spring an incline will be sunk, costing about $10,000, to reach the main channel. The pay dirt came from a bench in the diggings.

TUOLUMNE COUNTY.

GOOD GRAVEL MINE—*Independent*, Nov. 14: Per Johnson, who owns the extensive gravel claim at Douglasville, between the Half-way house and Columbia, has one of the best mines in the country. His last run of 17 days yielded $800, which, deducting $300 for expenses, netted him the sum of $500. It has paid at this rate right along for several years. For three years past he has worked it with hydraulic and hoisting works. He can wash off about 20 feet without hoisting, and with sufficient fall and a "little giant" he could roll out gold by pounds. He is now 50 feet below the surface, and how much deeper the gravel runs no man knows. The claim will last for many years yet, and, in his opinion, the best ground is to be worked yet.

Nevada.

WASHOE DISTRICT.

CONSOLIDATED VIRGINIA.—Gold Hill *News*, Nov. 12: The ore breasts on the 1,300, 1,400 and 1,500-ft. levels are yielding rich ore, and if anything, looking better than ever before. The face of both the north drifts on the 1,300 and 1,400-ft. levels, running ahead of the north ore breasts, are still in fine ore. Another winze has been commenced, designed to extend from the 1,300 north drift downward to the 1,400-ft. level. The bottom of this winze is also in fine ore. The stack-pipes for the new mill are being raised, the monster engine for running the machinery is being placed in position as fast as possible, and the whole will soon be ready to start into full operation.

OPHIR.—Sinking the winze in south crosscut No. 2, on the 1,300-ft. level, is making fine progress, the bottom still in rich ore. The ore breasts, on the 1,465-ft. level are opening out splendidly with still greater promise of better developments ahead. The bottom of the south winze on the 1,465-ft. level near the south line, is still in rich ore, also the face of the east cross-cut near the same point. The new air compressor is working finely, and the air pipes have been extended down to the 1,700-ft. level. The yield for last month reached $90,000, which amount will probably be greatly increased by the run of the present month.

WOODVILLE.—The ore body going south on the 300-ft. level is steadily improving in quality, the ore carrying a much larger percentage of gold; in fact the entire mine is showing much better in that direction. A clean-up day before yesterday of 120 tons of ore, the result of six days' crushing, gave a return of $3,935.12, being at the rate of about $35 per ton.

BULLION.—Driving the main north drift on the 1,700-ft. level from the Imperial shaft is making steady progress, still following the west wall of the ledge, with steadily increasing prospects of ore developments whenever cross-cutting the ledge shall have been commenced.

IMPERIAL-EMPIRE.—The bottom of both the north and south winzes on the 1,850-ft. level are still in rich ore.

DAYTON.—The ore breasts on both the second and third station levels are yielding finely, and continue to look well.

GOULD & CURRY.—Cross-cutting on the 1,500-ft. level is going forward as usual with no change.

KOSSUTH.—Sinking the shaft is making good headway, the rock in the bottom blasting finely. Sinking a winze south of the shaft in the ore vein, on the 200-ft. level, has been commenced.

NEW YORK.—The ore body in the south drift, on the 550-ft. level, has increased to 7 ft. in width, and is of a very promising character. The streak of ore in the north drift on the same level is about 4 ft. in width, and of good character.

CHOLLAR-POTOSI.—Daily yield, 70 tons of ore, the average assay value of which is $24 per ton. The ore breasts in the old upper workings are yielding the usual amount of ore.

SUTRO.—The main west tunnel is still driven vigorously ahead, the face still in ledge matter. The ledge matter has already been penetrated for a distance of 200 ft. without reaching any west wall.

CALIFORNIA.—Both the south drift from the Ophir and the north drift from the Con. Virginia, on the 1,500-ft. level, are making good progress.

ORIGINAL GOLD HILL.—The drift west at the 350-ft. level is still going ahead with excellent indications in the face.

LADY BRYAN.—The erection of the new pumping machinery is fast approaching completion.

SAVAGE.—Sinking the main incline below the 2,100-ft. station is making good headway, the bottom in good working ground. Sinking the south winze below the 2,000-ft. level is also progressing finely.

BELCHER.—Daily yield 500 tons of ore. The ore breasts are yielding the usual amount of fine ore, and the mine is looking finely throughout. After a careful examination of the new air shaft, the scene of the late conflagration, it was decided that owing to the heavy caves in the shaft that it would be safer and better to fill the old shaft up and sink a new air shaft than to attempt to repair the old one.

HALE AND NORCROSS.—The north cross-cut on the 2,000-ft. level has reached the west wall of the ledge without encountering any paying bodies of ore.

CROWN POINT.—Daily yield, 550 tons of ore. The ore breasts are looking finely throughout the entire mine. The face of the main south drift on the 1,500-ft. level is still in rich ore. Sinking the main incline is making good progress. The main east drift on the 1,600-ft. level, to cut and prospect the ore body on that level, is making steady progress. The mills are all running up to their full working capacity, with no prospect whatever of any considerable diminution in the yield.

KNICKERBOCKER.—The west drift on the 600-ft. level is fast approaching the ledge, the face still being in hard blasting ground. The west drift on the 700-ft. level is also making good progress toward the ore vein, cutting occasional clay seams, which are a sure indication of a near approach to the ledge.

JULIA.—The several pump stations are nearly completed; the pump columns are in place and everything will be in readiness to start the new engine and pumping machinery into full operation in a day or two more.

INDUS.—Still sinking the incline below the old tunnel level, the full size of the shaft still in fine milling ore.

CALEDONIA.—The 1,076-ft. station is about opened, ready to cut and prospect the ore vein on that level.

SENATOR.—The ore prospects in the west drift on the 400-ft. level still continue very promising.

UNION CONSOLIDATED.—There is a steady improvement in the face of the east cross-cut from the north drift on the 1,500-ft. level of the Ophir shaft.

SIERRA NEVADA.—The prospects in the east cross-cut in the old Sacramento ground are growing more favorable every day. The ore body in the north drift from the old Sierra Nevada tunnel is opening out finely and promises a good yield of fine ore. Daily yield, 60 tons of ore, keeping the mill steadily running.

SOUTH COMSTOCK.—Work having been resumed under the superintendence of John Nelson, a new double working shaft is being sunk in a very eligible location some 200 yards east of the old tunnel and incline.

LEO.—Rock in the face of the main tunnel getting softer. The ledge is better defined and the veins of quartz are widening again, the good ore struck next to the hang wall being now a foot in width.

DANEY.—There is every indication that the ledge has taken a much more perpendicular course than on the level above, and that the main west drift on the 400-ft. level will not have much further to run to cut the main ore vein.

Arizona.

MINING ITEMS.—Arizona *Miner*, Nov. 6: Two companies of miners, from the Gen Crook mine, arrived in town Monday afternoon last, with $2,700 in good gold, the proceeds of 21½ tons of Crook ore.

MESSRS. Hogle and Schultz arrived here yesterday from Big Bug district, where they have gold and silver mines of great richness. Their main stay is the "Silver Belt," upon which they have sunk a shaft forty-two feet in depth, at the bottom of which they have a very pretty ledge of rich silver rock, between case walls. Out of this shaft they have taken fully seven tons of ore which George expects will pay over $1,000 to the ton.

Montana.

NEW SMELTING WORKS.—Helena *Independent*, Nov. 6: Geo. Prediger, well known in this city, writing to Mike Reinig, from Los Angeles, California, under late date, says that a gentleman of his acquaintance has already purchased in San Francisco the machinery for a smelting furnace on a large scale; also that another party will complete his purchases next spring of another smelting furnace, both of them to be erected at Jefferson. These gentlemen are said to be fully posted in the reduction of silver ores, and having made a thorough examination of the area of Jefferson district, are prepared to engage in their enterprise with a full knowledge of all the details of the business as well as with the necessary means to insure complete success. To such parties Montana offers a boundless field and a certain reward.

The American Beverage.

There is evidently a strong tendenoy, both iu California and throughout the Eastern States, to return to our old-time Americ in beverage, cider. Excessively rigid temperauce notions undouhtedly had some influence in causing a decrease iu cider-drinking; bnt the nationsl preference of the increasing foreign element in our population has had more, and the power that fashion exeroises over appetite has also been felt here. Our fickle people have in many cases discarded the pure juice of the nple as a household drink, and substituted domestic wiues made from the red and hlack cnrrsuts, gooseherries, the wine plant, the elderberry, and other bases for wine, to which various ingredients were added, forming compounds more difficult and expensive than oider in making, and the drinkiug of which was quite as deleterious to health, and as reprehensible from the tempersnce stsnd point; and which also required a good deal of "make believe" on the part of the imbihers thereof, to make them as palatable as cider. Aud what, we would ask, has beeu the ssnitary or moral gain to the couutry iu substituting the lager-heer keg for the cider barrel in the cellars of our householders?

American cider, even as produced forty years ago, with the imperfect machinery then available and under other difficulties then existing, was a cheap, good and wholesome drink; one that was well suited to onr climate and to the habits of our people—especially farmers. It was one of the good things that autumn hrought to them; it was a regulative ingredient in the winter's fare, and in the seasons of planting, haying and harvesting it was a healthful, nonrishing drink, its acidity and "hardness" being quite nnobjectionable to those who had been drinking of it during its hardening stages. The quality of Eastern cider has been greatly improved of late, in consequence of improved machinery, better fruit nnd greater care in making and storiug. All who are acquainted with the old style of cider-making, know that nothing but the refuse of apples were used, and even these were left upon the ground to partially rot, and were then carelessly gathered and hauled to the cider mill, where they perhaps remained for a fortnight before grinding, owing to the great rush of business at this season, and the limited faoilities for manufactnring. Now, however, cider-making is as greatly improved as any other part of farm work.

Battle Creek, an enterprising little city situated in the center of the apple oistrict of Micbigan, hae just erected a very extensive establiehment for the manufacture of cider on an elaborate scale. The buildings are just outside of the city, and are located with special referenoe to easily receiving snpplies and making shipments, side tracks from two railroads having been built for their accommodation. The most interesting portion of tbe establishment is the cider mannfactory, a large bnilding filled with a bewildering confusion of tanka, tubs, oomplicated machinery, presses, boilers, engines, etc. The presses, of which there are three of the largest size, are capable of making 400 barrels of cider a day. The apples find their way into the mill hopper through a long bin or trough large enough to hold 10,000 bushels, which passes through the side of the building to the streets, where the fruit cau be thrown into it from the farmers' wagons. The cider, as it trickles from the presses, falls into a large vat beneath the floor; thence it is carried throngh pipes, by means of a force pump, to several tanks in the second story, where it is again filtered. From these rubber hose is led outside the building to the freight cars to be loaded. The empty barrels being placed in the oars, they are filled one at a time hy simply turning a stop-cock, which allows the cider to pass from the tanks through the hose and into them. Including the boiled, fonr kinds of cider are made—the first is the simon-pure juice, the second is a clarified article, and the third is n compound of cider and hops. This last has bscome a very popular driuk for bilious persons. A fruit-preserving house, four stories high, and of peculiar construction, is another novelty of the establishment. This has a capacity of 30,000 barrels, and fruit placed in it oan be kept perfectly sound for three years. The walls are of solid stone, 30 inches thick, and the floors and walls are covered and backed up with 10 inches of sawdust, covered with galvanized iron.

Cider as an article of commerce is also greatly enhanced in value. Twenty-five years ago the standard price was one dollar ner barrel; now it sells readily for five dollars. Cider ought to keep hetter in California than in the Eastern States. Our dry climate, with its equable temperature, should preserve freshness aud flavor throughout the summer. We do not believe iu any compounds for improving cider. Give us the pure juice of the apple.

We find in a recent number of the *New England Homestead* the following sensible suggestions in regard to disposing of cider: When the cider is made strain out all the pomace you can, then leach through a barrel of cleau sand. If the sand is not entirely olean, put iu water until it runs clear, then put iu cider, which will drive out the water remaining in the sand. Put in clesn barrels; if yon use liquor casks, look out for the poisonous drngs in the bottom, few are free from them. A good, well-sosked and clean cider vinegar cask is as good as any (discard those that have contained acid vinegar); fill the casks full, so that they will work out at the bunghole, and keep them so until the fermeutation has ceased. Then bung tight and keep till Msrch; then bottle, corking tight, with good, firm corks, snd tie the corks in. If yon add a raisin to each bottle it will add to the flavor. Cider trested in this way will keep for yesrs, if you don't drink it. If bottling is delsyed until the warm weather comes, and the second fermentation commences, it will be imposeible to make the bottles hold, or prevent the cider from turning to vinegar. The secret of having cider keep well before bottling, is in freeing it from all dregs or emptyings, and after bottling and corking tight, to exclude air, to be kept of course in a cool cellsr.

Curiosities of Ventilation—The Belcher Air Shaft.

The big air shaft of the Belcher compsny, the timbers of which were lately destroyed by fire, is considered to he lost beyond redemption. It has caved so extensively that it will be impossible to clear it ont snd retimber it. Although it was said to be sunk in west country rock, yet at the top the shaft psssed through vein matter, a distance of severs hundred feet, before reaching the west country. Half the length of the shaft between the enrface and the 1,000-ft. level is very bsdly caved; it is also badly caved at the hottom, nesr the 1,000-ft. level. It will now be necessry to excavate a new shaft, snd this will probsbly he sunk some distsnce further west than was the one just destroyed. It would be a good plan to sink the new shaft near the Crown Point line, in order that both that and the Belcher might be benefitted by it. Previous to the fire the draft in the shaft was downward into the mine. It was what was called a "downcast." At the time the shaft was buruing it was predicted by the experts that after the fire was out the draft would be found to have changed, and it would theu be upward. Although the shaft is pretty much blocked up by the caves which have occnrred in it, the draft, what little there ia, is upward. The Yellow Jacket shaft, previous to the great fire in that mine some years ago, had a strong draft downward; the fire changed the draft, and it has ever since remained an upcast.

This is a curioue freak of nature which all old miners have observed. Once the change in the draft tskes place it is permanent. A curious thing in ventilation—and it is a nut for the scientists to orack—is that everywhere along the Comstock lode the tendency of all the currents of air is to the southward—in the same direction that the ore chimneys tend. Here is certainly at work auother mysterious force in nature. This tendency of the air currents to move southward has never heen overoome, except in one or two instances, and these exceptional cases we shall presently give. First we ehall mention some queer freak in ventilation not epoken of by Mr. Sutro in his lecture on his tunnel, although in that he has much to say in regard to ventilation. Should we tell him that there is a probability of his tunnel drawing the wrong way, in case of his completing it, he would scout the idea, yet snch a result ie not at all improbable. The theory is that when two ehafts are connected by a drift, the draft or ascending cnrrent will be through the higher shaft—the longer leg of the siphon—is exactly reversed if the short shaft stand is to the southward of ths long one. The air will even go down a shaft and crawl out throngh a tunnel when that tunnel runs in a southerly direction. When the Union tunnel connected with the old Ophir mine, the air did not draw through the tunnel and pass up and out through the main shaft, but came out of the month of the tnnnel. When the old Best & Belcher works connected with the old Gould & Curry tunnel the same thing was seen; the air went down the shaft and passed out at the mouth of the tunnel. About the next connection of the kind made on the lead was hetween the Crown Point and Belcher, at the depth of 160 feet; and here the current of air went down the higher shaft, moved southward and came out at the Belcher. Next the Yellow Jacket and the Crown Point connected, and the air went downward and southward to the Imperial. The Yellow Jacket and the Imperial then connected, and the draft was south to the Jacket. When the Gould & Curry and the Savage connected, the draft went eouth to the Savage. When connection was made between the Ophir and the Consolidated Virginia the air went south to the Consolidated. The only places we know of on the lead where the air moves to the northward is between the Gould & Curry and the Consolidated Virginia, and hetween the Hale & Norcross and the Savage, nnd there it probahly would not move north bnt for extra strong inducements.—*Virginia Enterprise.*

THE dye-stuff called rossnilin, which gives a beautiful carmine color, ie an arseniferous production allied to arseniate of lime. It is used in lithography, aud for painting wooden vessels, etc.

ALL of the survivors of the fire in the Belcher air shaft are now convalescent, and some of them are again able to resume their usual duties aud vocations.

Going for the Bottomless Pit.

Many of the leading mining companies on the Comstock lode are now down to the depth of 2,000 feet, and a few still deeper. When mining first began on the grest lode snch a depth was not thought of. or, if thought of, no one expected to see mining operations carried to such a depth of 2,000 feet in less than fifty years. Now we not only do not feel startled at hearing the great depth of 4,000 feet apoken of, but when we see preparstion in actual progress for sinking that far we think but little of it. The Savage company, whose works we yesterday visited, hsve broken ground for the foundations of new machinery, which is to be sufficiently powerful to sink their main incline to a depth of 4,000 feet. This incline is already some distance below the 2,100-foot level, and is still being vigorously pushed downward. But the present machinery caunot be expected to do the work required more than a few months longer. Already it has done much more than wss anticipated when it was erected. We refer to the engine and machinery used in hoisting from the hottom of the incline. New machinery must be procured, and for the erection of thia preparations are now being made. A force of men is now at work at einking the huge pits in which are to be laid the foundations of the powerful incline engines. Indeed, these pits are fast approaching completion, and soon the stone masons will be st work on the foundations. The new hoisting machine will be supplied with two 24-inch horizontal cylinders, of 4-foot stroke nnd will be of over 400-horse power. The foundations to this engine are heing laid about 80 feet to the westward of the present hoisting works. A building 50x60 feet in size, will be erected over the new hoisting engine snd the machinery connected therewith. The carpenters are already at work framing the timbers for this bnilding. The steel wire rope to be used is to be 4,000 feet in length, and will weigh about 24,000 pounds. It is now heing manufactured by John A. Reebling's Sons, Trenton, New Jersey. It will be a round rope and the npper end will be two inches in diameter, but 2,500 feet of its length will be tapered, and the lower end will be 1¾ inches in diameter. The reel on which this cable will wind and unwind will be conical, and tho cable will wind about it spirally. When the greater part of the cable is down in the incline aud its whole weight is added to the weight of the incline oar, the rope winding on the smaller end of the reel, when the machinery will have its greatest purchase, and as the cable is finally wound np it will run upon the larger end of the reel. Thus the same steam will do the work at any point in the journey of the car up and down the incline track. The cable, after leaving the reel at the hoisting engine will pass over a pulley at the top of the gallows frame above the shaft; at the hottom of the perpendicnlar portion of the sheft it will pass under a lsrge pulley stationed at that point, and will theu be carried down the incline, running in friction pulleys placed at proper intervals in the center of the oar track. The engine for the new works is being manufactured hy Booth & Co., of the Union Iron Works, San Francisco, and will he completed about the 1st of Febuary next. The new hoisting machinery will be in readiness for starting up abont the 1st of Aoril following. The Ophir company contemplate the erection of similar machinery, and propose pnehing their works to a like depth. The Crown Point company already have in operation machinery of much the same character as that being erected by the Savage folks, and having a cable of sufficient length to sink to the depth of 3,500 feet. The Hale & Norooss company, Consolidated Virginia company, and other leading companies at this end of the lode will erect similar powerful works, and will at once plnnge down into the great nnknown "depths profound," in which lie hidden the silver roots of ths Comstock.—*Virginia Enterprise.*

COPPER AT SPENCEVILLE.—We learn from Frank Power thnt work is being prosecuted on the copper mine at Spenceville, under the superintendency of Mr. Deetkin, with every prospect of success. The shaft is down 50 feet, and the ledge at that depth is seventy feet in width. The rock is richly impregnated with native copper, and is being proven a very rich mine. The ore is taken out and roasted in a large furnace, after which it is turned into three large vats, npon which a stream of cold water is turned, and the copper, in a state of solution, ie then conducted from the vats into a large oylinder of about twelve feet in diameter. In this ie placed old or refuse iron, for which the copper has an affinity. The cylinder is made to revolve rapidly by steam, by which means the copper is collected on the iron. Specimens were shown ns which were taken off the pieces of iron, which are equnl to the best Michigan or Norway copper. The snperintendent thinks the process of separating copper from the ore in which it is contained is no longer a matter of experiment. There are many other ledges in the vicinity equally as rich and are awaiting the success of working this one. They will eventnally be worked, and that seotion of onr county is destined to become very lively in the fnture. It will repny anyone to visit the mine and see the operations carried on there. The superintendent is ready to afford all the information in his power, and is very confident of the richness of that section. —*Nevada Transcript.*

Eastern Nevada Mines.

From C. T. Goodrich, sn old-time Enrekan, who now resides in Steptoe valley, we are favored with the following items relating to the mining districts in that vicinity:

At Cherry Creek

The mines are looking fine. The Geneva Cross under the superintendence of Mr. Stsnford, is producing a splendid qusntity of high-grade ore. The lodes in the Tea Cup mine are incressing in size and richness as depth is attained. The Star mine, under the mansgement of E. D. Dickinson, formerly of the Lemon company of this place, is taking rsnk as one of the lesding properties of the district, furnishing 15 tons of fine ore per day to the stamp mill at Eagsn. Mr. Phillipot has bonded the Pacific mine, and will put a force of men to work as soon as possihle. The Flsgstaff is working s smsll number of meu. The ore is worked at Thompson's mill.

Nevada District.

The mines bonded by the Wsson company are looking well, and work is being vigorously prosecuted in developing the different claims.

Ward District

Is regarded as the coming camp of the Grest East. Present developments indicate thst it will be second to Washoe in regard to the richness and excellent quality of the ore. The Paymaster ledge is attracting considerable stention. It is claimed to contain the lsrgeet and richest quantities of milling ore in the esstern part of the State. At a depth of fifty feet a cross-cut shows the ledge to be fifteen feet wide, carrying six feet of high-grade ore averaging $600 to $1,000 a ton, the remaining nine feet showing second-clsss ore valued at $80 a ton. A contract has been msde with the Watson company, of Rohinsou district, to crush 1,000 tons of ore from this mine. Several hundred tons are being delivered at the eastern furnace to mix with the base ores from the mines of the above dietrict.

Robinson District.

The Canton furnace is expected to fire up on the 9th inet. Jndge Walsh is Superintendent of the above company's furnace. The Elijah is taking out ore averaging $65 to the tou. The Snuburst, owned by Lynch & Co., has sold sixty tons of ore to the Canton furnace, and has twenty tons on the dump, which is worth $80 a ton. The Altman mine is rich in gold and silver, but the ore is too heavy iu lead for milling. In washing the dirt ont of a pile of ore a few days siuce Billy Montgomery fonnd a gold nugget weighing 2¾ ounces. The Lynch mine is a very likely property, and is being developed.—*Eureka Sentinel.*

CHLORAL HYDRATE FOR HORSES.—The ooachmen in Bordeaux, France, have for some time time past been in the habit of giving horses in their charge chlorals so as to make them easier to ride or drive. The drug acted like a charm, for horses which had been previously so spirited as to give much trouble to their drivers became as quiet as lambs after a few days of this treatment. The great change naturally attracted the attention of the owners of the animals, and they sent for the veterinary surgeon to ascertain the cause of thie sudden gentleress. That functionary notioed a certain tendenoy to aleep in the animals, but scarcely knew to what to refer this unnsual condition, when in one of his visits he chanced to find a bottle half full of chloral. When he questioned the delinquent coachman as to the use he made of the drug, the latter, after much hesitation, owned that, following the advice of a brother whip, he gave his horses a dose of chloral every morning to make them go quietly, and further, that many of the fraternity in Bordeaux followed the same plan.

MCGANNEY ET AL. VS. BLUE POINT MINING COMPANY.—The motion to dissolve the injunction heretofore i-sued in this action, came before Jndge Keyser of the District Conrt, at chambers on Tuesday, when the defendants asked leave to withdraw their motion without prejudice, and leave was granted. The action leaves the work suspended at the mine in possession of Lyman Ackley, as receiver, he having given $80,000 bonds. This mine was cleaned up a few days sgo after a run of 29 days, and we understand that the amalgam gold from the run amounted to a little over $75,000. There are eeven interests or ownere of the mine. Four-sevenths of the company having leased the tunnel of the Blne Point and the Nevada Ditch Mining company (which must be worked throngh the tnnnel) to themselves for a nominal sum, the three-seventha have brought snit for a dissolution of the incorporation and the sale of the property.—*Marysville Appeal.*

UNION GRAVEL.—We learn, says the Ssn Juan *Times*, that the Union Gravel Company, whose mine is located at Kennebeok Hill, of which our friend W. W. Nichols is the Superintendent, is making great improvements in its mine and works with the nnticipation of being ready to commence washing by the middle of this month, if a supply of water can be had. This company struck rich gravel just before thsy closed down work this fall for want of water. Persons who have seen this streak of gravel represent it to us ss being wonderfull The vein is ahont eight feet in depth, from the bottom np, and free gold oan be seen lying aronnd loose. The gold is found in hlne cement. We congratulate onr friend Nichols on his good fortune. He deserves it all, for no man has fought more manfully for it then he.

Good Health.

Transfusion of Blood.

An Interesting Surgical Experiment.

An interesting experiment was performed on Friday last in Fall River, Mass., by Drs. Julins Hoffman and Louis Weyland of this city. Herman Dnboia had suffered from consnmption for five years, and had become very weak and debilitated. Physcians advised him to seek a warmer climate, bnt he had not snfficient streng h to avail himself of this chance of relief. Dr. Hoffman had transfnsed blood from animals, dogs and lambs, to the human subject with snccess in six caees, and it wae determined to make the exporiment npon Mr. Dnbois. Dr. Hoffman described the operatiou as follows:

A healthy, active lamb was procured and taken to the room where the patient reclined. The animal was laid upon its side. An incision was made on one side of the larynx, expoeing the carotid artery. When thie artery was fully exposed a ligature wae tied aronnd the vessel, ehntting off completely the blood current. At a distance of abont an inch and a half below the ligature a powerfnl pair of forceps wae applied to the artery, compressing the veeeel perfectly. Thns there wae a epace between the ligature and the forcepe which could be opened without danger of hemorrhage. A small incision waa made into the artery in this inclosed space. Then a glaes tnbe slightly bent was inserted into the artery. A small iethmus of constriction had been made in the part of the glase tnbe inserted into the artery, which enabled the tnbe to be securely tied into the veseel. After the tnbe had been seonred in the lamb's artery, everything was made ready for work npon the patient. In Mr. Dnboie' arm the vein at the bend of his elbow connecting the basilio and cephalio veins was exposed. A bandage wae tied around below the proposed incision to prevent a flow of venous blood from the wound. After exposing the vein by an incision an inch long, forceps were placed above and below, shntting off the blood current from a space abont half an inch long. The lamb'a neck was then bronght close to the patient's arm, and the pressnre of the forceps npon the lamb'e artery relaxed. The blood rushed through the tnbe, expelling all the air. Then the opposite end was skillfolly inserted into the patient'a vein and the pressure of the forceps npon the lamb'e artery was removed. The bright blood leaped through the tnbe and entered the system of the patient. The stream wae kept np for one minote and 40 seconds. Then the compreesion was removed and the tnbe removed. Yesterday I heard from Mr. Duboie, and he haa sufficiently recovered his etrength to enable him to visit a warmer olimate this coming cold weather, with good prospecta of regaining his health. The lamb is also alive and doing well. A lamh nsed in the same manner in a former experiment in thie city is still alive, and is now tied in a stable in an adjoining street. The hnman snbject was eo much benefitted that he epent the summer in the Catskills, and ie now in Baltimore.—*N. Y. Tribune.*

The Pulse.—Every intellectnal person ehould know how to aecertain the etate of the pulse in health; then by comparing it with what it was when he is ailing, he may have some idea of the nrgency of hie case. Parents should know the healtby pulse of each child, ae now and then a person is born with a peculiarly slow or faet pulse, and the very case in hand may be that peculiarity. An infant's pnlse is one hundred and forty; a ohild of eeven, abont eighty; and from twenty to sixty years it ie seventy beats a minnte, declining to eixty at four-eoore. A healthfnl grown person's pnlse heats seventy timea in a minute; there may be good health down to eixty; bnt if the pulse always exoeede seventy, tuere is a disease; the machine ie working too faet; it is working itself ont; there ie a fever or inflammation somewhere, and the body is feeding on itself, as in oonsnmption, when the pnlse is quick—that is, over seventy—gradually increasing with decreaeed chances of cure, nntil it reachee one hnndred and ten or one hundred and twenty, when death comes before many days. When the pnlse is over seventy for months, and there is a slight congh, the lungs are affected.

Breathing Through the Nose.—The pernicions habit of breathing through the month while sleeping or waking, ie very hurtfnl. There are many persons who sleep with the mouth open, and do not know it. They may go to eleep with it closed, and awake with it closed, bnt if the mouth is dry and parched on waking, it ie a sign that the mouth has been open dnring sleep. Snoring is a certain sign. Thia habit shonld he overcome. At all timee, except when eating, drinking or epeaking, keep the mouth firmly closed and breathe through the nostrile, and retire with a firm determination to conqner. The nostrils are the proper breathing apparatus—not the month. A man may inhale poieonone gasos through the mouth without being aware of it, bnt not through the nose.—*Science of Health.*

Amputating the Tongue.—A singnlar surgical operation was performed at Loe Angelee, a few days ago, on Adolfo Leibas, a hoy twelve yeare old. He bad hypertrophy of the tongue, which organ protruded four inches from his month. It was ont off so ae to leave a natural sized tongue. The operation was a snccess, and now the patient can speak.

Infanticide by Opium.

One of the best informed physicians in England, Dr. Mitchell, employed in the public health service, some time ago published a mass of testimony obtained by him from unmerous medical witnesses, showing the almost nniversal resort to opinm in order to beuumb and stupify children, even those of the tenderest age, a very common preparation for this purpose being a so-called cordial made of treacle and opinm. So general, it appears, is the nse of this mixture, that customers go to the apothecaries, and, without any hesitation, ask for a dose of it "to give to the baby next day, as they are going out to work." Chemists frankly admit that they make and sell these opinm decoctions by the barrel and hogshead full.

This baneful nsage prevails not only in the colliery districts, but also in maunfactnring and non-manufacturing pl ces; and it is stated by one physician that in the Nottingham, Derby and Leiceeter di-tricts the habit of administering opium to infants nsually begins when the child is three or four months old. And still another witness asserte that the opium cordial ie given on the very day of birth, being in readiness for that event. The inevitablo resnlt of thie terrible custom is, of course, that a great unmber of infnnts perish, either suddenly from an overdose, or, as more commonly happene, by slow, paiuful, insidioue disease. Compared, therefore, with this form of infanticide, the kind practiced by the Chinese may be said to be meroiful.

Useful Information.

How Bar-room Liquors are Made.

There may be seen daily, on Cheetnut street, saye the Pbiladelphia *Bulletin*, a man dressed in faultless apparel, with a great diamond npon his breast, vainly endeavoring to ontglitter the magnificent solitaire on hie finger. In a German Univereity he learned chemietry, and not even Liebig knowe it better. His occnpation ie the mixing and the adulteration of liqnors. Give him a dozen casks of deodorized alcohol, and the next day, each of them will repreeent the name of a genuine wine or a popnlar spirit. He entere a wholesale drng store bearing a large basket npon hie arm. Five ponnds Iceland moss are first weighed ont to him. To raw liqnor this imparte a degree of smoothnees and oleaginousnese that givee to imitation brsndy the glibneee of that whicb ie moet matured. As astringent called catechn, that wonld almost close the mouth of a glass inkstand, is next in order. A couple of onnces of strychnine, next called for, are quickly conveyed to the vest pocket, and a ponnd of white vitriol ie as silently placed in the bottom of the basket. The oil of cognac, the enlphnric acid, and other articlee that give fire and body to the liquid poison, are alwaye kept in store. The mixer buye theee things in various qnartere. They are staples of the art.

The First Electrical Machine in America. A friend of the late Dr. Priestley (Mr. Hugh Bellas) wrote: "In the summer of 1800 I called on Dr. Priestley to retorn some booke I had borrowed, when he told me he had just received a very enrions present from Europe, which he would show me. He took me into his laboratory and pointed to a small pile of plates of silver and zinc, in alternate layere, with pieces of wet flannel and interepersed, each plate about abont the eize and form of a oomm.on playing card. A piece of small wire wae inserted at the top, and another piece near the bottom, and the other ende of the wire were brought together, and there underwent decomposition. 'Now, this is called the pile of Volta,' eaid the doctor, 'and here is the electric fluid deetroying the ende of the wires. Pnt the joint of your thumb to these points and you will feel a slight electric shock. You need not be afraid; it will not be severe.' I did ae he directed, and received snccessive slight shooke upon repeated applications to the pointe." Thia was the first electric machine brought to America.

Dyspeptic Hunger.—If a man is hnngry within an hour, more or lese, after a regular meal, he is dyepeptic beyond qneetion, and it shows that the etomach ie not able to work np what he hae eaten, so as to get nourishment out of it; but, to eat again, and thne impose more work, when it could do nothing for what had already been eaten, is an absurdity; and yet all dyepeptics who eat when they are hungry do this very thing, and thns aggravate and protract their sufferings.

The engraved cylinders for calico printing are required to be of pure copper, and their unsoundness, when cast in the nenal way, wae found to be eo serious an evil that it gave rise to casting the metal under presenre.

Bossin'a indelible ink is made of two parte of powdered acetate of copper, four parts of salammoniac, one part of lampblack, and twenty parts of water, well mixed together. They make a good indelible ink, which, however, mnet alwaye be well shaken before using.

If a person in a house on fire has the presence of mind to apply a wet cloth or handkerchief to the mouth and nostrile, a passage can then be effected through the densest smoke without any serions inconvenience.

Botanical Photography. — Leaves of any kind may be beantifnlly photographed by the following simple procese: Place five cents' worth of bichromate of potash in a two-onnce bottle of plain soda water, and when most of it has been dissolved ponr off some of the clear liquid into a plate and thoronghly ssturate a piece of ordiuary writing paper in it. Then lift ont the paper and allow it to become almost entirely dry in a dark room. Thns your "plate" is prepared. The leaf should then be placed npon the now bright yellow paper, a piece of soft black cloth and several thicknesses of newspaper under the latter, and the whole inclosed between pieces of glass of the same size and held togetber hy clothes-pins. Expose to the snn so that the light will strike foll upon the leaf until the paper has tnrned a deep brown; then take the paper from the frame and put it in clear water, which must be changed every few minntes until the yellow part becomes perfectly white—and the photograph remains.

To Keep Flies From Horses.—M. Perret, a Frenoh pharmaceutical chemist, has discovered a very eimple and economical method of saving horses, particularly when they are not in motion, from being tormented by flies. It consists in merely rnbbing them with a little concentrated oil of lanrel, whicb ie extremely disliked hy the flies. The oil should be especially applied to the parts where the flies nsually settle. With about threepenny worth of thie oil a horse can be anointed for three daye. There is not the slighteet danger in ueing it, and, indeed, its slightly stimulating action ie beneficial to horees, and keepe their coat in good order. The expedient may also be nsefully replaced by a eolution of sixty grammes of asafœdita mixed witb one glass of vinegar and two of water. The strong odor of asafœdita drives away the flies, and, if horses be well washed with thie, not a fly will settle on them. No apprehension need he felt in neing the asafœdita, which hae no deleterione properties.

Strength of Different Materials.—A quarter-inch rod of the best steel will sustain 9,000 pounds before breaking; soft eteel, 7,000 pounds; iron wire, 6,000; iron, 4,000; inferior bar iron, 2,000; cast iron, 1,000 to 3,000; copper wire, 3,000; silver, 2,000; gold, 2,500; tin, 3,000; cast zinc, 160; cast lead, 50; milled lead, 200. Of wood, box and locnst the same size will hold 1,200 ponnds; tougheet ash, 1,000; elm, 800; beech, cedar, white oak, pitch piue, 600; chestnut and maple, 650; poplar, 400. Wood whicn will bear a heavy weight for a minnte or two will break with two-thirds of the force acting a long time. A rod of iron is about ten times as strong as hemp cord. A rope an inoh in diameter will bear about two and a half tone, bnt in practice it is not safe to snbject it to a strain of more than abont one ton. Half an inch in diameter, the strength will be one-quarter as much; a quarter of an inch, one-sixteenth as mnch; and so on.

Sawdust Brandy.—A German chemist has succeeded in making a first-rate brandy out of sawdnat. We are a friend to the temperanoe movement and we want it to succeed, but what chance will it have when a man can take a rip saw aud go out and get drunk with a fence rail? What ie the nse of a prohibitory law if a man is able to make brandy amashes out of the shingles on his roof, or if he can get delerium tremens by drinking the lege of his kitchen table? Yon may shnt an inebriate out of a gin shop, and keep him away from taverns, but when he can become nproarious from boiled sawdust and dessicated windowsills any effort at reform must necessarily be a failure. It will be wise, therefore, if temperance societies will butcher the German chemist before he goes any farther.—*Exchange.*

Dr. Elener statee that the accidental nse in his household of the water which had been employed to boil potatoes for cleansing silverware, led to the nnexpected result that this was much superior in its cleaneing action to the polishing powders so generally employed. It was found that by simply rubbing the article with the fine deposit of potato flour, it took an excellent polish, without the disagreeable necessity of subsequently ueing the brnsh to remove the material, as is necessary where powdere are employed instead.

Marking Tools.—Much tronble can often be eaved by marking tools with their owner'e name, which can be easily done in the following manner: Coat over the tools with a thin layer of wax or hard tallow, by first warming the steel and rubbing on the wax, warm, until it flows, and let it cool. When hard, mark your name through the wax with a graver and apply aqna-fortie (nitric acid); after a few moments wash off the acid thoroughly with water, warm the metal enough to melt the wax, and wipe it off with a soft rag. The lettere will be found etched into the steel.

A Huge Encyclopedia.—A literary ouriosity is now for eale at Peking. It consists of a copy of a gigantic work composed of 6,100 volnmes, entitled "An Imperial Collection of Ancient and Modern Literatnre." This hnge encyclopedia was commenced dnring the reign of the Emperor Kanghe (1662–1722) and was printed at the Imperial printing office, where a complete font of oopper type was cast for the pnrpose.

Sea moss ie enperceding corn in the manufacture of whisky. In Sweden in 1872, there were 105,408 imperial gallone of whisky manufactured from moss, said to be of superior qnality.

Domestic Economy.

Expensive Habits.

A great deal of nonsense is written nowadays abont the expense of living. For instaace, in a schednle taken from a "poor bnt deserving" man'e actoal expenditures for a week, was the item of one pound of coffee, and this man's expenses were held up before the public to show tbat the working class (the very poor of conrse) could hardly live on tho money received. Now, I know people of moderate meaua who live well nod only use one pound of coffee a month, and from my own experience in housekeeping I conclnde the poor man mentioned above has not a New England girl for a wife.

It is because poor people, especially poor men's wives, are ignorant and will not try to learn, that everything they earn ie eaten np. Aside from the rent, it ie cheaper living in New York city than in the inland towne and cities (I speak from experience, having tried both) and if city girls, both rich and poor, would only pay a little more atteation to household dutiee, or, if they were ignoraat when married, would try to learn something afterward, and get up a little enthusiasm over tbeir breakfaets and dinnere, or make the most of everything, instead of moaning and groaning because their precious, lily hands must be soiled a little, we shonld, I believe, hear less about poverty. In every household it ie the wife who can let the money elip throngh her fingers for "necessities," as the husband tbinks, and in not making palatable dishes from what is "left over." If you cannot do this, if you know of nothiug, and can invent nothing but "boarding honee haeh" to make of yonr cold meat, then yon had best break up your home and "be genteel" and board. I have often admired the ingenuity shown by many city women in remodeling and making over their wardrobes, and have often wondered why they did not apply the same skill in the culinary department. Girls of the poor and medinm classes, reared in New York, as a rnle make dreadfully ehiftless honeekeepers. All they seem to think of is a fine dress to their backs and a diamond ring for their fingers, as many of them have, truly.

There are many New England girls here; some of them are rich and some of them are poor; but, go where you will among them, yon will find cleanliness, thrift, economy, and a knowledge of what ie going on in the world around them. They are not afraid of work, and they take pride in a well-ordered house. Somehow their blessed mothere, who may be even now living in comfortable poverty up among the Connectiont hills, have inetilled such habite into them, and have tanght them so much of life and living, that when they marry and have children of their own tbey are prepared to bring them up to be men and women, not fops and fashionable ladies, thank God. Perhaps I, a New England woman, have no right to say thie; bnt I tbink I have, for I have known many of my clan, and I take a just pride in their virtues.

It ie the penny saved more than the penny earned that enriches; it is the sheet turned when the first threads break that wears the longeet; it is the damper closed when the cooking is done that etope the dollare from dropping into the coal bin; it is the lamp or gae tnrned low when not in use that gives you pin money for the month; it is the oare in making the coffee that makes three spoonfule go ae far as a teacupful ordinarily; it is the walking one to six blocke, inetead of taking a oar or omnibus, that adds streugth to yonr body and money to yonr purse; it ie the carefnl mending of each week'e wash that gives ease to your conscience and length of days to your garmente; and last of all, it is the constant care exercised over every part of your honsehold, and constant endeavor to improve and apply your powers to your work that alone give peace and prosperity to yonr family.—*Springfield Republican.*

Are you fond of your coffee? An official investigatiou has just been made in Paris as to the materials of which this "delicione beverage" is made. There are five principal compounds:

1—Burned bread and coffee grounds.
2—Powdered chiccory, sand and brick dust.
3—Chiccory and burned bones.
4—Chiccory burned, mixed with butter and colored with Prnesian red.
5—Burned cabbage roots and boiled horse liver.

Baked Indian Pudding.—Boil one quart of milk, and while boiling stir in corn meal till quite thick and well scalded; sweeten with molasses to taste, say one cup. Pnt in a baking dish, pour on one quart of cold milk, drop several pieces of bntter on as many points, add salt, and pnt in the oven and bake from one and a half to two hours. A little experience will get it just right. This pudding has the merit of cheapness ae well as ease of making, and great excellence; eaten without sance, and cold or hot.

Soup Balls.—Take one pint of sweet milk; when boiling hot stir in dry flour nntil it ie etiff. When cool add one egg and enongh flonr to allow you to form it into balls; add a pinch of salt. About ten minutes before serving yonr eonp drop the balls in; they will be very light and will not fall after being lifted.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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On this paper after the 1st of January, 1875, as the law demands. This is equivalent to reducing the subscription price 20 cents per annum. Besides, it will save subscribers the annoyance of paying petty postage bills every quarter.

San Francisco:
Saturday Morning, Nov. 21, 1874

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Thanksgiving.

Between the present and the next issue of our paper the day of annual thanksgiving occurs; the proclamation of Governor Booth having appointed Thursday November 26th for this purpose. Never did the people of California have greater cause for rendering thanks. There have undoubtedly been years in which the people of this State have made more money than in the year now drawing to a close; but never were the substantial blessings of Providence more bountifully bestowed than during the year 1874. The year has brought with it no public disasters; California being as isolated from her sister States in this respect as she is in her geographical position; while everything conducive to health, abundance and general prosperity, has been granted in profusion. While we give thanks for these blessings let us see that they are made available by us to their fullest capacity to secure intellectual progress and social improvement.

The Governor in his proclamation calls upon the people "to abstain, so far as practicable, from their ordinary secular pursuits on said day; to assemble during some portion of it in their respective places of public worship, and by appropriate religious exercises manifest their gratitude to the Almighty for the blessings of the year, and their sense of dependence upon His will; and that they devote the residue thereof to family and friendly reunions, to innocent enjoyment, generous hospitality, and the kindly remembrance of the poor and the afflicted."

The Panamint Mines.

Just at present the eyes of the prospectors of the coast are turned toward Panamint district, Inyo county, California, and by next spring it is probable that large numbers of miners will find out personally what the camp amounts to. Very heavy capitalists have invested in the mines there and have given the place a sudden start and notoriety. We examined this week a lot of ore from Panemint, and had a conversation with a practical miner just from there, from whom we obtained some facts of interest to other practical miners. Leaving aside all descriptions of particular mines, etc., we will tell our readers just what they perhaps want to know.

In the first place, "how to get there?". You can leave this city on a coast steamer for Los Angeles, and then go to Panamint by team, stage, or "a foot;" or you can go to Bakersfield by rail and then stage it. Our practical friend who has been both ways, says the last mentioned route is the better one. Take the cars which leave Oakland wharf, connecting with the 4 P. M. boat from this city, and go to Latrop. There change cars to Bakersfield, Time from San Francisco 18 hours. Then take the stages for Panamint; time, 40 hours. Through tickets by this route are $60, which our friend says is cheaper than paying your way "piece meal." By leaving this city Monday, Wednesday and Friday, straight connection can be made, as the stages leave Bakersfield Tuesdays, Thursdays and Saturdays. Of course, meals are not included in the $60 ticket.

The mines are in a mountainous, rocky region, at an elevation of about 7,000 feet. No houses of any pretentions have yet been put up in the town. The ore is quartz, containing silver, copper, some lead and a little gold. It assays all the way from $100 to $3,000 per ton. The ore is shipped from Panemint to Liverpool for reduction, as it is rebellious, and there are no reduction works yet erected. It costs to ship the ore from the mines by team to Spadra, the terminus of the railroad, 28 miles from Los Angeles, $30 per ton. From there the Pacific Mail Steamship Company take it to Liverpool for $25 per ton of 2,000 pounds, making the total freight $55 per ton. It is mined and sacked for about $15 per ton, as the ledges are wide and large. The ores contain from 10 to 30 per cent. copper, so by shipping it to Liverpool the miners get from $15 to $45 per ton for the copper alone. If worked here, this of course would be lost, while by shipping, it nearly pays the freight.

Small lots of the ore have been milled, but practical men do not think it can be milled closer than 60 per cent. There is a good deal of lead in spots, and this with the copper makes it difficult to work. A five-stamp mill is now up at the mines, and a 20-stamp mill is now on the way there. The place where reduction works will eventually be put up is at Panamint valley, about 8 miles on a down grade from the mines. At that place there is plenty of hot and cold water, and beds of salt from one to twenty feet thick. It is expected that the Los Angeles and Independence narrow gauge railroad will pass through the valley, to Waucoba, Cerro Gordo, Walker's lake, and other mining districts. There are now from 1,200 to 1,500 men in the district, and the roads are lined with teams going in. Everybody is flush, gambling is in its zenith, and the camp looks like a California or Nevada camp in early days.

Lumber is worth $180 per thousand at Panamint. It is hauled from Tehachapei, Holcombe valley, and Los Angeles. At Los Angeles they are fitting up houses which are shipped right to the mines. There is plenty of timber there for mining purposes and fuel, but none for building. The 20-stamp mill sent there had all the timbers, etc., prepared before it was shipped. Miners' wages are $4 per day. Bacon is 50 cents per pound, and flour $10 per hundred. Hay and barley are equally high, both bringing eight cents per pound. The high freights, of course, make prices high, but next year they will come down.

A newspaper is to be started immediately in the new district, and everything looks now as if the camp would become in the spring the liveliest outside of Virginia, on the coast. If the present excitement keeps up, however, it will probably be over-crowded, as is usually the case. There are hundreds of ledges in the mountains, some ten or fifteen of which are what may be considered first-class ones. The capitalists who have put their money into the camp are doing all they can to develop it, and will have to put even more in before they begin to get any returns. The ore which we saw at the sampling works was certainly very rich, and such as would make any old miner's eyes sparkle. Everybody in Panemint has high hopes of the camp, and prophesies that it will be a second Washoe. It is late in the season to do much now, as the mountains are so elevated that they will probably have considerable snow; but we are told that the mines can be worked all winter. Prospectors, however, will have rough times of it.

Natural Curiosities in the Sierra.

Several natural phenomena have lately been discovered in the Sierra Nevada mountains, which will add to the attractions already existing. Prominent among them is the recent volcano discovered by Dr. Harkness in Plumas county, a description of which is given in another column. This is particularly interesting as the only one discovered here bearing authentic marks of having been in eruption within the last 20 or 30 years. "Recent volcanoes" are plenty enough, for there are hundreds of places to be found where the craters can be seen and the lava looks fresh, and recent. Still the presence of large trees grassy slopes, etc., show that many years have passed since volcanic activity prevailed. In the instance mentioned Dr. Harkness details minutely the evidences which he found, to prove that the volcano was very recently active. The boiling lake he refers to is also an object of interest; but we are afraid that if there was much of a population in the vicinity, some enterprising Chinamen would take possession and start their wash-houses on its borders.

Another quite remarkable phenomenon, which we do not think has been before described, is an immense natural tunnel through the mountains in the southern part of Sierra county. During a recent trip in that vicinity Charles W. Hendel, the well-known Deputy U. S. Mineral Surveyor of the county, Mr. Gibson, of Scales Diggings, and W. A. Skidmore, of this city, Deputy of the U.S. Mining Commissioner, observed a natural tunnel of great dimensions through a high crest of the Sierra, apparently near the boundary line of Sierra and Plumas county. Mr. Skidmore tells us that his point of observation was on the Forest City and Downieville trail, 1½ miles north of Forest City, and about one mile south of the old mining camp of Rock creek. While scanning with a field glass a high and precipitous range on the verge of the horizon, distant 12 or 15 miles to the northeast of their position, Mr. Skidmore distinctly observed a tunnel running through the ridge. His companions readily observed it with the naked eye. By means of an aneroid barometer and leveling glass they estimated the altitude of the range to be about 6,500 feet above sea level, and the tunnel about 500 or 600 feet lower than the summit of the range.

Between them and the range lay the great gorge of the North Yuba, 3,000 ft. in depth. North of this gorge they could distinctly trace the various tributaries of the North Yuba. The tunnel was situated near the head of the principal of these streams, (probably Rattlesnake creek), and about 12 or 15 miles east of Fir Cap mountain. The site of the tunnel was apparently inaccessible from the south side, or North Yuba slope of the range. From their point of observation, although distant only 12 or 15 miles in an air line, it would have required a journey of two or three days to reach it. If explored it must be approached from Fir Cap mountain on the west or from the vicinity of Gold lake on the east, by following the trend of the range.

The range through which the tunnel passes is of volcanic origin, with precipitous sides. Near the location of the tunnel the range falls off in a sheer precipice, at least 1,000 feet in depth. From the standpoint of the gentlemen referred to, the tunnel, Mr. Skidmore says, seemed as large as an ordinary railroad tunnel. Therefore it could not have been less, making allowance for distance, than 100 feet in hight. They had no data for estimating its length. Mr. Hendel had several years previously observed the same tunnel from a high range in Plumas county, his view being the north slope of the range while this time it was observed from the south. It is hardly probable that this remarkable tunnel will remain long unexplored.

On the same trip in which Dr. Harkness found the extinct volcano above referred to he found a lake which had been previously visited only by a few hunters. It is situated in the midst of mountains of very high altitude which flank Warner's valley on the north and Big Meadow upon the west. The lake is on a general outline of triangular shape and the Dr. estimated its two largest diameters at one mile and three quarters, the whole size being nearly that of Donner lake. The barometer registered an altitude of 7,330 feet above sea level, which makes, we believe, the most elevated of any considerable body of water in the United States. No signs of life were found except on the northern shore, where the doctor discovered a colony of red Cyclops. The waters in August were intensely cold and of a deep blue color. The mountains rise abruptly from the water, and are of volcanic origin; one on the south which the doctor ascended had three craters upon and near its summit. The surplus water finds an outlet from the southern extremity into Warner valley over a steep declivity of over 2,000 feet. At this outlet several varieties of fresh water algæ were found. As this lake was comparatively unknown Dr. Harkness named it "Lake Livingstone," but the California Academy of Sciences, to which the doctor communicated these facts, have taken the liberty of calling it "Lake Harkness."

Some of our interior counties have never been thoroughly explored, and it is to be hoped that discoveries of the nature spoken of above will encourage others to make explorations near home, before they attempt to hunt up wonders in other countries.

The Lick Sale.

The greater part of the estate of James Lick deeded for various charitable and useful purposes, to certain Trustees, was disposed of at public auction on Tuesday last. The aggregate amount brought was $1,999,385. Catalina island, worth between $1,000,000 and $2,000,000 and several other pieces of property, were withdrawn from the sale, and will be sold in about two months. The Lick House in this city, brought $920,000, but the sale has not yet been confirmed by the Trustees, as they think they can get a better price for it.

The specified donations in the deed of trust executed by James Lick are listed as follows: Sierra Nevada Observatory, $700,000; School of Mechanical Arts, $300,000; Sacramento Art Monument, $250,000; San Francisco Art Monument, $150,000; San Francisco Free Baths, $150,000; San Francisco Old Ladies' Home, $100,000; San Francisco Protestant Orphan Asylum, $25,000; San Jose Orphan Asylum, $25,000; Ladies' Protection and Relief Society, $25,000; Mechanics' Institute Library, $10,000; Society for Prevention of Cruelty to Animals, $10,000; For monuments to deceased relatives, $20,000; For cash gifts to relatives, $21,000. Total, $1,776,000.

The beneficiaries, after the observatories and free baths, are mentioned in this order: 1st, San Francisco Orphan Asylum; 2d, San Jose Orphan Asylum; 3d, Ladies' Protection and Relief Association; 4th, Mechanics' Institute Library; 5th, Prevention of Cruelty to Animals, 6th, Monuments to relatives; 7th, Old Ladies' Home; 8th, San Francisco Art Monument; 9th, State Capitol Art Monument; 10th, School of Mechanic Arts; and 11th, gifts to Mr. Lick's relatives. The surplus receipts of the sale, after deducting the amounts named in the specific donations, are to be equally divided between the California Academy of Sciences and the Society of California Pioneers. These cash gifts are not to be confounded with the valuable lots already deeded to the societies just named, as Mr. Lick has already presented them both with a lot each, on which to erect their buildings. A handsome sum will therefore be divided between them. How much it will be can not be told until the remainder of the property is sold.

By the terms of the sale, the sum of $250,000 will be realized in interest money, which will go to swell the share of the Pioneers and Academy of Sciences. A great deal of interest was manifested in the sale, the hall being crowded with bidders and spectators. The spectacle of a very rich man giving away all his property was such a strange one that the matter formed the chief topic of conversation on the streets this week. Almost every one has some way in which they could have given the money away to better purpose than Mr. Lick, but we opine that few of them would give it if they had it. Mr. Lick's noble generosity is fully appreciated by all but narrow-minded people, and he has done an act which will throw a luster around his name forever.

Hydraulic Mining.

Perhaps no class of mining is so little understood by the general public as hydraulic mining. They have a general idea that a big stream of water is turned against a bank of earth and that by some peculiar process this stream breaks down the bank, picks out the gold and carries off the debris. The details of the operation are little understood even by quartz miners. The method of arranging and working the pipe, sluices, under-currents, etc., has never been described except in general terms. This class of mining is very interesting in its details, and although many miners of course understand it thoroughly, few have ever taken the trouble to write down the facts gained by experience for the benefit of others. Data or the subject of heavy heads of water under high pressure, large pipe, etc., cannot be conveniently reached for this reason; none of the engineers' books treat of the subject to suit our necessities. We use water in our hydraulic mines in such quantities and under such circumstances that a special treatise on the subject is needed by every hydraulic miner. We intend in our next issue commencing a series of illustrated articles on hydraulic mining which will be of great value. The article was written by a practical hydraulic miner, of many years experience and the whole series will be well worth preserving. These articles will not only be of value to miners themselves but as a matter of reference for the general reader. We have had the engravings all prepared and give this notice so that our readers will be careful to preserve the whole series.

Preservation of Fruit for Winter.

A sufficiency of the fruit product of California is now an assured fact, and our producers are doing all that could be asked of them in regard to extending and improving varieties. The great desideratum at present, is a system by which our surplus fruit may be prepared for distant markets and be made available for home consumption during all seasons of the year. To accomplish this object we have, as the readers of the PRESS are aware, labored without stint. As another effort in this direction, we give the following communication by C. H. Dwinello:

In this year of abundant and exceptionally fine fruit, we doubt not that many are wishing for some means of preserving it in its natural beauty and perfection beyond the time which it usually lasts. Even the large growers and dealers have, to a surprising extent, neglected this most important part of their business, and thereby failed to reap what should be their richest harvest, in selling fine fruit out of its seasonal season.

We purpose in this article to call attention to some of the methods used in this and other countries for preserving fruit and vegetables in their natural state.

By far the simplest way of keeping apples and pears for the Christmas market is to gather them in long piles upon the bare ground, between the orchard rows, and leaving them exposed to the elements. This seems, at first sight, a very careless way of doing business, but it is practised to a large extent by some of our most successful fruit growers. They say that the loss is less than when the fruit is stored in a close building, in the Eastern fashion, and that it does not shrivel up and become corky and tasteless. We know that in this way some of our late pears and apples can be brought into fine order for eating about the last of December. The time of keeping could probably be lengthened by making a light bed of straw for the fruit to lie upon, and sheltering it from the sun and rain without shutting out the air.

Packing in Sand

Costs more trouble than the above plan, and is also more effectual. The sand should be clean, and neither very moist nor very dry. Take any ordinary fruit-box, and begin at the bottom with a layer of sand, say an inch thick; then put in a layer of apples, taking care that they do not touch each other, nor the sides of the box; fill up all spaces, and cover the apples with sand and proceed as before until the box is full, placing the apples in the upper layers so that they may rest upon the sand-spaces between the rows, and not directly upon the apples below them.

We have eaten apples in February that are usually soft in October that had been put up in this way, and their only fault was that they were too hard to eat without being exposed to the air to become mellow. It is reported that a gentleman in Santa Cruz accidently left a box of apples, packed in sand, in his storehouse until this autumn, a year from the time of picking, and found them in perfect order.

This system is recommended for apples and pears, and could doubtless be used for some other kinds of fruit and vegetables. Sugar beet tops are kept for months in trenches, covered with earth to a considerable depth, and come out a dainty food for cattle in time of scarcity.

Of course, only the best of fruit should be packed and that should be picked before it softens at all, and handled with the greatest care. The boxes should be stored in a cool, dry, well-ventilated room—best of all a good cellar.

Grapes for Winter and Spring

Can be preserved at a small expense. In western New York the Isabella is kept in fine order by wrapping each bunch in paper, and then packing in a dry room where there is no danger of freezing nor heating. Care should be taken not to have the layers so thick as to crush the lower ones. The wrapping in paper can be done very quickly. Tear old newspapers into pieces of the right size, twist each piece into a rude cornucopia, place a cluster of grapes in this receptacle, gather the loose ends of paper and twist them tightly together and the work is done.

Hanging Grapes

Is much practised in some places. It is recommended that the clusters be suspended from near the tip, reversing the natural position. This causes the berries to fall back from the stem and separate from each other, thus decreasing the danger of rotting. It is easy to erect cheap frames in a fruit-room, with small hooks of flexible wire at suitable distances for attaching the clusters. A very economical and cheap rack can be made by fastening a rope to a timber or hook in the ceiling and again to the floor, so that it is in a perpendicular position, —see fig. 2. About this, hoops are suspended one above another, by means of strong cords tied to the hoops and coming to a common center on the rope.

Thomery and Ferrieres.

In France, are celebrated for their fine grapes, and the cultivators there have reduced nearly every detail of their management to a scientific nicety. They cut their grapes with a portion of the branch attached, (see fig. 4); this branch is placed in a small bottle filled with water, with a neck just large enough to admit it. The bottles are then placed in racks (see figs. 3 and 4) just far enough apart to prevent the clusters from touching. They should be looked at occasionally and if necessary replenished with water. Some advise putting a little charcoal into each bottle to keep the water sweet, but others claim equal success without this precaution.

There are two methods of securing the bottles on the racks. At Thomery the horizontal bars in the racks are made of narrow boards, with deep notches cut on each side, just large enough to admit the neck of the bottle, which is supported by the rim about its mouth.

At Ferrieres the bottles are supported between two strips of wood, about what would here be called heavy battens, which are kept an inch and a half apart by means of pieces of wood at each end. In the inner batten incisions are made for the bottoms of the bottles to rest in, and corresponding notches are cut in the outer ones. The grapes are cut in October and preserved in good condition until April.

Fig. 1.

Interior of Grape Room in Ferrieres, France.

The adoption of the above method at Thomery, immediately added $20,000 to $30,000 to the value of the annual grape crop of that village. Grapes hung in this way require less care than by the preceding plan. Any room in a well built house may be used, if the light is shut out and proper ventilation secured.

Careful Handling of Grapes

That are to be kept in their natural state, is of course absolutely necessary. None should be broken or loosened on the stem, and all imperfect berries should be removed with grape scissors.

Those who do not wish to take the trouble involved in any of the ways already described, may prolong the grape season several weeks by packing in clean, dry chaff, or even corn husks.

Fig. 3.

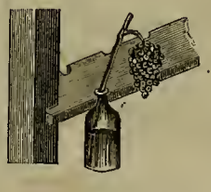
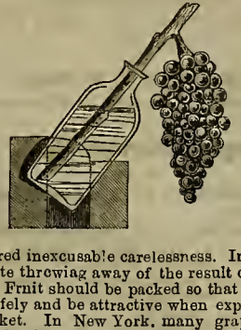


Fig. 5.

Preparing Grapes for Market

Is certainly not the least important part of the producer's work. To ship fine grapes in large, coarse boxes, as is done in California to so large an extent, would in France or New York be considered inexcusable carelessness. In fact, a deliberate throwing away of the result of one's labors. Fruit should be packed so that it will carry safely and be attractive when exposed in the market. In New York, many grapes are sent in circular paste-board boxes, holding from three to six pounds, which are filled as full as possible, so that there can be no moving about. These boxes are in turn put up in larger wooden ones for shipping. There is very little danger of grapes crushing under their own weight when packed this way, particularly if the smaller size of boxes is used.

Fig. 4.



It is to be hoped that our California growers will get into the habit of storing more of their fruit then they have done, so as to relieve the autumn market, and have some to sell when it is worth a good price.

A Rational Want.

Every advanced stage in agricultural progress develops wants which were not recognized in the preceding stage; so that it may be said of Dame Agriculture, as of all the rest of us—the more she has the more she wants. The last quarter century has furnished a liberal supply of improvements in agricultural implements, but it leaves some wants unsupplied, which have existed for a long time; and has created others, which have really grown out of its own improvements. Some of these wants are urgent; among the most prominent of which we would mention a steam plow, adapted to farming on a small as well as on a large scale and a successful potato-digger possessing the same adaptability; and we have the same faith that these wants will be fully supplied in due time as we have that the seasons of plowing and potato-digging will come in their time.

But there are other needs growing out of our progressive economy which have not as yet assumed the form of definite wants. We have met with an expression of such a desire in an Eastern agricultural paper, under the head "Machine Wanted." The implement or machine called for is one by which Indian corn—including stalks, leaves cobs and grain—can be reduced, by grinding all together, to food for stock. This, it occurs to us, is a rational want. Corn stalks are of themselves healthful and somewhat nourishing food; but they need cutting and steaming to make cattle take to them properly and eat them clean; while the shelled corn is of itself extremely valuable to nearly all kinds of stock, but with some it is indigestible when eaten alone, and can scarcely be considered as perfectly healthful to any.

In localities where corn is abundant, an excellent feed for horses is made by grinding the cob with the grain. It is known that the cob yields only a very small percentage of the nutrition which this feed supplies; still it is not entirely destitute of this quality, and furnishes, besides, an acid ingredient to the food which aids materially in digestion, and also does away with the objectionable quality of compactness which the pure meal possesses. This fruishes

Fig 2.

a healthy, hearty feed, even for the working horse; and if we could add to this the leaves and stalks, cut close to the ground in the ordinary way to shock, it would supply a large amount of food of a desirable character. The tastefulness of the meal of the grain and cob would permeate the fibrous mass, and cause it to be eaten with a relish, thus preventing waste; while this coarse ingredient would produce the requisite distention of the animal's stomach, and give an assimilative and digestible character to the whole.

For dairy cows in winter, for mostly all kinds of young stock, and for working oxen, it would, no doubt, become a satisfying food, and be extremely economical to the owners of such stock. To the "skinflint" class of farmers a temptation would be offered, possibly, to "scrimp," by substracting a portion of the ears from the shock; and the slovenly might think that there would not be that necessity for the perfect ear that the corn of commerce demands; and would accordingly slight the cultivation of the crop; but for this purpose, as for all others, the crop should be cultivated up to its fullest capacity, and no scrimping allowed.

Two Montana men claim to have discovered an inexhaustible ledge of pure white marble not far from Deer Lodge, and easy of access. It is harder than the average Italian marble, is very even grained, and free from flint, looks like pure white wax, without streaks, and by rude process takes a fine polish.

A Recent Volcano in Plumas County.

At the meeting before last of the Academy of Science, Dr. H. W. Harkness made some remarks of a recent volcano in Plumas county, which he was requested to write out in full. Dr. Harkness has written the following account of his visit to this volcano, which he has allowed us to publish. What are called "recent volcanoes" are plenty enough in this State, but this is the only instance we remember where the surroundings and circumstances are such as to *prove* that the volcano was in active operation within twenty-five years.

From time to time during the period between the years 1850 and 1854, vague rumors had been circulated that evidence of active volcanic action existed in the northern portion of Plumas county, and that strange lights had been seen apparently by different observers, which were referred to by them as the result of an eruption then in progress somewhere to the eastward or Lassen's Butte. As the Indians in the immediate vicinity were exceedingly hostile no effort appears to have been made to verify the correctness of these reports, and the subject seems to have dropped from the minds of men.

While traveling in Plumas county during the past summer, I heard reports of the existence of a lava bed in the vicinity of Lassen, which bore traces of a recent upheaval. The central point of this disturbance being commonly referred to as the Cinder Cone. While camping in the neighborhood, I had ample opportunity to make a pretty thorough examination of the locality.

This cone is marked upon the map as being within the limits of Lassen county. This, however, is a mistake, its true location being at a point which would place the whole, or at least the larger portion of the cone, with its outlying lava bed within the limits of Plumas.

Two lakes are laid down upon the State Geological map as lakes Anna and Lonisa; these lakes lie to the eastward and about twelve miles distant from Lassen's Butte, and are known to the residents in that portion of the State as Snag lake (Anna) and Juniper lake, (Louisa). The Cinder Cone and lava bed which I refer to, lying directly across the northern end of Snag lake.

When viewed from the upper end of the lake—1½ miles distant—the lava bank rises directly from the water to the height of 80 or 90 feet, and extends across the whole breadth for a mile or more, with as regular a gradient and as sharp a definition as a railway embankment.

The surface beyond being studded with a few abrupt elevations of 20 or 30 feet high, while to the left rises a huge cone with a crater at its summit. On the eastern end this lava embankment turns abruptly to the north as it strikes the lake shore, and from this point the line extends in a northerly direction for a distance of one and a half miles, or more, when it strikes another lake, or ae is most likely, what was once the lower end of Snag lake. At this point the line turns sharply to the west, the lava dyke crossing the lake to its western shore, when it again deviates to the southwest, until it strikes the lake line previously described. Nearly midway, on the western side the Cinder cone arises abruptly from the border of the lava bed, one side of it resting upon the plain. It will be seen that should my estimate prove to be correct, the entire circumference of the lava bed is between four and five miles for the entire distance, except at the cone, the embankment rises from the plain or water 80 or 90 feet, at a sharp angle of about 60 degrees, and in no instance is there in this border the slightest trace of a lava flow to indicate that it was in a molten state when thrown out.

The surface of the blocks show a bright metallic luster, the colors varying in different parts of the field from black to a reddish brown. On climbing to the surface of the lava it is found to be very irregular, with ridges and depressions alternately, forming a surface so uneven as to make it very fatiguing to walk for any distance upon it. Near the center of the field, I observed a mass of lava which showed signs of having been in a molten state when thrown upon the surface; this was a somewhat narrow strip, a hundred feet or so in length, lying in a horizontal position, but slightly broken, and its rough, uneven, corrugated surface, clearly indicating that it had been cooled by contact with the atmosphere. A few sickly looking pine trees—a dozen or two at the most, were struggling for existence, wherever a little collection of burnt earth rendered such an existence possible. These trees were quite small, being only two or three inches in diameter.

As I before stated the cone rises from the western side of the field. In making the ascent I selected a point to the southeast of the cone, as the side there rests against the lava and its level of a hundred feet can be reached

[Continued on Page 332.]

Seed Time in California.

Anyone emharking in agricultural pursnite, no matter what country or what district he may be in, will miee the traditional regularity of "seed-time and harvest," and of many other matters connected with the farmere' oalling. The irregularity of the seasons in California—of seed-time especially—and the great diversity of soil and climate here, have heen amply dilated npon. Prohably the eubject has heeu amplified a little too mnch; and the contrast hetween California and Eaetern farming, as regarde certainty and regularity, oertainly ie carried to a point which the facts in the case will not warrant.

The variations in the seed-time in the Eestern States are reckoned hy days; whereas with us they range hy weeks; but we should oonsider that, owing to the comparative length of the growing seaeon in the two localities, a day with them is of ae mnch consequence as a week with us. When we hear ahout the farmers there always getting in a certain crop from the firet to the tenth of any month, we might he led to admire the regularity of the system, if we did not know that the eeed could not poesibly he pnt in hefore the firet of that month and that the crop wonld not mature if it were put in after the tenth.

The seed-time of California may he said to extend throughont the year in what is known as the agricnltural portions of the State. The gronnd is even now heing prepared for seeding with

Wheat, Barley, Oats and Rye,

The recent nuseasonable rains having acceler-ated the plowing eeaeon. Good farming—and we have more good farming here than we get oredit with—doee not neglect to eteal a march on the planting season whenever this can he done. As a general rule the grain is sown as early in the season as the condition of the soil will permit. Reports from the crops of the last eeaeon are in favor of late sown grain; this however was an exceptional inetance, and heing so considered hy farmere will prohably heve no influence in their future course. In following the course of grain sowing in this State we are not to he guided hy geographical rules, hut hy the supply of water, natural or artificial, upon which the sectione of country may depend. The capacity of soil to retain ite wintry supply of moieture will, of oonrse, influence to eome extent the farmer in hie choice of eeed-time; hut the main ooneideration is the eummer supply of water obtainahle. Where irrigating facilitiee exiet, or where neighhoring mountaine supply the eurronnding valleye with moisture hy eeepage, or the district is henefitted hy fogs from the sea coast, the necessity for early seeding is not eo nrgent; hnt where these resources are wanting, and the soil hecomee dry in early snmmer, then early sowing is indiepensable.

Potaloes

Of the Humboldt ahd other varieties for general use shonld he planted at once, in order to have their growth accelerated ae much as poesihle by aid of the winter raine—thus ohtaining the nse of the land for the second crop—at an early period in the coming seaeon. In localitiee where the soil driee out early in eummer, the Early Rose and other early varieties are also planted about this time.

In localitiee visited hy spring frosts the planting of

Indian Corn

Ie of course delayed until after the period when these are to he expected; still early planting is deeirahle, in order to have it attain as much growth ae poesihle, hefore the dry season fairly sets in. Rapid growth is essential in corn growing, and this ie materially aided hy warm nights. In some of the heet corn-producing portions of America, planting can not he done before the 10th of May; and nippiug frosts may he expected ahont as early in September, yet within these four months it attaine perfect maturity; hut thie it could not accomplish if its growth were even partially suspended at night. Where the nights are hot and sultry, accompanied hy copious dews, it attains, prohably, a larger portion of ite growth at that time than hy day; the rapidity of thie growth aleo aiding the plante in eecaping the ravagee of worms. Our most snccessful corn growers seem to prefer to plant quite early in April.

The same precantions against frost that govern the planting of corn, are nsed in planting

The Bean Crop.

But where no frosts are to he expected this crop may he put in as eoon ae the ground can he got ready; or planting may he delayed until spring where moieture may he relied upon during the growing seaeon. The planting of tomatoes ie governed hy the same rulee. Cahhages are planted at any and all times, snhject only to the eupply of moietnre to he expected.

There are varioue methods practiced in this State in growing

The Onion Crop.

Thoee engaged most extensively in thie hueiness grow them from seed. Some practice the transplanting method; constructing heds of very rich, finely pulverized eoil in the fall, and in theee they sow the seed at once, very closely; eometimee in drills and eometimes broadcast. Ae eoon as the young onion hegine to hulh they are transplanted to the field. Where transplanting is not practiced the eowing ie delayed until the latter part of winter, when the eeed is sown in drills. People here prefer a mild onion to a strong one; consequently the red onion is not much cnltivated. The yellow Danvere is the leading variety; next to thie come the yellow and the white Silverekins. A good many top or "hntton" onions are grown here. In growing

The Beet Crop,

Especially the engar heet, it is extremely important to eeonre a nniform growth. On land that ie snhject to overflowing, or that retaine a surplue of water, any crop growing thereon is necessarily retarded in its growth, and a suspeneion of growth is injurions to crops generally, and particnlarly heete. If they are stopped in their growth, even for a few daye, they are injured permanently. Vegetable life cannot remain stationary any more than animal life. With the stoppage of growth, even temporarily, the maturing process commencee, and it will he found that where heete have etopped growing from a surplus or lack of moisture, or from any other cauee, when theee causes have heen removed and the growth is resumed, they will he inclined to send forth eeed etalke; ehowing that the maturing elements had heen called into requisition during the hrief suspension of growth, and even though the tendency to go to seed may he removed, and the enhseqnent growth all that conld he desired, the vegetable will he imperfect in conseqnence of the fiher of the previous growth heing herdened. In growing heets for stock this is of less conseqnence; and in many placee they are sown in the fall for thie pnrpoee; hnt it is only in localitiee particnlarly favored that the reqnisite growth for sugar heete can he ohtained except hy sowing in the spring.

Healing Powee of Glue.--Many workmen do not know that glue as a healing remedy ie invalnahle. For the last twelve or fourteen years, says a mechanic, I have heen employed in a shop where there are over three hundred men at work; and, ae ie the caee in all ehops of thie kind, hardly a day paesee but one or more of us cut or hrniee our limhs. At first there were but few who found their way to my department to have their wounds hound np; hut after a while it hecame generally known that a rag glued on a flesh wound was not only a speedy curative hut a formidahle protection against further injury. I was obliged to keep a fnll supply of rage on hand to he ready for any emergency. I will here cite one among many of the cases cured with glue. A man wae ruuning a horing machine with an inch and a-quarter auger attsched; hy some means the sleeve of hie ehirt ceught in the auger, bringing his wrist in oontact with the hit, tearing the fleeh among the muecles in a frightful mauner. He was conducted to my apartment, (the pattern shop), and I washed the wound in warm water, and gined around it a cloth which when dry eunk into a rounded shape, holding the wound tight and firm. Once or twice a week for three or weeke, I dressed the wonnd afreeh nntil it wae well. The man never lost an hour's time in conseqneuce. The truth of thie statement hundreds can teetify to. I used, of couree, the hest quality of glue.

The Santa Rosa *Democrat* saye the Geyeer quicksilver mine ie owned hy the following partiee: Flood & O'Brien, Pope and Talhot, W. S. Chapman, S. B. Boswell, Baker & Hamilton, Wilmerding & Kellogg, Hoyt & Seare, Edgar Mille, G. W. Gilhert, Albert Cresecy, Knox & Osborne, Stuert & Elder, M. Friedhurg. Superintendent Rhodo is working a force of sixty men. The Oakland company ie owned hy Shaw, Forman & Fraynor. Mr. Dennis is superintendent. The Sonoma mine, owned hy Dodge, Ralston and othere, is producing about forty fleeks a month. The parties in San Francisco to whom the Flagstaff was honded did not take the mine.

Lincoln Coal.—Mr. D. N. Coffin, the new superintendent of the Lincoln coal mine, tells the *Foothill Tidings* that the demand for this fuel is rapidly increaeing, and wherever introduced holds ite customers. Orders now come in from Marysville, Stockton, Merced and Vallejo, and at Sacramento, where it has heen in constant nee for eeveral mouthe, hundrede of familiee are converting their stovee into coal hurners and most of the steam hoilers will eoon he fed with this coal. They have over 50,000 toue opened, ready to take out, and will put on more force as fast as the increased consumption calls for it.

The employee in the five carpet mille knowu ae the Dohson Mills, at the falls of the Schuylkill river, near Philadelphia, nnmhering 1,700 persona, etruck last Friday on account of contemplated reduction of wages. Dohson intends to adhere to the intended reduction, and no resumption will he made nnlees the handa yield. The mills are the largest of the kiud in the United States, and their euspension will prohably have a serions effect.

Soft Ground.—Owing to the soft natnre of the gronnd at the 750-foot level in the Baltimore Consolidated mine, the timhere have heen cruehed to atoms within five feet of the face of the drift, and will cause a delay of several days. The water in the ehaft has decreased materially, and can now be handled hy the pumps.

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I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patente unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

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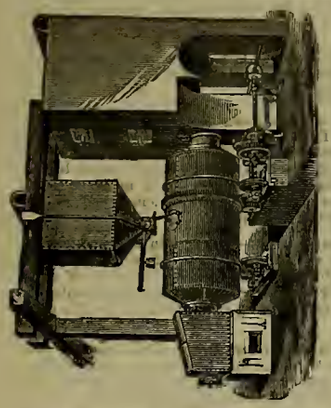

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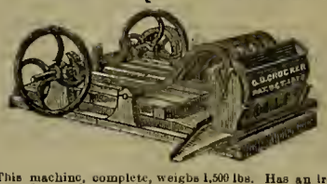

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Nye County, Nevada. Midway between Austin and Belmont, belonging to the Twin River Consolidated Mining Co. A complete mill, comprising twenty(20) 800lb stamps, (dry-crushing) with Rock Breaker, Pans, Settlers, and entire outfit of milling appliances; together with an excellent engine (18x42), two tubular boilers and all requisite shafting, gearing, belting, &c.; a valuable lot of Sierra Nevada timber in Battery frames and building. The whole is offered cheap. For further information apply to JAS. D. HAGUE,
18v27-3m 240 Montgomery St., S. F

Water Wheel. The best in the Market, and sold at less price than any other first-class Wheel. Send for a Pamphlet and be convinced. N. F. BURNHAM, York, Pa. v29-4m

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BLACK DIAMOND FILE WORKS.

TRADE MARK

G. & H. BARNETT,

Manufacturers of Files of every Description.

Nos. 39, 41 and 43 Richmond street,

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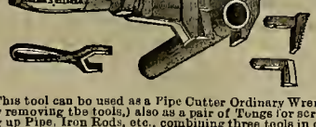
Sold by all the principal hardware stores on the Pacific Coast. 18v25.1y

Webster's Patent Combined Wrench



This tool can be used as a Pipe Cutter Ordinary Wrench, (by removing the tools,) also as a pair of Tongs for screwing up Pipe, Iron Rods, etc., combining three tools in one, at one-third the expense of the tools to do the same work. They are made of the best material, in the best manner.

12 inch, complete with tools, takes	⅜	to	¾	pipe,	$48 ₱ doz.
15 " " " "	⅜	to	1½	"	60 "
18 " " " "	⅜	to	2	"	72 "
21 " " " "	⅜	to	2½	"	84 "

Liberal discount to the trade. Address

TREADWELL & CO.,
Sole Agents for the Pacific Coast. San Francisco, Cal

Brittan, Holbrook & Co., Importers of Stoves and Metals, Tinners' Goods, Tools and Machines; 111 and 113 California St., 17 and 19 Davis St., San Francisco, and 178 J St., Sacramento. mr.-1y

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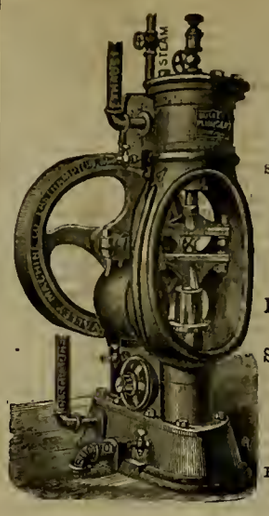

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Sole Agents for

WRIGHT'S

BUCKET-PLUNGER

Steam Pump

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ALWAYS RELIABLE

29v19-tf

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BLAKE'S STEAM PUMP,

FOR EVERY POSSIBLE DUTY.

Fire, Marine, Wrecking and Circulating Pumps are specialties fully guaranteed.

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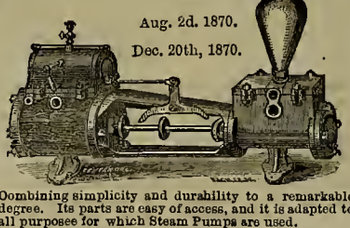
THE SELDEN DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

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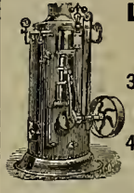

Look at the Prices

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3 Horse-power Engine and Boiler complete, $250

4½ Horse-power Engine and Boiler complete, $300

JAS. LEFFEL & CO.,
Springfield, Ohio.
18v29-1m

PURCHASERS please say advertised in Scientific Press

Metallurgy and Ores.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

ASSAYERS' MATERIALS

Chemical Apparatus and Chemicals,

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We would call the special attention of Assayers Chemists, Mining Companies, Milling Companies Prospectors, etc., to our large and well adapted stock o

ASSAYERS' MATERIALS

—AND—

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Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains Grammes, will be sent free upon application.

7v25-tf JOHN TAYLOR & CO.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared to have them constructed in the most perfect manner and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apparture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco

Nevada Metallurgical Works,

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Ores worked by any process.
Ores sampled.
Assaying in all its branches.
Analysis of Ores, Minerals, Waters, etc.
Plans furnished for the most suitable process for working Ores.
Special attention paid to the Mining and Metallurgy of Quicksilver.

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Mining Engineers and Metallurgists.

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On all kinds of Ores, and particular attention

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LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical CHEMIST,

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STRONG & CO.,

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No. 10 Stevenson Street, near First, SAN FRANCISCO.

We purchase high grade Gold and Silver Ores, Bullion, Etc. Ores worked and tests made with care; also, Ore Assays of Gold, Silver, Copper, Lead, Tin, Iron, Manganese, Cinnabar, Nickel, Etc.

PLATINUM

Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M RAYNOR,
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Platinum Scrap and Native Platinum purchased.

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Wm. Irelan, Jr., Chemists and Assayers, Rooms 47 and 48 Merchants' Exchange, San Francisco. Analysis of Ores, Mineral Waters, Etc. 8v28-3m

Buy Real Estate while at Low Rates.

NINE WATER-FRONT LOTS, CHEAP,
On Gift Map 4,

Forming about half of a block fronting on the broad ship channel of Islais Creek; will be sold so low as to make it an inducement to the buyer. Inquire for the owner, Room ——, No. 224 Sansome st., S. F. bptf

[Continued from Page 329.]

without much effort. From this point, however, owing to the loose and sliding material, the ascent proved a very severe task, far exceeding anything I had previously undertaken.

Barometrical measurement showed the summit of the cone to be six hundred feet above the plane at its base—the exact height, I believe, of that of Vesuvius—it possesses a well defined outer rim of some six hundred feet in diameter. Within the rim, after a descent of about sixty feet, a level bench is reached, on which one may walk entirely around the inner crater, which is funnel-shaped, and about 90 or 100 feet in depth.

The crater exhibits no signs of having contained water. A few small willow twigs are to be seen growing within the outer rim. Judging from the appearance of the lava bed, as viewed from the summit, and the present condition of the material, it would seem that the present cone has thrown out but a small portion, if any, of the lava in view, but rather that it has been elevated by forces acting directly beneath the site it now occupies. The amount of ashes and pumice which have evidently been discharged from this cone is, however, amazing.

In the immediate neighborhood of the cone the deposit is from 12 to 20 inches in thickness, and two miles away it is five or six. I traced this deposit for four or five miles to the southwest, and Obed Field, one of my guides, informed me that to the northwest it extends fully ten miles. To the eastward the deposit is not so extensive. Yet it is safe to state that a breadth of 80 or 100 square miles has been covered by the ashes from this volcano. Small bits of pumice of the size of a bean are plentifully mixed with the deposit.

The ashes are of a dull, gray color, differing in this respect from any other I had previously observed in the State, and as they offer but little resistance to the wind, no signs of drifting are apparent, and they rest evenly upon the surface as they fall. My reasons for believing this volcano to have been of recent origin may be briefly stated. In Snag lake, across which the dike of lava extends, there are several dead trees still standing, while on the lake shore are many trees and stumps battered and torn by ice, which have been driven upon the beach by the wind. This is notably the case upon the eastern border of the lake, where they may be counted by the hundred.

These facts clearly indicate that a large portion at least if what is now the bed of the lake has but recently been a forest, and that the presence of the lava has been the cause of the change in the level of the water. Again, along the borders of the lava bed there are a number of trees still standing with lava nearly or quite encircling them, their dead and blackened trunks furnishing incontestible evidence that the eruption occurred while they occupied their present positions.

To the west and northwest of the cone an open space exists of a hundred acres or more in extent—bounded on the west by forests—the trees upon which have nearly all disappeared. There exists to my mind the clearest evidence that the vegetation upon this tract was destroyed by the shower of hot ashes. The trees still standing are burned upon all sides precisely as a green tree burns, a thin stratum of charcoal, still adhering to the surface of the remaining wood. A few trunks have fallen and they rest on the surface of the heavy ash not partially buried in it. No traces are perceptible of fallen timber lying beneath the ash, as that would naturally have been entirely burned away.

I observed many concave depressions dotting this field of ashes. These depressions were from six to ten inches in depth and from one to four feet in diameter with sides sloping toward the center. Where one of these occurred, on digging through the ashes I invariably found traces of a charred or decaying tree stump. In the forest beyond the trees were invariably surrounded by a zone of ashes. Further evidence of this recent shower may without doubt be obtained by a thorough examination of the living trees in the vicinity. Many small cavities at the point where the branches are thrown off will yet disclose a store of ashes to reward the search.

A large number of trees still living in the adjoining forest show scars, and the new wood formed by the reparative process, is apparently of but a few years' growth, although, as I had no axe I was unable to verify this statement by count of the annular rings in the new wood. I had forgotten to state that there was one living tree in the field of ashes, but it has lost its top and its scarred trunk indicates a desperate struggle for life.

I have endeavored to place before you this evening all, as I believe, of the more important facts upon which I base the supposition that this volcano has been in active operation within 25 years. Much of this evidence will soon disappear. The ice in another winter, perhaps, will have lifted the last tree from its place in the bed of the lake, the concave depressions in the ashes will gradually become less distinct, and the trees encircled in the stony embrace of the lava will soon decay, yet the characteristics of the volcano itself are so marked that it will, for a century to come, be recognized as of recent origin. I had traveled for weeks over a country every inch of which exhibited traces of volcanic action. Yet there always existed something to show that nature was endeavoring to repair the mischief which had been wrought. By disintegration the unsightly lava blocks were being converted into soil on which vegetation was luxuriating, and where animal life can find subsistence. I had climbed very many well wooded volcanic peaks to find that within the very craters large trees were growing and the sides converted into grassy slopes. Here, however, the lava bed was as sharply defined as though it was a fortress in an open plain, and although surrounded on all sides by volcanic ruins it appeared as fresh and new as though the creation of but a day.

Since my oral report to this society four different gentlemen have furnished me with reports which, in my estimation, must be considered as corroborative proof of the existence of an active volcano about the period named. Dr. Wozencraft informs me that during the winter of 1850–51 he was residing at a point some distance above Red Bluffs, when he observed a great fire to the eastward of Lassen, which continued for many nights without change of position. The Doctor states that some of the observers expressed the belief on the first night of its appearance that it was the light from a large Indian camp fire. The reappearance of the great body of flame for so many nights in succession, however, seemed to shake their faith in the camp-fire theory. The Doctor at the time and since, has earnestly advocated the theory that the phenomenon was the result of a volcano in active operation.

Dr. J. B. Trask also states that at about the same period he was near Rich Bar on the north fork of the American river. He, too, distinctly remembers the display for many nights in succession. From his point of observation the distance cannot be more than forty miles to the cone.

Mr. Charles Gibbes stated that he and a party of miners witnessed the same spectacle while at Angel's camp and referred it to an eruption of a volcano. Himself and comrades, in their estimate of the distance to the supposed volcano, placed it at 150 miles; in point of fact it is about 160.

Mr. Henry Chapman, a member of the Academy, writes that during the summer of 1851, he resided for a short period at a wayside hotel near Georgetown, El Dorado Co. One evening, two prospectors arrived at the hotel who stated that they had been since early spring in search of the mythical gold lake. They informed the company that they had traveled toward the north for a distance of more than 200 miles without discovering gold. They stated that they had however discovered a boiling lake and a volcanic mountain, which "threw up fire to a terrible hight," and a large breadth of country still on fire, as the result of an eruption. They stated further that at one point they traveled for a distance of ten miles across a strip of country where the rocks were still so hot as to entirely destroy their boots, they losing a horse and one mule during the transit. They placed the location of the mountain at an estimated distance of 100 to 125 miles, in a northerly direction from Georgetown. By referring to the new geological map of the State, it will be seen that the distance from Georgetown to the Cinder cone I refer to, is about 115 miles. If this statement can be relied upon, the burning country they mention must have been the belt of hot ashes which I have described.

The boiling lake referred to is doubtless one which is still in existence it being located about eight miles to the south of the Cinder cone.

It is oval in shape and contains an area of a little more than four acres, with an elevation of 5,976 feet, and is surrounded by hills of 100 feet in hight broken only at one point by a fissure which admits the escape of surplus water. Around the borders of this lake I found a large number of mud cones from one foot to four feet in hight formed of finely pulverized volcanic rock. These miniature craters were in a state of ceaseless activity ejecting mud and sulphurous vapor.

The water of the lake itself was hot, of a creamy color and the surface from time to time disturbed by the escape of gasses from the earth beneath.

My guide informed me that the lake is much more tranquil than at the period when he first beheld it 10 or 12 years since, and indeed there exists abundant evidence to prove that this district is rapidly cooling. A mile or so to the south of the lake there is a geyser ejecting boiling water to the hight of 10 feet, and Field assured me that in former times the water was elevated to a hight of 20 or 25 feet. While three or four miles to the westward there exists a huge geyser cañon with hundreds of springs still in action, yet there are many large cauldrons which have ceased action altogether.

Oaklanders' Local Option Memorial.—On Saturday of this week a memorial drinking fountain will be dedicated in Oakland. The fountain will be situated at the junction of San Pablo and Telegraph avenues, near the City Hall. Its cost, including its mounting with an appropriate statue, will be upwards of $800. Temperance organizations of San Francisco and other places will join those of Oakland in commemorating. Letters have been received to the number of 125 by the committee on invitations from parties who intend being present from different parts of the State. Able speakers will be present. A grand concert will be given in the evening by noted singers and the Harmonic Society of Oakland. An immense number of tickets have been sold. The entire proceeds will go for erecting fountains in different parts of Oakland. The Contra Costa Water Company generously supply the water free. It is stated that this will be the first temperance monument ever dedicated in the United States.

W. L. Church, formerly newspaper agent, will please address this office.

General News Items.

Pacific Coast Postal Changes.—The following Post Office changes on the Pacific Coast were made during the past week: Offices were established at Cross creek, Tulare county, California, and Charles H. Robinson was appointed Postmaster. At Glenville, Kern county, California, and Jos. Meyers appointed Postmaster. Offices were discontinued at Mountain House, Yamhill, Oregon; at Hampton, El Dorado county, California. Postmasters were appointed as follows: Robert F. Campbell, Cisco, Placer county, California; J. W. Roberts, at Walker, Sacramento county, California.

A Gift from George Francis Train.—Train donates about 400 acres to Omaha as a public park, on condition that the city assumes certain indebtedness, about $90,000, while the property is valued at five times that amount. Mr. Train makes this offer to the city in a characteristic letter. One of the conditions is that there shall be no vote of thanks or monumental compliments. He says he don't want to do any death-bed advertising like Astor, Peabody and others, but follows the example of Lick of San Francisco.

Resumption of Specie Payments.—The telegraph says the President has made up his mind to take a decided stand in favor of the resumption of specie payment, in his annual message. It is understood that he will recommend Congress to perfect legislation for specie resumption, and favor specially some date, several years hence, on which the Government should resume. He does not suggest a plan of his own, but believes that legislation can be devised by which the government can resume in 1876.

Carlism Crushed.—The latest dispatches from the Spanish Republican army to the Government are of the most encouraging nature. Army officers report that but few bodies of organized Carlists are now in the field, and those have been so weakened through desertions and other causes, as to be unfit for any aggressive movement. It is believed that Carlism has been effectually crushed.

Warlike Villainous Saltpeter. — Agents of a European Government have contracted with a firm in this city for the purchase of 3,500,000 pounds of saltpeter. This, probably, will be used for the manufacture of gunpowder, and its purchase has given rise to rumors of coming conflicts between European powers, possibly Russia and Germany or China and Japan. It is not known what Government is the contracting party.

Immoral Chinese Women.—Congressman Page, of this State, had an interview with the President a few days since, in relation to the coolie trade and the importation of Chinese women for alleged immoral purposes. The President was very decided in his opinion that such importation was in direct violation of the treaty with China. He will call attention to the subject in his annual message.

Heavy frauds against the Government have been discovered in New York, perpetrated by W. J. Pollock & Bros., who have absconded. Frauds have been discovered to have been committed by them to the extent of $170,000, chiefly through smuggling silk and other fine goods. Warrants have been issued and they, with several others implicated, will likely be arrested early next week.

Become an Honest Man.—It is said that Andrew McGarvey, the New York Court House plasterer of the Tweed Ring, who was paid $400,000 for work not worth one-twentieth of the money, is now earning four dollars a day as an iron worker in a Market street shop, in this city. If he has gone to work, there is hope that he may become an honest man.

Coal Oil Lamp Explosions.—During the past week we have noticed the occurrence of two coal oil lamp explosions in this city, which fortunately did but little damage. One also occurred on Saturday last at Cheyenne, which resulted fatally. All these have occurred through sheer carelessness, or ignorance of the nature of coal oil.

Frightful Railroad Accident in Italy.—A frightful accident occurred a few days since on the railroad between Bologna and Ancona, attended by heavy loss of life. Two passenger trains collided. Both were totally wrecked. Thirty-five persons were killed and injured. The cause of the accident is not stated.

The Nevada Legislature.—As nearly as can be stated, from returns so far received, the Nevada Legislature will stand: Republicans, 47; Opposition, 28.

Mint Removal.—The office and official documents of the Superintendent of the New Mint have been removed to the new Appraiser's stores, on Washington street.

D. D's.—One hundred and thirty-six degrees of Doctor of Divinity have been conferred by colleges in the United States this year.

The Ross Boy.—The parents and friends of the little Ross boy have already expended over $100,000 in their fruitless search for him.

Bridges Washed Away.—The temporary bridges at Lisle's Bridge, American River, were washed away Saturday.

The Reason.—A Danbury little darkey refused to go to church "kase he didn't want to look there like a huckleberry in a pan of milk."

Great Earthquake in Chili.—The latest mail advices from Panama say that the recent earthquake in Chili was the greatest experienced since the memorable one in July, 1873. Valparaiso and Santiago appear to have been almost on the focus of the intensity of the shock. Its duration was half a minute, and its direction east to west. It is known to have extended far out to sea. It was estimated that the total area confused was not less than 1,500 square miles. Cases of serious injury were very few.

California's Poet.—Joaquin Miller is reported as having lately eloped from Florence, Italy, with an Italian married woman, the mother of several children. The affair is said to have produced a great commotion in the society of that free-loving city. It is said that the report comes well authenticated, and at all events it will be a good advertisement for the adventurous bard.

Paul K. Harbs, one of California's early pioneers, died suddenly at his residence in Vallejo, on Tuesday last, at the age of 75. The deceased was most repected as a citizen and public man. He was a prominent man in the early political history of the State. He was elected the first Superintendent of Public Instruction, represented Tuolumne in the State Senate in 1851–2.

Terrible Steamboat Calamity.—The steamer "Empire," of New Orleans, lately sank in a mysterious manner, near that city. The Captain, who lost four children by the disaster, states that the boat did not break in the middle, and was not overcrowded. He cannot understand why it sunk. It is supposed that the victims will number thirty-five.

Attempted Suicide.—On Friday night of last week a man was found stuck in the mud, near the foot of Folsom street, in this city. He was naked and in the mud up to his arm pits. It was a case of attempted suicide. He did not observe, in the dark, that the tide was out.

The Pennsylvania Mine Troubles.—Lawlessness in the Pennsylvania coal regions continually increase, and the outlaws go unpunished. At Caroondale, on Saturday night or Sunday morning last, two men were murdered, and three severely assaulted, one of whom will probably die.

Austria and Prussia.—The Austrian Minister of Public Instruction has resolved to take measures to purge the Austrian schools from Prussian teachers and Prussian school books. An investigation is now being made as to the number of foreign teachers employed at the Austrian Universities.

Cheap Living.—In a certain Paris restaurant in Rue de Trinité a plate of meat, a plate of vegetables, a dessert and half a bottle of wine are now served for nine cents; and a writer on the *Figaro* having eaten, pronounces it a good meal.

Germans and the Pope.—It is reported that Prince Bismarck has intimated to the Vatican that unless the usual forms are strictly followed in the next election of the Pope, the German Government will withhold its recognition.

Cremation Prohibited in Saxony.—The Government of Saxony has forbidden the practice of cremation.

Deaths for the Week.—Seventy persons died in this city during the week ending with Saturday last.

Palace Hotel.—The sixth story of the Palace Hotel is completed. In this building each brick partition is continued to the roof, so that each partition is in itself a fire wall. The magnitude of the undertaking and its peculiar relation to the interests of the city give it an interesting prominence, and the minor detail that in a less pretentious structure would be passed in indifference, are in this case eagerly ascertained and discussed. For every foot of hight gained in the seventh story of the building 139,290 bricks are required. The flues of the building number 2,042. This number embraces 794 for fire-places, 16 for the kitchen, 1 for the boiler, 755 ventilating flues for rooms, 140 flues for working rooms, and 336 flues for bath rooms. The structure requires 4,000 doors for its 900 rooms. The hotel is 350 by 275 feet, covers an area of 96,250 square feet, and is seven stories high. The lower story is 25 feet high, and the others 14 and 16, and all walls and partitions throughout the house are built of stone and brick, laid in cement, and banded together with iron.

The San Jose *Mercury* is again calling attention to the stone quarries which abound in Santa Clara county, and says: "The fact that we possess the best building stone in the known world, and which can even now be furnished at less prices than San Francisco contractors are charging for brick, will hasten the time when all imitations will be discarded and our edifices be hewn out of the eternal rocks."

Don't Hazard Your Life.—A lighted torch in a powder mill is scarcely more dangerous than a deep-seated cough or cold. The individual who waits for such an insidious enemy of life to die out itself, commits a frightful error. It is an inexcusable error too, for *Hale's Honey of Horehound and Tar* will cure any irritation of the throat or lungs with a dispatch and thoroughness which preclude all necessity for apprehension. No type of cough, cold, influenza, or bronchitis can resist its strengthening, soothing, healing operation.

Pike's Tooth-Ache Drops—Cure in one minute.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIC PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Nov. 17th, 1874.

FOR WEEK ENDING NOV. 3d, 1874.*

MACHINE FOR SEWING SACKS AND BAGS.—Howard P. Garland, S. F., Cal.

CABDURETER.—Louis Marks, S. F., Cal.

CHEESE VAT AND STEAM HEATER.—John S. Woolsey, Gilroy, Cal.

STAVE MACHINE.—Lamartine R. Fulda, S. F., Cal.

DIVING APPARATUE.—John Peter Schmitz, S. F., Cal.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

From an Inventor.

The following letter, which was recently received from an old client of Dewey & Co., now residing in one of the Eastern States, speaks for itself, and will do more, perhaps, to convince inventors of our capacity for business than any number of local compliments. We extract as follows:

GENTLEMEN: It was through your honor that I secured my first patent, and although I have since done business here in the Atlantic States with the ablest patent solicitors—gentlemen who have done me justice—yet I have often regretted that you were too far off to advise with me in my cases. It has taken a longer time with every patent I have taken out since I left California and came East, than in the cases you prepared for me in San Francisco, which is certainly very creditable to you.

By the way, one of my patents has passed the ordeal which is the essential test of a patent's value. I mean that of a trial in the courts, and it stood the battling of one of the best lawyers in the country. The specifications and claims were completely made out and there was a perfect comprehension of its principle during the trial. Since giving it this test we thought that we would make it even stronger, if possible, and submitted it to one of the best patent solicitors for advice. After a careful examination of the case he advised us to let it alone as it stood, saying that whoever made up those papers understood their business. I then informed him that they were drawn up by Dewey & Co., of San Francisco, and he replied that he knew you well by reputation. * * * * * Very truly yours,

L. L. SAWYER.

Meriden, Coun., May 16,

TWENTY CENT COIN.—The proposed issue of 12½ cent coin is denied at the office of the Director of the Mint. The issue of 20 cent coin is favored, but 12½ cent pieces are not, and will not be approved at the Treasury Department.

THE Goodyear Rubber Company have imported from the East the largest rubber hose ever brought to this coast. It is intended for a mine in Australia, and is 14⅝ inches in diameter.

THE Moore claim, 800 feet on Deae creek, yielded $48,000 as the summer's work, with 400 feet of the bed of the creek and the banks still untouched.

BARNES, owner of the chrome iron mine near Cloverdale, has shipped this season 1,700 tons to San Francisco. It is shipped from here to Philadelphia.

THE Calistoga *Free Press* is making a choice collection of minerals from the different silver and cinnabar mines in Napa and adjoining districts for the Centennial Exhibition.

On the road from Eureka to Rnby Hill the mud averages three feet in depth, and teamsters find it almost impossible to get their ore wagons from the mines to the furnaces.

PREPARATIONS are being made to open up a number of hydraulic claims in the vicinity of Jackson, Amador county.

SITKA MINES.—A very rich quartz ledge has been struck 12 miles from Sitka, Alaska. The quartz is broken and porous, showing free gold plentifully.

THE population of Virginia City has doubled during the past four years.

QUICKSILVER is still quoted at $1.55 per pound in this market.

THE miners have stopped work on the Klamath river, owing to the high waters.

MANY persons are leaving Eastern Nevada for Panamint district.

THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines and Agricultural Lands in Mining Districts of the U. S., printed in circular sheet, for sale at this office. Sample copies, 25 cts

METALS.

WEDNESDAY M., NOV. 18, 1874.

American Pig Iron, ₱ ton	—	@	45 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig, ₱ ton	—	@	46 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ lb	—	@	3½
Refined Bar, good assortment, ₱ lb	—	@	4
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5¾
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9¼	@	—
Norway Iron	8	@	—
Rolled Iron	6	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Brazers'	31	@	32
Copper Tin'd	45	@	—
O. Metal Pat	50	@	—
Sheathing, ₱ lb	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES.—			
Plates, Obarcoal, IX ₱ box	13 00	@	15 00
Plates, I O Charcoal	13 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs ₱ lb	32½	@	—
STEEL.—English Cast, ₱ lb	20	@	25
Anderson & Woods' American Cast	10	@	17
Drill	18	@	22
Flat Bar	18	@	22
Plough Points	16	@	17
ZINC	—	@	11
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	5 25	@	8 00
QUICKSILVER, per lb	—	@	1 55

GENERAL MERCHANDISE.

WEDNESDAY M., NOV. 18, 1874.

BAGS.			
Eng. Stand Wht.,—		—@12	
Detrick's Machine Sewed, 22x36 B...12		—@12¾	
do 22x36, do E W—		—@13½	
do 20x40, do A.—		—@13½	
Flour Sacks ½s..	9½	—@11½	
" " ¼s..	8	—@ 7	
Stand. Gannies.. double seam....	15	@15½	
single seam....	13¾	@14	
" Wool Sacks	60	@67½	
Barley Bags 24x36		@14	
do 22x40		@14½	
do 24x40		@15	
do 24x36		@16	
Oat Bags, 24x40....	16	@16½	
do 28x36....		@17	
Hessian 40-ie.gds	9½	@ 9¾	
do 45	10½	@11	
do 50		@15	
CANNED GOODS.			
Asst'd Pie Fruits in 2½ ₱ cans.	2 50	@ 2 75	
do Table do...	3 50	@ 4 00	
Jams & Jellies 3 ₱s	3 75	@ 4 00	
Pickles ½ gl..	—	@ 3 50	
Sardines, qr box	1 80	@—	
do bf boxes	3 20	@—	
COAL.			
Australian, ₱ ton	10 50	@12 50	
Coos Bay	—	@10 00	
Bellingham Bay	—	@ 8 50	
Seattle	—	@11—	
Cumberl'd, cks..	—	@18 00	
do bulk	16 00	@17 50	
Mt. Diablo	6 25	@8 50	
Lehigh	—	@17 00	
Liverpool	10 50	@11 50	
West Hartley	—	@14 00	
Scotch	10 00	@11 00	
Soranton	—	@13 50	
Vancouver's Isl..	11 00	@11 50	
Charcoal, ₱ bbl	75	@ —	
Coke, ₱ bbl	—	@ 60	
COFFEE.			
Sandwich Island	—	@ 22	
Central America'n	—	@ 21	
Costa Rica per lb	23	@ 24½	
Guatemala	21	@ 22	
Java	—	@ 27	
Manilla	19	@ 23	
Ground, in cs	—	@ 27	
Chicory	9	@ 10	
FISH.			
Pac. Dry Cod, new	5	@ —	
cases	—	@ —	
do boneless	11	@ 12	
Eastern Cod	—	@ —	
Salmon in bbls..	9 00	@9 25	
do ½ bbls	50	@4 75	
do 2½ ₱ cans	2 00	@2 00	
do 2lb cans..	2 65	@2 75	
do 1lb cans..	1 75	@—	
Do Cod. R. ½b...	—	@—	
Pick. Cod, bbls.	22	@—	
do ½ bbls	11 00	@—	
Bos. Sm'k'd Her'g	40	@ 50	
Mack'l, No. 1, ¼ bbls	8 00	@8 50	
" Extra	—	@9 00	
" in kits	2 00	@2 50	
" Ex mess..	3 00	@3 50	
" Ex mess. ½bs	—	@12 00	
Sm'k Herr'g, hx.	50	@ 60	
NAILS.			
Assorted size, ₱ lb	5 37½	@7 50	
OILS.			
Pacific Glue Oo.			
Neat F't No. 1.	—	@ 90	
Pure	—	@ —	
Castor Oil, No. 1	—	@1 75	
do do No. 2	—	@1 60	
Cocoanut	60	@ 65	
Olive Flagniol	5 00	@ —	
do Possel	—	@ —	
Palm ₱	9	@ —	
Linseed, raw	—	@1 05	
do boiled	—	@1 10	
China nut in cs.	77½	@ 80	
Sperm, crude	—	@1 90	
do bleached	—	@2 25	
Coast Whales	60	@ —	
Polar, refined	50	@ 55	
Lard	25	@ 30	
Coal, refined Pet	37½	@—	
Oleophine	21	@ 24	
Devoe's Brill't	25	@ 28	
Cornelian	21	@ 24	
Eureka	—	@ —	
Devoe's Petro'm	21	@ 24	
Barrel kerosene	21	@ 24	
Olive	4 20	@9 23	
Downor Kerose'e	—	@ 37	
Gas Light Oil	—	@ 26	
PAINTS.			
Whiting	—	@ 2	
Putty	4	@ 5¾	
Chalk	—	@ 2½	
Paris White	2¾	@ —	
Ochre	2	@ 5	
Venetian Red	3½	@ 5	
Red Lead	7	@ 11	
Litharge	18	@ 11	
Eng. Vermillion	2 00	@2 10	
RICE.			
China No. 1, ₱ lb	6½	@ 6¾	
do 2, do.	5¾	@ 6	
Japan	6	@ —	
Siam Cleaned	7	@ —	
Patna	6	@ 6½	
Hawaiian	7¼	@ 8	
Carolina	10	@ 10½	
SALT.			
Cal. Bay, per ton	10 00	@14 00	
do Common	5 00	@ 7 00	
Carmen Island	11 00	@13 00	
Liverpool fine	—	@22 00	
do coarse	16 00	@—	
SOAP.			
Castile ₱ lb	10	@ 11	
Local brands	—	@ 8	
SPICES.			
Cloves	45	@ 60	
Cassia	26	@ 27	
Citron	—	@ 30	
Nutmeg	1 20	@1 22	
Whole Pepper	18	@ 19	
Pimento	—	@ 15½	
Gr'nd Allsp'rs dz	—	@1 12½	
do Cassia do	—	@1 50	
do Cloves do	—	@1 50	
do Mustard do	—	@1 20	
do Ginger do	—	@1 00	
do Pepper do	—	@1 00	
do Mace do	—	@2 00	
SUGAR, ETC.			
Cal. Cube per lb	11	@ —	
Partz' Pro. Ouho hhl or 100 ₱ bxs	—	@ 11¾	
do in 50 ₱ bxs	—	@ 11¾	
do in 25 ₱ bxs	—	@ 11¾	
Circle A crushed	—	@ 10½	
Powdered	—	@ 11¼	
Granulated	—	@ 11	
Dry granulated	—	@ 11	
Hawaiian	8	@ 10½	
California Beet	10¾	@ 11	
Golden C	—	@ —	
do Re'g'r'te	—	@ 10½	
Cal. Syrup in bls.	—	@ 67½	
do in ½ hls.	—	@ 70½	
do in kegs	—	@ 75	
Hawaiian Molasses	26	@ 30	
TEA.			
Oolong, Canton, ₱ lb	19	@ 25	
do Amoy	23	@ 50	
do Formosa	40	@ 60	
Imperial, Canton	25	@ 40	
do Pinguey	45	@ 80	
do Moyune	60	@1 00	
Gunpowder, Cant.	30	@ 42½	
do Pinguey	50	@ 90	
do Moyune	65	@1 25	
Y'ng Hy., Canton	28	@ 40	
do Pinguey	40	@ 70	
do Moyune	65	@ 85	
Japan, ½ chests, bulk	30	@ 75	
Japan, lacquered bxs, ½ and ¼ ₱s	46	@ 67	
Japan do, ½ ₱ bxs	45	@ 90	
do pl'n bx, 4½ ₱	35	@ 65	
do ¼ & 1 ₱ paper	30	@ 55	
TOBACCO—Jobbing.			
Bright Navys	50	@ 60	
Dark do	50	@ 55	
Dwn f Twist	70	@ 72½	
12 inch do	60	@ 70	
Light Pressed	70	@ 80	
Hard do	50	@ 60	
Conn. Wrap'r	35	@ 40	
Penn. Wrapper	20	@ 45	
Ohio do	15	@ 20	
Virg'a Smok'g	43	@ 75	
Fine ot obe'g, sr	8 50	@9 25	
Fine ont ohewing, huo'ts, ₱ lb	75	@ 90	
Banner Rwe cut	9 00	@ 9 25	
Eureka Cala	—	@9 00	
TURPENTINE.			
Eastern	55	@ 70	

LEATHER.

WEDNESDAY M., NOV. 18, 1874.

City Tanned Leather, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@29
Country Leather, ₱ lb			24@28
Stockton Leather, ₱ lb			25@28
Jodot, 8 Kil., per doz		$50 00@	54 00
Jodot, 11 to 19 Kil., per doz		66 00@	90 00
Jodot, second choice, 11 to 18 Kil. ₱ doz		55 00@	72 00
Cornellian, 12 to 16 Kil		57 00@	67 00
Cornellian Females, 12 to 13		63 00@	67 00
Cornellian Females, 14 to 16 Kil		71 00@	76 50
Simon Ullmo Females, 12 to 13, Kil		60 00@	64 00
Simon Ullmo Females, 14 to 15, Kil		70 00@	72 00
Simon Ullmo Females, 16 to 17, Kil		73 00@	75 00
Simon, 18 Kil., ₱ doz		61 00@	63 00
Simon, 20 Kil. ₱ doz		65 00@	67 00
Simon, 24 Kil. ₱ doz		72 00@	74 00
Robert Calf, 7 and 9 Kil		35 00@	40 00
French Kips, ₱ lb		1 00@	1 15
California Kip, ₱ doz		40 00@	8 00
French Sheep, all colors, ₱ doz		8 00@	15 00
Eastern Kip Skins, ₱ lb		1 00@	1 25
Sheep Roans for Topping, all colors, ₱ doz		9 00@	13 00
Sheep Roans for Linings, ₱ doz		5 50@	10 50
California Russett Sheep Linings		1 75@	4 50
Best Jodot Calf Boot Legs, ₱ pair		5 00@	5 25
Good French Calf Boot Legs, ₱ pair		4 00@	4 75
French Calf Boot Legs, ₱ pair		4 00@	—
Harness Leather, ₱ lb		30@	37½
Fair Bridle Leather, ₱ doz		48 00@	72 00
Skirting Leather, ₱ lb		33@	37½
Welt Leather, ₱ doz		20 00@	50 00
Buff Leather, ₱ foot		17@	23
Wax Side Leather, ₱ foot		17@	20
Eastern Wax Leather		—@	—

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Mining and Other Companies.

Cincinnati Gold and Silver Mining Company.

Location of principal place of business, San Francisco, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-fifth day of September, 1874, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Clapp, R W	27	100	$2 60
Clapp, R W	28	60	1 26
Ganz & McLaren	63	100	2 50
Ganz & McLaren	64	100	2 50
Ganz & McLaren	65	100	2 50
Ganz & McLaren	67	100	2 50
Ganz & McLaren	68	100	2 50
Hinckley, G E	54	300	7 50
Hinckley, G E	55	25	63
Hudson, G B	24	100	2 50
Hudson, G B	42	400	10 00
Hudson, G B	45	250	6 25
Hudson, G B	74	500	12 50
Hudson, G B	76	250	6 25
McLaren, J O	48	25	62
Penniman, Mrs Mary	57	60	1 25
Penniman, Mrs Mary	58	50	1 25
Shrewsbury, Mrs L A	20	60	1 25
Whitney, Jacob	36	500	12 50

And in accordance with law, and an order of the Board of Directors, made on the 25th day of September, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction at the office of the Company, Room No 1, 631 California street, San Francisco, California, on the 24th day of November, 1874, at the hour of one o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. SMALL, Secretary.

Office—Room No. 1, No. 531 California street, San Francisco, California. no7-2t.

Keystone Quartz Mining Company—Location of principal place of business, San Francisco, California. Location of works, Butte township, Sierra County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 10th day of November, 1874, an assessment of one dollar ($1.00) per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Northwest corner of Sansome and Pine streets, San Francisco.

Any stock upon which this assessment shall remain unpaid on Monday, the 21st day of December, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 11th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

LOUIS VESARIA, Secretary.

Office, Northwest corner Sansome and Pine streets, San Francisco, California. nov21-5t

Land Purchasers' Association—Office, No. 331 Montgomery street, Room 7, San Francisco, Cal.

Notice is hereby given, that at a meeting of the Directors or Trustees of this corporation, held on the 28th day of October, 1874, an assessment of ten dollars per share (being the 42d monthly installment on the subscription to the stock) was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary at No. 331 Montgomery street, Room 7 San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 30th day of November, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on the 24th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expense of sale.

O. S. WRIGHT, Secretary.

Office, No. 331 Montgomery street, Room 7, San Francisco, California.

☞This assessment is levied to pay the taxes on the property for 1874 and 1875.

The Orleans Mining Company—Principal place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 16th day of October, 1874, an assessment (No. 1) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary at the office of the company, Room 8, 315 California street, San Francisco.

Any stock upon which this assessment shall remain unpaid on the 24th day of November, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Tuesday, the 15th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expense of sale.

J. F. NESMITH, Secretary.

Office—Room 8, No. 315 California street, San Francisco, California. oc24

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Julian Mining District, San Diego County, Cal.

Notice is hereby given, that at a meeting of the Directors held on the second day of November, 1874, an assessment (No. 3) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 4, Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the seventh day of December, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 28th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

Office, Room No. 4, Hayward's Building, No. 419 California street, San Francisco, California. no7-5t

Virginia Consolidated Mining Company.

In accordance with a resolution adopted at a meeting of the Board of Directors of the Virginia Consolidated Mining Company held this day, a special meeting of the Stockholders of said Company is hereby called, the same to be held at the office of the Company in San Francisco, No. 318 California street, Room 13, on Monday the 21st day of December, 1874, at 2 o'clock P. M., to take into consideration and decide upon the proposition to increase capital stock of said company from three million dollars, divided into thirty thousand shares of the par value of one hundred dollars each, (the present capital stock,) to six million dollars, divided into sixty thousand shares of the par value of one hundred dollars each. Also, for the transaction of any other business that may properly come before the meeting. By order of the Board of Directors.

EUG. CHEVIOT,
ROBT. P. CHASE,
A. F. BENARD. } Directors.

SAN FRANCISCO, November 12, 1874. 21v29-4t

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24v22-3m JOSEPH MOORE, Superintendent.

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

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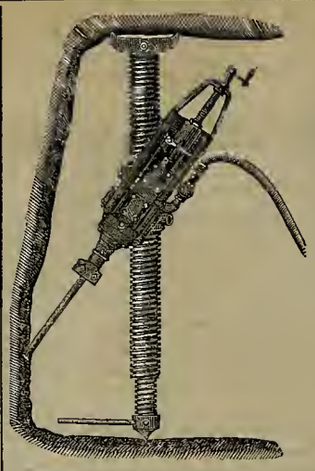
Machinery and Castings of all kinds.



PARKE & LACY,

SOLE AGENTS FOR THE

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PNEUMATIC DRILLING MACHINES,

AIR COMPRESSORS AND OTHER MACHINERY.

Also, Farmers' Dynamic Electric Machine and Hill's Exploders for Blasting, Putnam Machine Company's Tools, and Wright's Steam Pumps.

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DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	2½	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches	4	6	6	6	7	8	10	10	12	14	16	18
Diameter of Pump Cylinder, in inches	2	2½	3	3½	4	4½	5	5½	6	7	8	9
Stroke of piston, in inches	6	6	7	7–10	9–10	1–1–6	2–1–6	3–1–6	4–1–6	5–1–6	6–1–6	7–1–6
Capacity at ordinary Speed, per minute, in gallons	10–6	15	25	35	45	60	80	110	140	190	250	325
Maximum Capacity, Speed, per minute	30	45	80	100	135	165	240	300	350	475	675	900
Boilers in horse power they will supply	25	40	80	120	150	225	350	425	500	.....	.....	.....
Size of Steam Pipe, in inches	¾	¾	1	1	1¼	1¼	1¼	1½	1½	2	2½	2½
Size of Exhaust Pipe, in inches	1	1¼	1¼	1½	2	2½	2½	3	3	3	3	4
Size of Suction Pipe, in inches	¾	¾	1	1	1¼	1¼	1½	1½	2	2½	2½	3
Size of Discharge Pipe, in inches	¾	1	1¼	1¼	1½	2	2	2½	2½	3	3	4
Weight of Pump, in pounds	168	235	400	435	610	875	1180	1500	1612	2430	3276	4300
Length over all, in feet and inches	3–4	3–4	3–10	3–10	4–11	4–11	5–4	5–6	5–6	6–10	7–7	8
Height over all, in feet and inches	1–6	1–9	2–3	2–3	3–1	3–1	3–7	4–3	4–3	5–1	6–1	6
Width over all, in feet and inches	9	10	1–1	1–1	1–3	1–4	1–6	1–10	1–10	2–1	2–9	2–10

PRICE.....

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons*. Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS { No. 4, 24-in. Stroke, $ / No. 5, 24-in. " / No. 6, 30-in. Stroke, $ / No. 7, 30-in. Stroke, $ / No. 8, 36-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for dredging mines*.

C. E. ROBERTS. H. C. GOODRICH

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Manufacturers of

STEEL AND CASE HARDENED SET, MACHINE AND CAP

SCREWS

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QUALITY AND FINISH UNSURPASSED.

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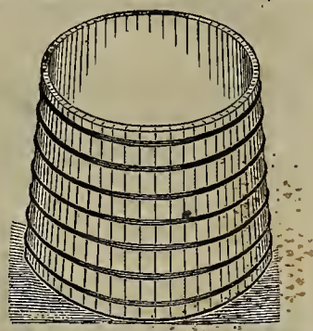

WATER TANKS of any capacity, made entirely by machinery. Material the best in use; construction not excelled. Attention, dispatch, satisfaction. Cost less than elsewhere.

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Inventors, model makers and ameature mechanics and students, will find the work valuable far beyond its cost. Published by DEWEY & Co., Patent Agents and publishers of the Mining and Scientific Press. Price, post paid, $1.

BRITISH MINES.

The undersigned, as correspondent for the London "Mining Journal," will be glad to receive communications from parties engaged in foreign mining operations on this coast.

EDWARD JACKSON,

310 Clay Street, S. F.

San Francisco Cordage Company.

Established 1856.

We have just added a large amount of new machinery o the latest and most improved kind, and are again prepared to fill orders for Rope of any special lengths and sizes. Constantly on hand a large stock of Manila Rope, all sizes; Tarred Manila Rope; Hay Rope; Whale Line, etc., etc.

TUBBS & CO.,

de20 611 and 613 Front street, San Francisco.

Large Profits from Low Grade Ores.

We have often read accounts, seys the *Foothill Tidings*, of the wey they do things in Australia; of dividends peid by English companies operating there on rock that works no more then $2 per ton. When looking over the figures of one of these reports to the London stockholders, it invariahly strikes us that there must be something wrong here where we let fair sized veins of quartz whiob afford plenty of rock that will average $8 to $10 per ton lieidle, end condemn them as worthless.

It mnst bave been with something ekin to tbis feeling that Captain Miller—snperintendent of the Darmonth gravel mine in this place and also largely interested in some of those great veins of quartz up in Washington townsbip, of this county—made a trip not long since over into Sierra connty, to see how a full blooded English corporation managed the famons Sierra Buttes mine and witb whet results. In e pleasant conversation bad with the Captain one evening this week, we learned many facts end particnlars which cennot fail of interesting onr mining readers, and we present snch es occnr to us at this time.

Tbe situetion of this mine is ebout es forbidding as any in the State. First, it is located high up in the snow belt, where for eight months of the yeer people are snowed in and the weather is very severe; and second, after reaching Sierra City, the nearest habitable place to the mine, one mnst climb 1,200 feet np the mountain to reach the works. This is now easily eccomplisbed however, as a nice greded road, three miles in lengtb aronnd the monntain, has been constructed. We mention this point of inaccessibility in winter, for the reason that it is the great hngbear hrought against the mines of Washington and Eureke in this connty.

Tbis, it will be remembered, is the mine sold by Reis & Co. to en English compeny in 1870. This company has added another mill to the two already built. Tbese three mills ere sitnated below tbe montb of the tnnnel, end one below the other, so that the seme stream of weter drives the whole, being nsed on each in snccession. The upper mill has sixteen stamps, the next thirty and the lower one forty—eighty-six in all. Below the mills, along down the monntain side, are ten or twelve errastres, driven by tbe waste water and working on the tailings of the mills. These are owned by ontside parties, some of whom beve realized snng fortunes from this weste.

The tunnel is driven in on the ledge end the ore, taken out in large cars drawn hy mules, is delivered by cbntes to the different mills. The ledge varies in thickness from 10 to 20 feet and the whole body of quertz is taken out. The averege value of the ore milled the past year was about seven dollars per ton, end yet during the year the amonnt divided among tbe English stockholders is seid to bave heen $274,000. Pnrsuing his inquiry for tbe pnrpose of finding how this was possible, onr informent fonnd that the average cost of extrection and rednction wes $2.04 per ton; chargeable to mining, $1.24; milling, 80 cents. The company owns tbe water to drive its mills; hires its men—250 English miners—hy the month, and has immense buildings on the grounnd for hoarding and lodging them. Tbat to the tunnel is largely due this low cost of working may he inferred from the adjoining claim on the same ledge, the Independent, also owned and menaged by an English compeny, which, being worked throngh a sheft and obliged to pump and hoist—thongh done by water power—finds its mining end milling average $4.62½ per ton.

Who does not know of scores of quartz ledges in this county with all tbe advanteges of the Sierra Bnttes mine and minns some of its disadventages? And why mey not some of these he made to pay a quarter million yearly if properly opened up and worked?

RICH STRIKE.—Johnny Schmidt, who owns a ledge ont on Woods' ravine, is again in luck. He hes heen working his mine for several years, and at times it wes very rich, but efter incurring considerable expense some time since in erecting hoisting works, and the mine snbseqnently failing to pey as well es usnel, he found himself in debt, and hed to mortgage the mine. He hes continned work however, and a few deys since he struck some very rich rock. His son took ont in a half day over a thonsand dollars, enough in faot to pay off all bis indebtedness. He has now two tons of rock ont, from the same piece, and seys it is very rich. Fine gold can he seen all throngb it. The strike comes in at the right time for Mr. Schmidt. His persistency in working the mine under disconreging circumstances is worthy of reward.—*Nevada Transcript.*

MINING DECISION.—The Commissioner of the General Land Office decided the cese of the Mammoth Blne Gravel Mining Company of California vs. The Central Pacific Railroad Compeny in favor of the former, holding thet the 1534 acres of land in controversy, sitneted in Nevada county, is mineral in character. It is also held, however, that when a patent issues to a mining company it will be necessary to exclnde from the patent all timber growing npon odd-numbered sections within the railroad grant, except snch as is necessary to support the improvements of mining operations. The latter rnling will be applied to all similar cases.

Sierra County Quartz Mines.

A correspondent of the *Post*, writing of the mining interests of Sierra county, California, has the following to say of the Sierra Buttes mine: At the present time there are claims being worked in this county, both quartz and gravel diggings, that are among the richest in the State. We have afforded us some reliable statistics about several of these mines that must be read with great interest by all persons concerned in the prosperity of California. We often grow excited over descriptions of mines located at a long distance off, while richer ones near by produce no excitement. It must be upon this principle that we hear so little about the Sierra Buttes quartz mine, which, if not the very best, is at least one of the best gold mines on the Pacific slope. It is situated about twelve miles east of the town of Downieville, upon a spur of the Butte mountain, a very high peak of the Sierras. The mine and mills are about 6,000 feet above the level of the sea. It was located in 1851, there being a group of three ledges, and the claim is about 3,000 feet on three ledges. It is one of the mines that never required any assessments, being first worked by arrastras, next by Chile mills, and latterly with stamps and pans. It has produced regularly and paid largely for over twenty years. The yield from the mine has gradually increased as the working facilities were enlarged up to the completing of the three fine mills by the English company. The original stockholders were bought out by Wood & Illinsworth, and these parties sold out to Reis Bros. & Co. for $160,000 in 1858, and by them sold in 1870 to the present proprietors, an English company, for $750,000, and is now valued at $3,000,000 in the London market.

There are three mills now running, having an aggregate of ninety stamps, with pans attached, all run by water power. The water is brought from mountain lakes in a flume seven miles in length. These lakes are about 6,500 feet above sea level. The old flume has been replaced by a new one this last summer. These mills are built upon the most improved plan, with the latest apparatus for saving gold; they are solid structures and cost large sums of money. Two of these mills were built by the present owners and work to perfection. The present company crush all the rock taken out of the ledges; the former company, with two mills, twenty-eight stamps, used to select the rock. The mills were all old and no pans used, and yet in a run of six weeks they always cleaned up from $30,000 to $50,000. Under their management the mining, delivering and crushing cost about $5 50; under the present not more than $4.50. The late company employed from 50 to 75 men. The new company about 300 men. The wages now are at least 20 per cent. less than formerly. Great improvements in buildings have been made. It is said that this new company have expended near $400,000. The quartz, or metal as it is called, is run out from the ledge into the mills. The mills are built at the end of the lodes in the side of the mountain. This is one of the purchases in which the buyers were not "hit," and which did credit to the country. This mine was sold for less than it was worth. This company have also bought the Jamison mine from Parrott for $1,000,000, and, like the Buttes, have put it in perfect order. The Sierra Buttes mine is well worth a visit. It is paying splendidly, and the manner in which it is being worked does credit to the owners.

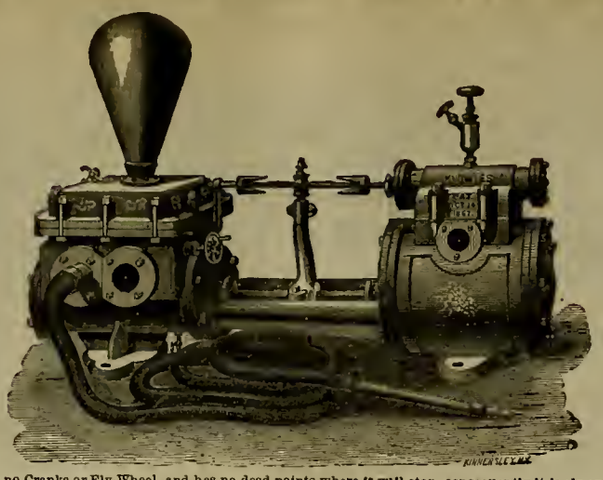
Successful Blast.—At a quarter to three o'clock yesterday there was 10,000 pounds of powder exploded in a drift at the Menzanita mine. The drift was under a point which was about 135 feet high, and 250 feet across the top. The blast was fired by means of electricity. The whole mass was thoroughly broken up, and when we left the scene large caves were taking place, not only over the blast but from the immense bank surrounding. The concussion near the blast was not as great apparently as it was in town, three-quarters of a mile away. Loose plastering in many buildings fell, and glass was broken out of windows. An earthquake shock was supposed to be the cause by those who were ignorant of the blast being fired. Buildings trembled to their base, and there was a commotion in several places. It was intended that a notice should be given in the *Transcript*, but it was uncertain at what time the blast would be fired, so nothing was sent us for publication. The execution done by the explosion was in every respect a success. The amount of dirt loosened will keep the pipes going for some time.—*Nevada Transcript.*

The Ordnance department is having constructed back of its building on Mare Island a platform from which to fire heavy guns. It is proposed to make some tests of the force of powder, testing both the velocity with which it impels a projectile and the range it gives. Shells filled with sawdust, or something else having about the same weight as powder, will be used in the experiments, and will be fired across the island into the bay beyond.

Diego A. Sutil, of Chile, is now on the Comstock range as an agent to collect specimens of gold and silver ores for the great International Exhibition of Chile, to be opened at Santiago, September 16th, 1875.

The North Bloomfield Gravel Mining Company is making rapid progress towards the completion of of their extensive tunnel and their works. The tunnel, when completed, will be more than three miles in length.

KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC, SACRAMENTO, Cal., January 14, 1873.

A. L. FISH, Esq., Agent of the Knowles Steam Pump—Dear Sir: In reply to your inquiry as to the merits of the Knowles Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have now over 30 of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other. Yours, truly, A. J. STEVENS, General Master Mechanic.

A. L. FISH, Agent Knowles' Steam Pump—Dear Sir: In answer to your inquiries, we state that the highest award for Steam Pumps at the Eighth Industrial Mechanics' Fair in San Francisco, was a First Premium and Diploma, awarded to Knowles' Patent Steam Pump, as published in the Official List September 23d, 1871.

A. S. HALLIDIE, President Board of Managers.
W. H. Williams, Sec'y Board of Managers Eighth Industrial Exhibition, M. I.

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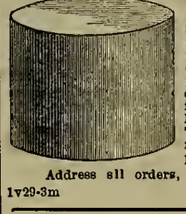
Improved Cast and Forged Steel Shoes and Dies for Quartz Mills.



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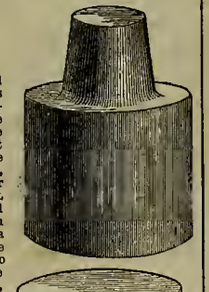
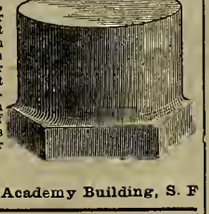
To Supts. of Quartz Mills and Mining Men generally:

We take pleasure in stating that owing to the rapid increase in our orders, our Pittsburg Manufacturers have been compelled to add largely to their works—a new gas furnace and heavier trip hammer—and are thus enabled to reduce the cost of steel and at the same time produce Shoes and Dies superior to any yet manufactured. We have consequently reduced the price to 16 cents per pound and solicit a trial order, guaranteeing that you will find them at least 10 per cent. cheaper than the best iron. There are no Steel Shoes and Dies made excepting under our patent and sold at this office, or by our authorized agents, though certain Eastern manufacturers advertise Steel Shoes and Dies which are only cast iron hardened by the addition of a composition. They will not out-wear two sets of common iron, though called steel. They are very brittle and are not capable of being tempered, flying from under the hammer like cast iron. Our Steel Shoes and Dies are in use in many of the largest mills on the Pacific Coast, and all who have tried them pronounce them cheaper and far superior to iron in every respect, even at the old price of 20 cents per pound. Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. It takes 60 days to fill orders from the manufactory East. Price 16 cents per pound shipped at San Francisco. Terms liberal.





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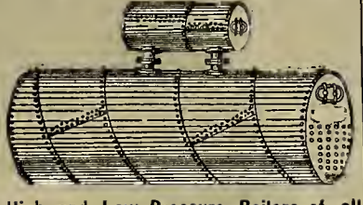

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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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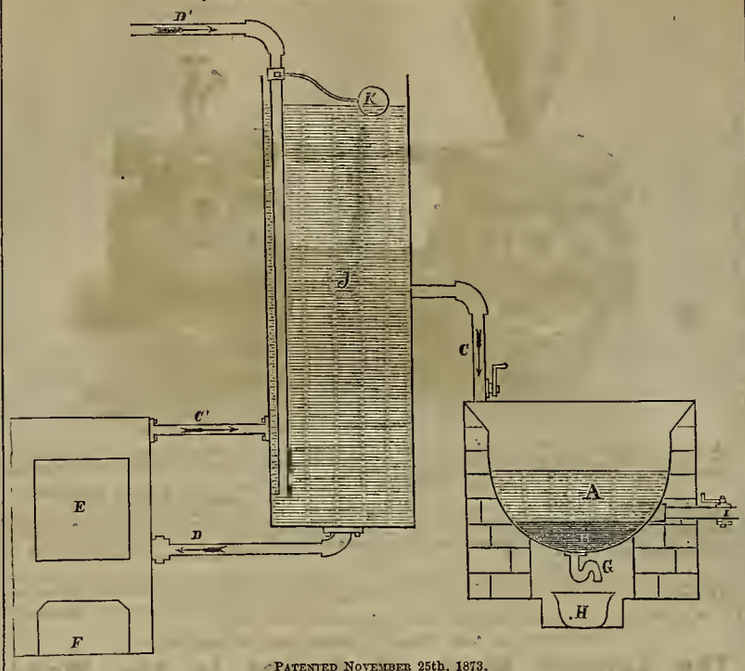

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SAN FRANCISCO, SATURDAY, NOVEMBER 28, 1874.

VOLUME XXIX Number 22.

Hydraulic Mining in California.*

The origin of this branch of mining dates back as far as the spring of 1852, and illustrates the old adage, that necessity is the mother of invention. The crevicing knife and spoon had done their duty; the gold rocker was generally displaced by the "Long Tom". and "Grizzley," and these again were superseded by long lines of sluice boxes; and, *pari passu*, the fissures and crevices in the exposed or denuded bed rock on the river banks were relieved of their gold nuggets; the shallow ravines were mostly worked out; rich gravel leads were followed into sides of hills or mountains — hiding themselves under apparently worthless masses of earthly matter, the hight of the latter increasing with every step onward, and the miner saw neither "stripping" nor "ground sluicing" could secure to him a proper reward for his labor.

Besides this increase in labor and decrease in pay the frequent occurrence of accidents by the caving of banks urged the adoption of other plans for working. Tunnels and drifts were started in many places; shafts were sunk and gold-bearing strata of gravel were found, one below the other, the richness generally increasing with depth. The richest deposit was worked by drifting, and the mine was abandoned as worthless after this was extracted. Thus stood matters in the spring of 1852, when a miner, whose name is not remembered, put up a novel machine on his mining claim at Yankee Jim, in Placer county. This machine was very simple. From a small ditch on the hillside, a flume was built towards the ravine, where the mine was opened; the flume gained hight above the ground as the ravine was approached, until finally a "head" or vertical hight of 40 feet was reached. At this point the water was discharged into a barrel, from the bottom of which depended a hose about six inches in diameter, made of common cow hide, and ending in a tin tube, about four feet long, the latter tapering down to a final opening or nozzle of one inch. This was the first hydraulic apparatus in California. Simple in design, dwarfish in size, yet destined to grow out of its insignificance into a giant powerful enough to remove mountains from their foundations. The news spread among the miners, the wonderful practicability of the new invention was at once acknowledged, and, wherever circumstances permitted, a "hydraulic," the name adopted for the novel apparatus, was "rigged."

[The accompanying illustration shows the method of washing, holding the pipe, etc., before the large nozzles now in use were invented.—Eds. Press.]

Improvements suggested themselves from the beginning. The hose, made out of green cow-hide, rotting under the steady exposure to water, became very soon not only offensive, but altogether useless. Some old sailors adopted sailcloth, or heavy canvas, as a substitute; and the sail-maker's trade was called into requisition at every mining camp. How well this canvas hose answered is evidenced by the fact that even now, after a trial of 20 years, it is used to a great extent, particularly in mines to which the transport of iron pipe is inconvenient. With the increasing strength of the material for hose, greater pressure could be applied, and, in some favored places, hydrostatic pressure of a hundred or more feet was created, producing a working power which overwhelmed in a short time, by its own strength, the facilities for its application; or, in other words, absorbed the grade or fall, indispensable to hydraulic mining, in both directions, filling the downward direction, the natural outlet with *debris* or tailings, and leaving in its progress the richest part of the deposit, the bottom, beyond reach.

HYDRAULIC MINING IN THE OLD STYLE.

The same venturous spirit which induced the California miner to rush to fabled Gold Lake, or to Gold Bluff, and later to Frazer river, Idaho, Arizona etc., had led him to seek in the hydraulic process the quick realization of his hopes for great wealth; but when it became evident that *besides* the rich placer, large water-ditches and long tunnels were necessary, requiring both money by the hundred thousand, and time by many years, then the zest for hydraulic mining drooped, and only a few enterprises outlived the reaction. These were carried on generally by men of small means, but of indomitable energy. Many years of anxiety and hardship passed, but the time came when ditches from 25 to 50 miles in length supplied plentiful water, and tunnels, long and deep, carried in endless flow hill and mountain side to the river-beds and valleys below. Success was gained; experience had shown that the larger the scale on which hydraulic mining was carried on, the more profitable the results would be. New inventions were made. Instead of discharging streams of two or three hundred inches against the "bank," a thousand inches of water, about equal to 1,579 cubic feet per minute, were discharged with a velocity of about 140 feet per second. Bank blasts of from five to fifty tons of powder were fired, preparing the ground for the action of water. Splendid results were realized, and hydraulic mining became a favored field for the investment of capital.

(To be Continued.)

*Condensed from an article by Charles Waldeyer, in the last Annual Report of the U. S. Commissioner of Mining Statistics.

The Road to Yosemite is open and in fair condition for the season. Siedig's Hotel, in the valley, will be kept open all winter.

Metallurgy.

[A lecture deltvered before the College of Mines, University of Cal., by G. F. Becker, B. A., Ph. D., graduate of the Royal School of Mines at Berlin.]

Definition of Metallurgy.

The word metallurgy denotes a science end an art. Metallurgicel science is the systematized knowledge of the laws governing the separation of the metals and of the metalloids from their combinations. The aim of metallurgic art is tn accomplish such separations under the conditions prescribed by the science of metallurgy by such methods, that the valne of the element separated (iron, or oopper, or sulphnr, or whatever it may he) shall exceed, and exceed as far as possible the cost of the materials and the processes employed in its isolation. The art of smelting ores is amoug the oldest, and, in so far as it is impossible to treat ores metallurgically without some theory as to what action takes plece, the science of metalnrgy probably vastly outrauks estronomy in ege. The art was practiced throughout the eras of autiquity without receiving any remarkable improvements, and the alchemists of a later dsy were strictly metallurgists, though not very successful ones. Chemistry is, therefore, historically spesking, the daughter of metallurgy, aud a very grateful and nsefu daughter has she proved herself; in fact, the science in its modern sense, has only teken shape since the discovery of the fundamental laws of chemistry gave us also a clue, by means of which we have been able to arrenge such general facts es hed been observed in their appropriate mutual reletions; for though the operations of the chemist are conducted, in hy far the greater proportion of cases, at temperatures hetween the freezing and the boiling points of water, while those of the metallurgist are carried on at temperatures verying from the freezing point tn 4,000° Fah. end more, those laws as to the nature and methods of combination and separetion of substances, which have been discovered at the more convenient temperatures of the laboratory hold good when heet makes iron, or charcoal, or anything that may be exposed to it as white as suow in sunshine, notwithstanding the fact thet the phenomenal results of their action are often so metamorphosed by the differences of circumstance as to he with difficulty referred to their proper categories. The science and the art of metellurgy are therefore hranches of theoretical aud manufacturing chemistry.

Requirements of a Metallurgist.

It thus needs but a definition to show that the metsllurgist ought to he acquainted with the laws of chemical science; but this, by no means completes the sum of his requirements. He must be an acute and practiced observer, aud a quick, and to a certsin extent, original thinker. It is necessary, but not sufficient, that he should be able to recognize the occurrence of certain eets of regular and normal phenomena; that he should know when his slag is right and his metal good. He must he able, so far as study and the cultivation of his acuteness make it possible, to perceive the nature of, and apply the proper remedy to any of the infinite nnmber of abnormal eveuts, from none of which he is safe, and many of which will certeinly occur in his professional experience. If the ordinary analytical chemist finds that some unknown cause has disturbed the reactions he intended to produce, he begins his work afresh with the loss of a little time, end studies out the canses of the disturbance, if he hes curiosity enough, when he is at leisure. But the metallurgist is in quite a different position; he must go on and get the better of whatever is interfering with his work. Perhaps it is an iron blast fnrnace that is in troubte; the iron will not run freely; the slsg is thick and black; the little spy-hole at the outside end of the blast nozzle, instead of being insufferably bright, shows a dull, irrogular patch of light or even none at all. The furnace is chilling! Whet is the trouble? Has the sampling of the ore, or the analysis, or the calculation for the mixture been ill done, or have the men not followed directions in mixing the meterial? Has water got into the furnace, or have accretions on the wells disturbed the desceut of the ore and fuel? Which of a hundred malificent causes are at work? Twenty thoueand dollars or more, and perhaps a reputation, are at stake. The metallurgist is in a more trying predicament than a doctor with a distiuguised patient; for, in the worst event, a sympathetically mournful face and references to an inscrutable Providence, are of no avail whatever to reconcile afflicted blast furnace owners. A last hour strikes for blast furnaces ae well ae men; but old age is the only disease of which they have a right to die. The cause of the trouble *must* be found, and a remedy borrowed or invented and applied. Holes may have to he pierced several yards ahove the hearth, and nozzles for blast introduced there to aid in snetaining the comhustion, or doses of hundreds of pounde of chemicals hlown into the furnace with the air, or any course adopted which the acumen of the metallurgist perceives to he a corrective of the disturhiug oauee. In one way or another a cure must he effected.

Theory and Practice.

Such an instance as I have supposed is sufficient to make it plain that acute observation and ready research are essential in metallurgical art, and these qualities, exieting in men as gifte in different degrees, must in all cases be develped by practice. Observatiou is the strong side of so-called practical men, end it unquestionably exists to the highest degree among those whose sole education has consisted in experience. Such men are also frequently very fertile in resource, but the effectiveness of the combinstion of observation and resource depends strictly npon the breadth and depth of the theoretical knowledge, through which alone, the former can be brought to bear upon the latter. We cau do nothing whatever without a theory. There must be a major es well as a minor premise. When a crow avoids the neighborhood of a gun he must reason. "Hero is a gun; all guns are dangerous; therefore there is danger here," and the proposition all guns are dangerous, is purely theoretical. In the same way a smelter must act on theory, whether he has obtained it from others or deduced it solely from his own experience; but the theory a man derives from his own experience alone is ept to he faulty aud is necessarily meager. It is, among other thiugs, in having the experience of thonsends at his commend that the educated man has the advantage.

Mistakes of Uneducated Men.

It is found that workmen who constantly handle a single class of ores, ettain au estonishing powor of estimating by the eye the quentity of metsl any given heap contains; hut they are occasionally grossly et fault and with a strange ore this power entirely fails them. The observation of the assayer is less sharp; he sees simply thet it is an ore, perhaps a rich or a poor ore, hut his effective resouroe is vastly greater, for he has the whole of chemistry out of which to construct a major premise, instead of some rnle as to a shade of color or the like, on which the workman relies, and consequently he nrrivee at an exact knowledge of the value of the mineral. There are ceses, therefore, when the educated metallurgist really does not need the power of observation, which would be indispensable to one who should be required to make his conclusions without the aid of science. There are other cases where no amount of experience will preserve an ueeducated man (unassisted) from the most disastrous blunders in the treatment of ores. A few years ego a maguificeut looking vein of magnetic iron ore was discovered in western New York. A compauy was formed end a sample of the ore was sent to a well kuown metallurgist. Nothing could look better, hut on enalysis he found that it contained sulphur in microscopic particles to the amount of no less thau 7 per cent., whereas 2 per cent. would have beeu enough to rnin it for smelting purposes. He informed the company that no salcable product could be obtained from the ore; but they had already beguu huilding and were not to he deterred by the judgment of a mere theorist, es they considered him, when the most experieuced practical men, smeltors, doubtless of large and long experience, proounced it a first-class ore. They built two furnaces, worth say $300,000. Their product was rather a matte than iron. It was such hrittle, wretched stuff that it would not eveu answer for wiudow weights. The company naturally failed, but they were hought out by another associetion, which paid a eimilar price for the same experience, and when I last heard of the plant a third company had just purchesed it, with a view to the manufecture of steel! Here was a cese where ordinary experience ntterly failed; while, from a scientific point of view the matter was of the utmost simplicity, and such iustances occur constantly. Many years ago, before the compounding of mixtures on the basis of enelysis was nnderstood, the only method possible in mixing new ores aud fluxes was to rely, in the first place, on the emprical judgmeut of meu of experience, and, after the furnece wss running, to alter a little here and a little there, nntil a good working mixture had been arrived et. Under this system, involving almost invariably great loss of time and material, it not infrequently happened that a furnace wes irretrievably stopped up at every outset, and had to be nearly or quite pulled to pieces before a fresh start could be made. This is a mishap, which could hardly occur to the dullest tyro fresh from the pooreet mining school in existence

Value of Scientific Knowledge.

The value of scientific knowledge in metallurgical operations is beginning to be appreciated. Twenty years ago blast furnace owners in this country and in England very generally turned up their noses at the idea of having a chemist about their works, "to call things by long names and pretend to know more about smelting iron thau men who had made it before he was horn"—and very right they would have been, too, had their idea of the nature and occupation of a chemist been correct, but since then they have seen cause, in such cases as I have instanced, to modify their opinions, and to-day almost every such establishment in England, and in a very large proportion of those in this country, have regularly appointed chemists, and even those who refnse to go so far, resort frequently to analysts for information. Day by day these men are leaving the laboratory for the manager's office, and this must continue to be the case to a greater and greater extent, for the chemists can learn the manager's business, while the managers can scarcely master that of the laboratory.

But there was half a truth in the old fashioned practical man's opinion of chemists and other men imhued with theory, as there commonly is in false opinioue. While natural science is not only of the utmost utility in the arts, but also tende to fit its students, by the cultivatiou of their powers of observation, to excel in technical pursuits; thore is no doubt that a chemist, who is not a metallurgist, would at first fail to see points and differences in the working of metallurgical apparatus, thet are clear to any hoy who has been trundling a slag-buggy in the works for six months, besides lacking the knowledge of machinery construction and administration, which are so essential to the exercise of metallurgic art. The practical smelter immediately detects this, and he may sometimes percelve in such men, or even in metallurgicel students a repulsion to treed the dirty, grimy path, by which alone a thorough knowledge of these matters is to he obtsined, while he is unable to appreciate the value of these seme young fellows' excellent prepsration, in the way of a comprehension of the principles involved, to devclop, with practice, an efficiency surpassiug his own. Of course if they persist in a reluctance to perform this necessary drudgery, they will never become ornaments to their profession or usefnl members of society; but that is no fault of the art and science of metelurgy; lazy and fastidious lawyers and doctors are in the same plight.

There is generally no better way of conviucing the practical man of the value of science, than to give him au opportunity of watching the progross, which an earnest metallurgical student, set to learn any of the numerous trades connected with the profession, will make. Knowing at each step what principles are in eotion, what must be combining, what combinations destroyed and what necessitates each process, he recognises almost every appearance the second time he sees it, end has to be taught scarcely more than the sleight of hand manipulation of tools. He will literally learn in a month what an ordinary green hand will scarcely master in a yeer. The old fashioned man quite appreciates thet, when he sees it. But not only does the student, thus prepared, learn more quickly, he also learns very differently end much more. Nothiug is more difficult for a man who has learned empirically, then to appreciate the relative importance of details. In any one locality the details of a process are of equal importance, in so far es each is necessary to produce the desired result; but some of them are absolute and essential to the process as a process, while others are dependent on purely local conditions. This the student entirely understands, if he has made good use of his opportunities, and his knowlege furnishes him criteria for discriminating between them. So important is this difference between educated and uneducated experience, that it is now pretty generally recoguized, that when a process is to be introduced into a new locality the better plan is, to send trained engineers to study it in its home, and let them effect its translocation and the instruction of the new hands without any importation of skilled labor. This method has proved most successful in this country and in Europe.

Liability to Error.

Instances can be cited without difficulty in which metallurgical engineers heve made great mistakes. I am very sorry that such things occur, but there are unskilful and unconscientious men in other professions than metellurgy, besides which the general fallibility of men has long been a matter of publicity; but I never heerd these facts urged es any very cogent argument against the existence of the other professions. I have heard of a physician of well-earned reputation, mistaking liver-complaint for pneumonia, and the instance might serve as an occasion for one of the usual small jokes directed at doctors; though, as Holmes has recently remarked, the men who make them are the first to howl for the doctor when they get a twinge of the colic. Unluckily, nature has provided no physical index of the sest of suffering for furnace owners, and they frequently labor under a vague feeling that something is not quite es it should be for a long time, much to their detriment, before calling in professional aid.

Superiority of Scientific Metallurgists.

I have given a good many reasons to prove that educated metellurgists *must be* snperior as a class to those who have had the benefit of their own experience only, instead of that of their professional brethren throughout the world. I think I can add valid evidonce that they *are* so. It is frequently asserted that great inventions generally come from uneducated men. How this may be in other branches of industry I will not pretend to say, but it is certain that the changes, which make the metallurgical art of to-day almost a *terra incognita* to those whose conuection with it ceased forty, or even twenty years ago, have been mainly effected by men of thorough scientific training. If in glancing over the field of metallurgy we begin at the border-land between it and mechanical arts, the working up of metal into marketable form, the greatest additiou to our resources, with which we meet in the history of the century, is the steam-hammer. Without it the fabrication of the vast machines now in use for steamships aud other purposes, would be quite impossible; the metallurgist could neither turn out sound masses of metal of sufficient size, nor the machinist forge them into shape without its help. Nasmyth, the inventor, was a member of a highly educated family, and studied at the University of Edinboro. If we turn to improvemente designed to effect a more perfect separation of the metals, the novelties which at once suggest themselves are the crystallization process and the zinc procese for the desilverization of lead. These processes not only enable us to extract at a profit vastly emaller quantities of silver and gold than was formerly possible, but produce an admirable quality of lead. The quality of lead used to depend almost entirely on that of the ore from which it was produced, and the best brands were exported to all parts of the world, but the best of lead can be made almost anywhere now. Pattison, who invented the crystallization process, was assayer and metallurgist by profession. Karsten, to whom we owe the zinc process, was a man of profound learning, and perhaps the most celebrated metallurgist who has lived. In the quantitative production of metels we find the Rachette furnace, which with minor modifications, is decidedly the furnace of the present and probably of the future, for lead and copper-smelting. Its inventor is the engineer in full control of the whole governmental smelting and mining interests of Russia. The Bessemer process has given us steel of a cheapness unknown before, enabling us to manufacture steel rails and other articles of the greatest utility at a very reasonable cost; a single Bessemer retort fifteen or sixteen feet high, will turn out more steel than an eighty-foot blast furnace will produce pig iron. I do not remember ever meeting with an account of Bessemer's education, but I have the best authority for saying that he is a man of large scientific acquirements. Siemens, whose most ingenious apparatus for producing very high temperatures has vastly increased our powers of heating iron end steel, of producing all grades of steel, and of distilling zinc, received as perfect an education, scientific and technical, es the world had to offer.

Economic Consumption of Fuel.

These last inventions bring me to a department which is perhaps of more general interest to the world at large than any other in metallurgy, that of fuel. This is of course common ground for all mankind, but belongs peculierly to the metallurgist, every question relating to its character and compoeition being of the utmost importance to him, and his art claiming for its shere one-third of the whole amount consumed. The progress in the economical consumption of fuel in the last fifty years has been enormous, and has been effected in great pert by metallurgists; and here egain we find the scientific men taking the lead. In the economical application of the heat developed by fuel the Bessemer process is enormously effective, not more than ten pounds of coal being requisite for the production of a hundred weight of steel from pig iron hy this method, while in the older process, still in use for fine qualities of steel, two hundred and fifty pounds are needed. Siemens, by making the heat which would escape through the chimney of an ordinary furnace werm the fuel and the air necessary to combustion, obtains an economy of two-thirds of the weight of fuel. It was Fabor du Faur, an accomplished Bavarian metallurgist, who first made practical use of the gasee which formerly escaped in immense quantities from the tops of blest furnaces and the enormous blast engines, the hoisting engines, pumps and hot blast stoves, often even the roasting kilns of such establishments now-a-days require no fuel except this long neglected waste product. Bischof, another German engineer and metallurgical author, wes the first to produce gas artificially for smelting purposes, and this was certainly one of the greatest advances ever made in our art. By first turning it into gas fuel can be much more perfectly consumed than in the solid form, and hence can he made to give us, as in the Siemens furnece, in which only gas is used, a much higher temperature than is practically attained by the cumbustion of coel in the ordinary way, but perhaps the greatest advantage of gas is that substances, in general scarcely regarded as fuel at all, can be employed for the production of gas with the most brilliant results, a matter of the greatest importance, especially in a region destitute of true coal like California. Lundin, a noted and thoroughly educated Swedish metallurgist, has taught us how to produce gas from wet sawdust entirely without preparatiou, of such power that wrought iron may hs melted with it, and the greet difficulty is to find any material infusible enough to answer as a lining in the furnaces where it is consumed. You will receive some idea of the importance of these improvements from the fact that the economy in fuel effected in Englsnd alone in the year 1872, as compared with, 1871 by the progress made in the introduction of more perfect apparetus, represented more than four millions of tons of coal.

Metallurgy, gentlemen, is not the exclusive concern of any limited class, of those for instance, who have investments in smelting enterprises. It is a metallic age and the value of metals, and consequently the progress made in producing them exercisee a controlling influence on almost every human pursnit. Iron was once more expensive than gold, and the time will come when it will cost but a small fraction of its present price. If our farmers desire cheap railroads, let them hasten that day by encouraging improvements in iron smelting. If our manufacturers and shipbuildera wish to prosper, let them do their best to facilitate the production of iron and copper. If our merchants desire to see increased activity in trade, let them interest themselves in assisting to perfect the art of metallurgy, not of paper making.

I could easily give you more reasons to show how important it is that men engaged in technical pursuite should have the resources of science at their command, and more facte to prove my reasoning correct; hut doubtless it is unnecessary, for all who partake in the onward movement of modern existence not only know but *feel* that the usefulness of every individual, from the drummer hoy to the leader in the battle of civilization, depends on the breadth and the cultivation of hie intelligence.

MECHANICAL PROGRESS.

Better Tools and Implements Wanted.

Did you ever read the story of the "Wonderful one-horse shay?" Do you remember that it was made as strong in one part as another, so that no part could wear out or break *first?* And it run on for a whole generation and descended to children, and children's children as a family heirloom. At last, however, after having run so long without a break or flaw, it came to grief. One Sabbath while on its way to church it reeled, and creaked and fell to atoms, reduced from a wonderful one-horse shay to a pile of dust, and its glory was gone! *Worn out all over alike!*

Well, why can't we have tools and vehicles that will wear alike *all* over now? Why don't manufacturers improve and strengthen the weak points in their wares? Take spades, shovels and hoes, for instance; three-fourths of them at least fail in the shank, or where the handle joins the blade. If you want one stronger in the shank you must buy one that is heavier all over and may be no stronger in the shank than the others. This is wrong and ought to be remedied.

If we look over tools in common use we may find that most of them show a weak point or two where a majority of all breaks occur. These ought to be made stronger in new ones. Such, however, does not seem to be the fact concerning a large number of staple articles. Indeed, many things seem to show more weak points than formerly, and needlessly so too. Implement makers may plead that competition is so sharp and that certain articles are already known in market as standard, that to compete successfully an article must sell as cheaply as the standard one, and the profits are too small for improvement. This is not wholly true; inferior articles even are sold for a superior price, when neatly painted or polished and systematically advertised; and there is no rule of business that forbids the appreciation of merit when properly advanced.

Of course the bulk of manufacturing tools is now done in factories, to the exclusion of home workmanship. Country mechanics complain that they cannot compete with factory prices, and the result is that users of tools buy of dealers who jew both the maker and purchaser, thus covering the weak points of his merchandise on the one hand, and preventing the more general diffusion of tool and implement making on the other.

The bent of inventive ingenuity seems to be adjustibility more than practicability; more of polish than of use. Now, we plead for the useful, and insist that we pay enough now for articles that ought to be more durable. Give us an ounce or two more of metal in the weak points of tools, rather than gaudy paint, and we will be better satisfied. Let us insist that the weak points be strengthened in tools, implements, vehicles and machines; and above all let us have simplicity of construction. —*Cor. Germantown Telegraph.*

FIRE-PROOF COLORS.—Dr. Kosch, of the Chemical and Technological School at Vienna, has made an interesting discovery, which consists in the fact that certain colors may be made fire-proof, and may thus be made for painting on china in precisely the tones required. The inventor has prepared a palette on which his colored enamels may be used like ordinary oil colors, and may be painted in every conceivable combination of tints without being in the slightest way altered by the action of fire. Dr. Kosch at the same time makes use of a specially prepared enamel, which he spreads over the surface to be painted on, and by which the irregularities and porosities of the porcelain are so thoroughly concealed from view as if they were covered with thin smooth fine linen. The importance of such a surface medium will be fully understood by all who are practically conversant with the difficulty of preventing the irregular and undue absorption of color which has hitherto stood in the way of producing artistic and carefully-toned effects of color on porcelain. Another and scarcely less interesting invention for which Austrian art is indebted to Dr. Kosch, is the fusion of gold, silver and platinum with bronze, by which the most gorgeous effects are produced.

SUCCESS OF STEAM CANAL BOATS.—The thirteen steam canal-boats put into service on the New York and Erie Canal appear to be doing their work satisfactorily, one of them recently reached Buffalo from New York with a load of merchandise, in six days, seventeen hours. This is considered good time. The Baxter Company have contracted for ten more boats of the same pattern—a fact which shows that they are regarded as an improvement over the horse boats. The freight rates are very low, but notwithstanding this it is said the new boats make money.

FIXING SLATES.—Slates, instead of being nailed to the roof, may be fastened by movable hooks about two inches long, which are soldered to conically-formed zinc plates, four to six inches long. The slates are thus kept securely between the hook and zinc plate and can be removed simply with the greatest facility, by turning the hook. Thus one or more of the slates can be taken out for repair or new ones inserted without interfering with the rest. The method is said to make a roof water-tight.—*Scientific American.*

Tool for Riveting Boiler Tubes.

La Metallurgie publishes a description of a tube riveting tool invented by M. Jouffret, engineer of the Donbas and South Eastern railway of France, and for which a medal was awarded by the Society of Industrial Sciences of Lyons. M. Jouffret, like many other engineers, recognized the difficulties and imperfections of the usual methods of riveting boiler tubes, and especially the fact that the effect of the hammer or other tool was often to shake a joint which had already been made and supposed to be perfect.

The apparatus in question consists of three steel runners or wheels, the peripheries of which are turned concave of the form desired to be given to the edge of the tube; these wheels are attached to a stock, of which the parts are so arranged that the runners can be set to any sized tube by the action of a screw and nut. The tube is placed in position in the plate, with its end projecting from seven to eight millimetres, more or less, according to the circumstances of the case. If a ferrule is to be inserted in the end of the tube, this is also fixed in its place; if not, a mandril supplies its place during the action of the tool. Thus the runners are equi-distant, and tangential to the ring or mandril. All the parts being in position, the tool is caused to revolve around a central arbor, and the runners pressing heavily on the protruded end of the tube, rivet it completely and regularly all round, while neither the plate nor the tube being submitted to any shock, there is no distortion, and no disturbance of the riveting when once effected.

The inventor says that the work is done more rapidly by the new tool than by the old method; that an end is riveted by it in five minutes by the former, while the old method occupies from seven to eight minutes. Unfortunately, the tool is not applicable to the riveting of the tubes in the angles of locomotive boilers, but it is observed that these are subjected to the least wear. It is available for the central mass of tubes, and for the lower range, which are acted on directly by the fire, and which consequently should be rivited with the greatest possible care, especially in boilers, such as those of locomotives, in which the tubes act, to a certain extent, as ties between the tube plates and the smoke box. The tool is said not to be very expensive.

Nine Reasons for Iron Structures.

In a paper recently presented to the American Institute, the following nine reasons were given for the use of iron buildings:

1. The great facility with which any architectural design may be carried out in iron.

2. The great economy of space that may, if necessary, be obtained; inasmuch as a much thinner wall of iron may be stronger than any stone wall now constructed. A cast-iron column, made of iron of only ordinary hardness, would rise to the bight of several miles before its own weight would crush it. With such enormous strength there need only be employed skill and knowledge by the constructor to render an iron building beyond all comparison the strongest that can be made.

3. Economy in the construction of foundations, usually so expensive a part of the builder's work, and safety of the building, notwithstanding the foundation may be imperfect. We should not advocate or countenance carelessness; but every man is aware how many unlooked for casualties happen to a foundation, often disastrous in their results to the superstructure. The advantage gained by the use of iron for the building, in this regard, lies herein; that if part of the foundation, notwithstanding all care used, shall give way, the superstructure will be still unharmed.

4. A not unimportant consideration in cities If at any time the owner wish to move his building he may do so, being only at the expense of the actual removal, and having his entire house in as good condition as when first made, losing nothing of the material.

5. Security against lightning—the electricity being diffused over a large surface and thus losing all its intensity.

6. Facility of ventilation.

7. The impervious nature the material preventing dampness and mildew and consequent decay.

8. Its durability, outlasting all the stone that ever was quarried.

Lastly. Its incombustibility. All public buildings and such private buildings as are used for the storage of valuable goods or works of art, should have the interior at least constructed with a view to the prevention af fires. Without the aid of iron this is impossible.

IRON AS A WOOD PRESERVER.—According to Hubert, the best means of protecting wood which is exposed to moisture, especially railroad ties, is to drive into them long, fine iron nails, with broad and flat heads. When wood thus protected is placed in the ground the nails rust, and the rust spreads equally throughout the wood protecting it. The ties may also be wound with iron wire. Hubert states that wood treated this way has been buried in moist earth and remained sound for nearly fifteen years.

SCREW VS. PADDLE.—During the past ten years the screw has entirely replaced the paddle in trans-Atlantic navigation, the weight of marine engines has diminished one-half, the steam pressure has quadrupled, and the consumption of coal has decreased two-thirds.

LINING METAL TUBES.—An ingenious method of lining a tube of one kind of metal with another of a more fusible nature, consists in first thoroughly cleaning the interior of the tube and plugging it up at both ends, and then fitting it into a lathe or other apparatus, by means of which a very rapid rotary motion in a horizontal position may be given to it. Through one of the plugs a sufficient quantity of the second or softer metal, which is to form the desired lining, is introduced in a melted state, a pan of ignited coals or a gas-burning apparatus being placed under the tube, extending along its whole length and at a proper distance so as to keep the metal in that condition, while a rapid rotary of the tube is established. The melted metal is thus diffused uniformly around the interior of the tube, and by removing the pan of coals while the rotation is still continued, the temperature is gradually reduced and the interior metal hardens, forming a permanent lining.—*Exchange.*

A FIRE-EXTINGUISHER FOR SHIP-BOARD.—A fire-extinguisher at sea, which will perform its work efficiently, has long been a desideratum with the owners of vessels. Messrs. Paton & Harris, of Glasgow, believe that they have succeeded in supplying this want by their "Pyroleter, or fire destroyer," a contrivance by means of which the hold of a 1,200-ton ship can be filled with an anti-combustion gas in less than twenty minutes. The gas—carbonic acid—is prepared on deck by means of a light, portable force pump, and the compound is forced through a tube to the bottom of the ship's hold. In the "separator," which is fixed to the keelson, the gas is set free to do its work by expelling the lighter common air through apertures in the deck, which have been left open for its escape.

THE Pullman Car Works, at Detroit, have recently shipped to England nine palace cars to be used on the railways there. A number of workmen go out with them to put them together, as they are necessarily shipped in pieces.

SCIENTIFIC PROGRESS.

Professor Henry and Tyndall In Collision.

When Professor Tyndall enters again the fields of scientific inquiry, he will find them as rich and exhaustless as ever, and will receive a welcome from his collaborators such as his previous service justly merits. Among the first questions that will command his attention is that which so lately received his endorsement, namely, "the effect of a mixed atmosphere on the progress of sound waves." will be remembered by our readers that, as the result of a series of experiments with various fog-signals. Professor Tyndall advanced the theory that the sound given forth by these instruments was often intsrrupted, and at times entirely dissipated by the absence of homogenity in the atmosphere. Thus, on a cloudy day, the sound might be plainly heard; but if the sun was to come out, that heat would cause an evaporation from the surface of the water, and a consequent change in the constitution of the atmosphere above, which would result in an interference in the sound-waves; and hence what he calls "sound-darkness" would ensue.

In a paper read before the American Association, Professor Henry called in question the correctness of Professor Tyndall's deductions, and advanced the theory that the phenomena noticed by the latter were due, not to the absorption of sound, but its refraction by wind and other causes. The main argument against Professor Tyndall's views is based on the opinion that that the absorption of sound by a mixed atmosphere must be inconsiderable compared to the volume of sound given forth. This is illustrated in the case of the steam-siren: so intense is the sound given forth by this instrument, that it would cause sand to dance on a stretched membrane at a distance of one and a half miles, while a twenty-five hundred pound bell would not cause the same result at a distance of ninety feet. As proving the refractory power of the wind, it is stated that, with the wind blowing directly against the sound, an instrument that could be heard on a quiet day twenty-five miles is reduced in penetrating power to two miles. Professor Henry credits Mr. Stokes with having first given a hint of the true explanation of this fact, in respect to the reflection of sound by winds, and effect due to the change caused by the wind in the direction of the waves, so that the sound is carried upward. As illustrating this reflecting power of the waves, Professor Henry credits the echoes occasionally heard at the sea to this cause, while Professor Tyndall thinks them due to the reflection-surfaces of the wind. When authorities so eminent are found at variance upon such a subject, we who listen may expect to learn much, whatever be the finally accepted theory.—*Appletons's Journal.*

TEMPERATURE OF THE SUN.—M. J. Violle described to the French Academy of Science his apparatus and methods, and concludes that the temperature of the sun at Grenoble, on June 20th, at 3:30 P. M., was 1,354 degs. Concerning the above researches of M. Violle, H. Saint-Claire Deville remarks that it is not prudent to speak of temperatures above those which have been measured, the highest of which probably has been determined by the experiments of Bunsen. In speaking of calorific phenomena produced by combination we must remember that, in given conditions of temperature and pressure, the quantities of matter which combine, and consequently the amount of heat produced, are limited by the phenomenon of constant dissociation—a limit which the speaker's experiments place very near to measurable temperatures. It is, therefore, not permissable, until the contrary has been demonstrated, to speak of those fabulous temperatures which have often been mentioned.

Important Fossil Discoveries.

The discoveries of fossils in the interior of the American continent appear to be adding more largely to paleontological science than any other portion of the globe. Every expedition into the great unknown wastes on either side of the Rocky mountains adds largely to our knowledge of ancient and extinct life, and are beginning to point out the necessity for important changes in some of our conjectures with regard to the age of some of the early animals upon this continent. These discoveries are duly appreciated both at home and abroad. Last year, says the Denver *News*, it will be remembered, that Prof. Cope set the scientific world on fire by the discovery of an "elephant's graveyard," containing the bones of mammoths, and the extinct elephantine genera, and this year again he is likely to cause a similar mundane conflagration by an even more extensive discovery of the same sort. In conjunction with his coadjutor, Dr. Yarrow, he has unearthed in the valley of the San Juan a large number of vertebrates of enormous size, some of which are entirely new to science, and those that are not, of a very rare and comparatively unknown species. Among them are several very perfect skeletons of the mastodon race, and a very large variety of mammoths cousin German to that elephant of the past. The discovery has not yet been arranged and classified, so that a complete list of the different specimens embraced in it cannot be given; but this work already is in progress; a number of the specimens having been forwarded to Washington soon after their discovery, where competent persons at once set to work upon them, and Dr. Yarrow recently left Denver for the East with a large proportion of the remainder.

Besides this very valuable variety of vertebrates, as many as a hundred additions to the known list of invertebrates have been made, while also a large number of "old friends with new faces" have been found; in other words, familiar specimens have been discovered in entirely new formations. The effect of this latter will be to revolutionize many of the conjectures of science, not only as to the age of the animals in question, but also as to that of the formations they are found in. The entire discovery, taken as a whole, Lieutenant Wheeler regards as the most valuable contribution to pale ontology made since that study became a branch of scientific research.

The natural division of the survey under Dr. Rothrock, the well known botanist, has achieved substantial success. An immense number of specimens of mammals, reptilee and fishes, and as many as 1,000 bird skins, some of them new varieties, were obtained. Of the fishes, five of the species discovered are entirely new.

The Nationality of "Old Probabilities."

Professor Abbé in a late number of the *Silliman's Journal*, gives his reasons for believing that weather telegraphy had its origin in the United States—that "Old Probabilities" was a Yankee by birth. This article has drawn the following communication from Dr. Vanderweyde, in which he states that "Severrier in France, in 1854, called attention to the importance of systematic weather reports, and that in 1863 a system of daily probabilities was inaugurated in that country, further, that Professor Redfield wrote in 1846 to *Silliman's Journal* that gales might be predicted with the help of the telegraph, and lastly that the Weather Bureau was inaugurated in the United States in 1864. These statements are undoubtedly correct, but as the article is intended as an argument concerning the honors of priority in this regard, it may be well to make a few statements of facts within my personal knowledge, the correctness of which I can prove by published documents.

Professor Buys Ballot, of Utrecht, Holland, after having for years made meteorological observations with a view to obtain probabilities, established simultaneous observations at fixed days and hours all over Holland and neighboring localities, with help of voluntary correspondents of whom the subscriber was one.

Later, the system was extended, and the established telegraph companies aided liberally in transmitting the weather reports, while Professor Buys Ballot urged, during a period of 14 years, the government of Holland to publish them officially and to organize a weather bureau, which was finally done May 21st, 1860. England followed suit in February, 1861; France in August, 1863; and the United States intended to do so in 1865, when the destruction of the Smithonian Institution, which was to be the head-quarters of the enterprise, caused a postponement."

If "Old Probabilities" is after all a Dutchman, neither France nor the United States should dispute his paternity. Seven cities, we are told, claimed to be the birth-place of Homer, and it is impossible to determine which of them is entitled to the honor; but in this case a careful sifting of facts and dates will of course settle the question.

The Rain.

Winter hss sst in in sarnest. The vsry heavy rain that began to fall on Sunday was general all over ths State. Hsre, in San Francisco, csllars havs bsen flooded, sswers burst, and considershle damags dons. According to the report of the United States Signsl Servics obsersor, in this city, dnring the 24 hours preceding 8 P. M., Monday, thsre wss a rainfall of 4.70 inches. Ths rsport of Chss. G. Ewing, of this city, makes a total for ths storm of 3 30 inches, or 4.56 inchss for Novsmbsr up to 8 P. M. on Monday. From July 1st to Nov. 1st, ths fall wss 2.89 inchss, and according to some authority, the rsinfsll in this city for this yssr is 7.45 inches. The hsaviest rain yst recorded for November in this city, was that in 1849--8.66 inches.

In ths intsrior the rain has bsen gensrsl. At Yreka it has been raining and storming; at Shasta, 7.75 inches fell during the storm, making a total of 14.12 inches for ths month, and 20 inches for ths season. At Chico, 3 94 inches fsll up to 6 P. M., on Mondsy. At Colfax it rained hard and slso at Orovills. At Msrysville. 2.07 inches fsll in 24 hours. At Napa, np to 10 A. M. on Monday, 1.57 inchss of rain fell. At Ssnta Rosa, since Saturday 2.50 inches fell. Ukiah, raining; Stockton hsd 1.66 inches up to 4 P. M. on Monday, msking 4.17 inchss for ths season. At Pittsbnrgh Lsnding 1¼ inches fsll. At Antioch thsy had two inches, making a total for ths season of 2.56 inchs. It also rained hard at Martinez, Mercsd, Modssto, Lsthrop, Salinas, Watsonvills, and San Luis Obispo. It rsined hsrd at Alta and all stations west of Sacramento.

We annsx a tshls ahowing ths monthly rainfsll at Sscramento since 1849, prsparsd by Dr. Logsn, Secretary of ths Stats Bosrd of Health:

Arranged according to the seasons, showing the amount in inches of each month, during twenty-six years, and for each rainy season, to November 1st, 1874; also the quantity for every month, and the annual amount of rain.

RAIN TABLE FOR SACRAMENTO.—PREPARED BY DR. T. M. LOGAN.—For the Press.

MONTHS.	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876
January	4.500	0.650	0.680	0.380	3.000	3.250	2.670	4.919	1.375	0.964	2.310	2.668	16.096	1.733	1.077	4.776	7.699	3.440	6.036	4.790	1.371	2.075	4.040	1.290	6.900	.....	.....	.....
February	10.000	1.380	6.400	7.000	8.500	4.900	1.403	2.132	4.801	3.006	4.990	4.280	2.800	2.860	1.303	2.018	7.104	3.147	3.630	2.942	1.642	1.919	4.740	4.860	1.856	3.050	.....	.....
March	0.600	0.350	0.190	3.620	1.500	3.460	2.675	4.801	2.444	0.831	2.990	4.280	2.760	1.693	1.080	1.370	1.805	2.306	3.296	1.240	2.120	1.454	0.610	0.612	0.880	0.880	.....	.....
April	0.250	0.650	0.190	3.620	1.500	3.460	2.675	4.801	2.444	0.831	2.990	4.280	2.760	1.693	1.080	1.370	1.805	2.306	3.296	1.240	2.120	1.454	0.610	0.612	0.880	0.880	.....	.....
May	0.250	0.650	0.190	3.620	1.500	3.460	2.675	4.801	2.444	0.831	2.990	4.280	2.760	1.693	1.080	1.370	1.805	2.306	3.296	1.240	2.120	1.454	0.610	0.612	0.880	0.880	.....	.....
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.....	.....
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.....	.....
August	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.....	.....
September	0.250	0.000	0.000	1.000	0.003	0.000	sp'tle	sp'tle	sp'tle	sp'tle	0.025	0.063	0.000	0.000	0.003	0.004	0.030	0.000	0.006	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.050
October	1.500	0.000	0.180	0.180	0.000	0.005	1.010	0.000	0.195	0.635	3.010	0.000	0.914	sp'tle	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.025	0.220	0.310	0.000	0.000	2.257
November	2.250	sp'tle	2.140	6.000	1.500	0.310	0.650	0.760	0.651	0.147	6.495	0.181	2.170	0.005	1.490	0.087	0.460	2.252	0.008	0.270	0.270	0.756	0.289	0.370	0.880	0.210	.....	.....
December	12.500	sp'tle	7.070	13.410	1.540	1.150	2.000	2.396	6.682	4.329	1.834	4.282	8.637	2.327	1.816	7.807	3.864	9.511	12.850	2.612	1.962	0.971	10.990	14.208	11.369	10.009	.....	.....
Total	36.000	4.710	17.980	36.360	20.063	18.620	13.770	10.448	18.991	16.041	23.626	15.548	36.549	11.579	7.868	22.612	17.924	25.305	32.769	16.644	13.572	8.470	24.032	14.208	11.369	.....	.....	.....

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	*Location.*	*No.*	*Amt.*	*Levied.*	*Deling'nt.*	*Sale.*	*Secretary.*	*Place of Business.*
American Flag M & M Co	Ely District	6	50	Nov 10	Dec 14	Jan 11	G R Spinney	320 California st
Belmont M Co	Nevada	4	1 00	Oct 9	Nov 10	Nov 30	C H Bogart	402 Montgomery st
Buckeye G & S M Co	Nevada	12	1 00	Nov 14	Dec 18	Jan 7	C A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	R Wegener	414 California st
Cedarberg G M Co	Cal		50	Oct 29	Dec 1	Dec 21	D M Rokee	215 Sansome st
Chollar-Potosi M Co	Washoe	5	5 00	Nov 14	Dec 18	Jan 7	W E Dean	419 California st
Caney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Empire M Co	Idaho	8	1 00	Nov 10	Dec 10	Jan 4	William Willis	419 California st
Empire M & M Co	Washoe	16	50	Oct 24	Nov 27	Dec 21	G R Spinney	320 Cal fornia st
Golden Charriot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaplan	Merchants' Ex
Ida Elmore M Co	Idaho	15	1 00	Nov 16	Dec 21	Jan 12	William Wills	419 California st
Julia G & S M Co	Washoe	20	2 00	Oct 30	Dec 4	Dec 23	A Noel	419 California st
Justice M Co	Washoe	12	3 00	Nov 13	Dec 15	Jan 15	J S Kennedy	Merchants' Ex
Knickerhocker M Co	Washoe	16	1 50	Oct 30	Dec 5	Dec 24	H Boyle	Stevenson's Bldg
Lady Bryan M Co	Nevada	4	50	Nov 11	Dec 16	Jan 11	F Swift	419 California st
Mahogany G & S M Co	Idaho	14	2 00	Nov 12	Dec 10	Dec 31	D H Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
Mint G & S M Co	Washoe	8	10	Nov 17	Dec 22	Jan 15	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	Nov 10	Dec 14	Jan 4	W W Hopkins	411½ California st
Newark S M Co	Ely District	9	50	Nov 4	Dec 7	Dec 28	Wm Willis	419 California st
North Bloomfield Gravel M Co	Cal	34	1 00	Oct 6	Nov 10	Nov 30	Thomas Derby	320 Sansome st
Original Hidden Treasure	White Pine		1 00	Oct 12	Dec 11	Jan 7	D A Jennings	401 California st
Page & Pangca S M Co	Ely District	8	75	Oct 6	Nov 12	Dec 4	H P Bush	Merchants' Ex
Pauper M Co	Idaho	3	50	Oct 26	Nov 30	Dec 21	D Wilder	M rchants' Ex
Pictou M Co	Washoe	6	25	Oct 24	Nov 28	Dec 16	S Phillips	408 California st
Raymond & Ely M Co	Ely District	8	3 00	Nov 3	Dec 10	Jan 7	T W Colburn	418 California st
Rock Island G & S M Co	Washoe	6	1 00	Nov 16	Dec 21	Jan 12	J W Clark	418 California st
Sanderson G M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Liedesdorff st
Silver Cord M Co	Idaho	6	50	Nov 3	Dec 7	Dec 29	Frank Swift	419 California st
Silver Hill M Co	Washoe	4	2 00	Oct 28	Nov 30	Dec 23	W F Dean	419 California st
South Chariot M Co	Idaho	11	50	Nov 5	Dec 11	Jan 5	O H Bogart	402 Montgomery st
Tyler M Co	Washoe	7	50	Nov 19	Dec 22	Jan 13	C D Squire	Stevenson's Bldg
War Eagle M Co	Idaho	8	1 00	Nov 9	Dec 16	Jan 6	L Kaplan	401 California st
Woodville G & S M Co	Washoe	8	1 00	Oct 6	Dec 14	Jan 5	W M Helman	401 California st
Yule Gravel M Co	Placer Co	Cal	5	10	Nov 9	Dec 14	Jan 5	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Baltic Cons M Co	Washoe	1	15	Nov 18	Dec 23	Jan 20	B Burris	507 Montgomery st
Buena Vista Petroleum Co	Cal	22	75	Oct 5	Nov 16	Dec 14	L Hormann	330 Pine st
Chance S M Co	Cherry creek	1	50	Oct 7	Nov 18	Dec 14	J Marks	414 California st
Cherry Creek M & M Co	Nevada	1	15	Nov 10	Dec 14	Jan 7	D F Verdenal	409 California st
Cherokee Flat Blue Gravel Co	Cal	33	5	Nov 10	Dec 14	Dec 29	H Pichoir	803 Washington st
Cedarberg G M Co 1st S Ex	Cal	7	4	Aug 27	Nov 30	Dec 18	J N Webster	420 Montgomery st
El Dorado Water & Deep Gravel Co	Cal	6	10 00	Oct 26	Nov 27	Dec 12	H Elias	416 Montgomery st
El Madre Quicksilver M Co	Cal	2	6	Oct 27	Dec 4	Dec 28	A Halsey	312 Montgomery st
Excelsior G M Co	Tuolumne Co	Cal	14	15	Oct 20	Nov 25	Dec 19	E Chattin	412 California st
Gold Mt G M Co	Holcomb Valley	Cal	3	50	Nov 19	Dec 29	Jan 23	J P Cavallier	513 California st
Gold Run M Co	Nevada Co	Cal	8	75	Oct 14	Nov 16	Dec 3	C O Palmer	41 Market st
Green M Co	Placer Co	Cal	1	50	Oct 7	Nov 9	Nov 30	W R Townsend	330 Pine st
Howard Hill G M Co	Cal			50	Nov 7	Dec 16	Jan 7	F J Hermann	418 Kearny st
Lake Tahoe & S F Water Works	Cal	6		25	Nov 18	Dec 23	Jan 18	E Chattin	808 Montgomery st
Mount Savage M Co	Utah	1		10	Oct 16	Nov 18	Dec 10	D F Verdenal	409 California st
North Fork M Co	Plumas Co	Cal	6	2 00	Oct 24	Nov 20	Dec 4	A Martin	520 Washington st
Omega Table Mt M Co	Cal		4	2½	Oct 15	Nov 23	Dec 14	D Wilder	Merchants' Ex
Oneida M Co	Amador Co	Cal	9	75	Oct 8	Nov 11	Nov 30	L Kaplan	Merchants' Ex
Orleans M Co	Nevada Co	Cal	1	1 00	Oct 10	Nov 24	Dec 15	J F Nesmith	315 California st
Owens G & S M Co	San Diego Co	Cal	1	1 00	Nov 3	Dec 10	Dec 23	Frank Swift	419 California st
Foreman G & S M Co	Idaho		1	50	Nov 13	Dec 18	Jan 11	William Willis	419 California st
Table Mt Blue Gravel M Co	Cal		4	30	Nov 4	Dec 7	Dec 24	W M Helman	401 California st
Thrift G & S M Co	Calaveras Co	Cal		50	Nov 24	Dec 26	Jan 16	H R West	240 Montgomery st
Victoria Imperial T & M Co	Utah		3	10	Oct 7	Nov 11	Dec 5	W H Watson	302 Montgomery st
Watson M Co	Robinson Dist	Nevada	1	1 00	Nov 16	Dec 21	Jan 13	W H Watson	302 Montgomery st
Woodville M & M Co	El Dorado Co	Cal	1	25	Nov 10	Dec 19	Jan 6	J Glassman	335 Montgomery st
Zacatero G M Co	Cal			50	Nov 4	Dec 7	Dec 29	L Hermann	330 Pine st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Mesting.	Date.
Andes S M Co		Edward Landers	507 Montgomery st	Annual	Dec 18
Chicago G & S M Co		F P Reynolds	111½ Liedesdorff st	Annual	Dec 7
Cosmopolitan M Co	Nevada	D L Thomas	419 California st	Special	Nov 28
Providence M & M Co		F Pyat	Prosident	Annual	Dec 11
Shasta Sullion G M Co		F P Reynolds	117 Liedesdorff st	Annual	Dec 1

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Boar Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	50	July 17
Belcher M Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Nov 10
Chariot M & M Co	Cal	Frank Swift	4½ California st	40	Nov 16
Consolidated Virginia M Co	Washoe	C T Bayley	401 California st	3 10	Nov 11
Crown Point M Co	Washoe	C E Elliott	414 California st	3 00	Nov 12
Diana M. Co.		N. C. Fassett,	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wesener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30

Mining Stocks.

There have been no fsaturss of particular interest in the stock market this wssk. Prices have fluctustsd as usual, with no very important changss. Cousidersbls business is being dons in all classss of stocks, those on the Comstock in particular. The *Enterprise* speaks vsry hopefully of future prospects in that section, and surely some of ths miners thers are doing wonderfully wsll. That papsr ssys: "Whils stocks havs besn strong in ths markst, ths mines havs been gaining in wealth on ths lowsr levels. Particularly has this hssn ths cass in ths north snd of the lesd, whsre, at ths prsssnt momsnt, liss the main strength of ths Comstock. This fact must now bs patent to all who ars at all convsrsant with ths mining sitnation. In ths Consolidated Virginis mins alone the experts sstimate that thsrs is now in sight, in ths ors hodiss opened up in ths seversl levsls, ore to ths vslus of not lsss than $30,000,000; and ss yet thsy appesr to he only hsginning to make ths acqusintance of their mins. Well may this mins he designated as the "Heart of ths Comstock." What slse can it he, whsn on the 1,500-ft. level a drift hss been run across the vein to the distance of 162 feet withent reaching the limit of the ore in either direction? Not at this point alone are found indications of the vast extent and strength of the grsat mass of ore--which sppears to rise up in the ssrth like a mountain psak struggling its way to the surfsce—hut it is the sams wherever explorations are made. In the California mins, when it shall havs been prosrly opened, will be found the same monntain ridge of ore bearing away to the northward, into and through the Ophir, for the companies working thsse mines have opened them on a new line. They are now to the eastward of the "pinch" or fault which cnt off the old Ophir and other adjoining minss, and have opened upon the vein at a point where it holds its true and undisturbed conrse. * * * We now have ssveral companies that are struggling through "faults," but all of thsse that evsr had ore will have ore again—it is only a matisr of time and patience. Lsaving thess struggling companies ont of the count—there always have been aome companies thns strnggling and always will be—thers is to-day more ors in sight along ths Comstock, and largsr and richsr bodies than ever before in the history of ths lode.

Thnrsday heing Thanksgiving day thers was no session of the Bosrd.

New Incorporations.

The following companies have filed certificates of incorporation in tbe County Clerk's Office, San Francisco:

Leopold M. Co.—Nov. 19. Location: Cornucopia District, Elko, Nevada. Directors M. J. McDonald, A. H. Webb, L. J. Hart, E. G. DeCrano and L. Witacy. Capital stock $5,000,000.

Electric Medical Society of the State of California.—Nov. 20. Tbe purpose of the corporation is the advancement and culture of the science and art of medicine and surgery upon the principle of electricism. Directors—C. P. Warren, M. R. Tewksbury, F. C. Cook, J. P. Backesto, C. F. Draper, B. Sterman, S. Clark and L. B. Hoag.

Atlantic and Pacific Q. M. Co.—Nov. 20. Location: Lake county, Cal. Directors—S. C. Field, Dwight K. Tripp, G. D. Field, W. Leffingwell and C. C. Hallett. Capital stock $4,500,000, divided into 45,000 sharea.

Kearsarge Con. Q. M. Co.—Nov. 21. Location: Lake Mining District, Lake county, Cal. Directors—J. C. Hanscom, R. N. Van Brunt, W. G. Hughes, J. E. de la Montagnie and C. T. Armstrong. Capital stock $5,000,000, divided into 50 000 sbares.

Wide West G. and S. M. Co.—Nov. 21. Location: Napa and Sonoma counties. Directors—J. C. Hanscom, G. M. Pinney, C. N. Van Brunt, J. E. de la Montagnie and R. M. Wilson. Capital stock $5,000,000, divided into 50,000 shares.

Tbe following companies have filed certificates of incorporation in the office of the Secretary of State, at Sacramento.

Searsville and La Honda Turnpike Co.—Object: To build a turnpike between the above points; place of business, Redwood City; capitnl atock, $10,000, in 100 shares of $100 each. Directors—S. B. Emerson, R. J. Weeks, A. T. McClure, C. N. Fox, J. Hilton.

Atlantic and Pacific Q. M. Co.—Location: Lake county. Capital atock $4,500,000, in 45,000 sharea of $100 each. Directors—S. C. Field, D. K. Tripp, G. D. Field, W. Leffingwell, C. C. Hallett.

Cross-Cut No. 2, which is 100 fect south of the shaft, on the 1,500-foot lsvsl of ths Consolidated Virginia mine, has penstrated the ore body 162 fsst from east to west, without cutting sither the east or west walls.

Charles Forman has bssn appointed superintendent of ths Ovsrman mine, in place of J. W. Myrick, who was obliged to resign on account of ill health.

Sales at the S. F. Stock Exchange.

Wednesday, Nov. 25.

Morning Session.

745	Alpha	24@23
3092	Best & Bel	21¾@22½
30	....h 4	22½
50	....h 30	23
1620	Belt Con	8¾@9
100	....b 10	9
250	....b 30	9
260	Bacon	6¾
250	Bullion	20@19
720	Belcher	51@52½
130	....b 30	51@53
1305	Confidence	32@34
50	....b 30	35½
290	Con Virginia	156½@159
20	h 5	158
180	Chollar	64@66
10	....h 30	65½
50	....b 5	64
1150	Crown Point	56@58½
25	....b 30	59½
50	....b 5	59
410	....h 4	58
1050	Caledonia	23½@24
115	California	80@76
170	....h 5	76@78
80	Caney	12
415	Exchequer	22@23
930	Eclipse	15¾@15
160	Gould & Curry	23@23½
200	....b 30	24
50	G H Quartz	6½@7
425	G ose	1½@1¾
2360	Hale & Nor	53@55
400	Imperial	15@16
1030	Justice	4½@4¾
150	Julia	5@5¾
800	....b 30	5¾
665	Knicker	4@4¼
1740	Kentuck	20½@22
1055	Lady Bryan	3½@3¾
1120	Overman	63½@63¾
00	....h 30	63
110	....h 5	64
215	Ophir	75@80
3385	Savage	88@90
106	S Nevy	11¼@10¾
50	....b 30	11½@11¾
50	....b 5	11¾
35	Seg Belcher	130
100	Succor	3½@3¾
2405	Utah	6@5
2600	.... h 30	5¼
350	Y Jacket	18@18
50	....h 5	119@118
100	....b 30	120

Afternoon Session.

240	Meadow Val	5½@5¾
85	Ray & Ely	16½
575	Eureka Con	13@13¼
80	Piocho	14½
800	Wash & Creole	3¼@3½
55	Am Flag	2@2½
1810	Belmont	9@9½
50	Newark	3
14	Elde S	3
400	Prussian	7
11	St Patrick	1½@1¾
60	Charter M	3
1520	Eagle Con	6@6¼
100	Chariot	41@42
275	War Eagle	3¾
150	Empire	7½
20	S Ford	3¼
430	S Hill	2¾@3
452	Eclipse	12
1430	Challenge	10½@11
665	Dayton	5¼@5¾
160	Rhode Island	4¼@4½
175	Dardanelles	17½@18
1290	N Y	4¼@4¾
250	Occidental	3½
10	Senator	1¾
845	Am Flat	8@8¼
250	Tyler	45
1505	Union	33½@34
2315	Woodville	2½@2¾

Thursday, Nov. 19.

Morning Session.

280	Ophir	88@92
1735	G & C	23½@24
220	....h 5	24
100	B & Bel	21@22
500	....h 30	21¾@22½
315	Savage	85@87
230	Chollar	56@57½
120	....h 30	58
20	....b 5	57½
220	H & Nor	48@49
40	....b 5	49
2485	C Point	57½@60
50	....h 5	59
120	Jacket	97½@98
120	....h 30	98
2520	Imperial	12½@14
1170	Empire M	14¾@14¼
50	....b 30	14¾
300	G Hill	67
745	Kentuck	18½@19
350	Alpha	19@18½
990	Belcher	55½@56
80	....h 30	56½@56¾
1465	Confidence	25@26
515	Con Vir	159@160
10	....b 30	163
585	Sierra N	8½@9
55	Exchequ	23@24
115	Seg Bel	125
325	Overman	58¾@59¼
10	....h 30	60
120	....h 5	59½@59
50	Justice	3@
70	Succor	2¾@2½
240	Lady B	3½@3¾
200	....b 30	3½
330	Julia	4@3¾
80	....b 5	4
570	Caledonia	21¾@22½
210	Knicker	4¾@4
500	Gila	2@2¼
1070	Belt Con	8¾@8
140	Bacon	5½@8
200	Bullion	16½@18
100	....h 30	18¾
200	Utah	4¾@4
2120	California	83½@84
300	....b 30	90@86½
100	....h 5	82

Afternoon Session.

420	Imperial	13¾@13½
680	Union Con	32@31½
90	B & Bel	21½@21¾
50	Con Vir	160
200	Leo	1¼@1¾
80	Yellow Jacket	99@100
20	Sierra N	8@6¾
58	Andes	2½@2¾
20	California	85@90
300	Empire	14¾@14¼
150	Gould & Curry	24¼@25
35	Eureka Con	14
40	Belt Con	8
50	Belmont	8
100	Globe Con	1½
100	Ida Elmore	1½
50	Tyler	2
200	Senator	1¼
55	C Point	60@63½

MINING SUMMARY.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALAMEDA COUNTY.

Livermore Coal Mines.—Livermore *Enterprise*, Nov. 21: The main shaft is down 200 ft., and from this point a drift hss been run south, 150 ft., passing through sevsral strata of fair coal, ranging from four to 16 inches in thickness. At ths snd of ths 150-ft. drift a lateral drift has been run due east 25 ft., cutting through several seams of coal. It is anticipated hy the supsrintsndent that within another 25 ft. ths main bsd of coal will be struck. Thers are now nins men at work in ths mine, but jnst as soon as the main bed is found s largs force will be put on and the compsny will supply tho local markst.

AMADOR COUNTY.

Splendid Prospect.—Ths Butts Mountain Co., nnder ths superintendence of Mr. George Kelton, hsve been engaged for soms months past in rnnning a tunnsl nnder the Butts monntain. The first tunnsl waa drivsn in several hundred feet, but, after cntting ths rim, ths bed rock pitched rapidly as advances were made, and the workmen had to cease work in the first tnnnel on account of wstsr. Fsiling in ths first tunnel, snd having fsith thst treasnrs worth seeking lay hid nnder ths old mountsin, Mr. Kelton determined to try another point, and therefors started a second tunnel, abont 200 yards sast of the old one, and after driving it in 160 ft. struck the rim of the hasin that underlies the mountain, and, on passing ths rim, gravel was strnck, apparsntly the beginning of a regnlar deposit. Mr. J. Nichols who has been working in the tnnnel, exhibited to ns the resnlt of the washing from a single pan of dirt taken from the end of ths new tunnel, the gold washed from the pan of dirt being of the value of $1. The gold is coarse and snch in character as is found in channels.

CALAVERAS COUNTY.

In Good Luck.—Calavsras *Citizen*, Nov. 21: For some weeks past Mr. G. Osborne has hsen taking gold out of his Gold Hill claim, on Smith'a flat, near Altavills, hy the hnndreds of dollara. We are glad the gentleman is meeting with snccess, as hs is an old asttlsr, and has heen working the mine a long time.

Mining Items.—Calaveras *Chronicle*, Nov. 21: Veitch & Co., owners of the tnnnel ridge, (hydraulic), are also piping hottom prsparatory to msking a general clean-up hefore commencing their winter's run.

MOSER, of the Spring Gulch sluicing claim, is working at intervale, waiting for rain to swell the volume of water in the gulch before putting in his best "licks."

COOK & Co., the indefatigable, are never idle, never cease active operations under any circumstances. They are washing away, have been and will be so long as a head of water and sluice-box is to be had.

EMERSON, chief engineer of the Happy Valley claim, has a few lengths of flume to lay yet, and then he will turn a stream against his bank.

WEST POINT DISTRICT.—The completion of the Enterprise Consolidated mill is being hurried on with all possible dispatch. The superintendent intends to have the mill in running order by the middle of next month, in spite of the now frequent storms. Work on the mine has been resumed. A complete change in the management of the Zacatero is progressing. Lone Star extracting fair milling ore. Josephine continues to look very well. The recent storms have retarded progress considerably.

EL DORADO COUNTY.

MINING.—Most of the mines on the north side seem to be unremunerative at present, but all parties interested feel hopeful, even confident, that a change will soon take place, and that most of them will be paying good dividends. A great deal of dead work has been and is now being done to get the mines in proper shape for more economical working, and we think that section will soon be able to make a better showing than at any time for a number of years.

LAKE COUNTY.

HOLLY HILL MINE.—Lake Co. *Bee*, Nov. 21: We visited the Holly Hill (formerly the Big Indian) mine, seven miles from Middletown, last Saturday. They have a tunnel opened 50 ft., and are now blasting through rock which shows evidences of cinnabar. P. M. Daly is superintendent of this mine.

MARIPOSA COUNTY.

THE MARIPOSA LAND AND MINING COMPANY.—Mariposa *Gazette*, Nov. 20: Mining operations have been resumed on the Mariposa estate under the recently incorporated Mariposa Land and Mining company. Mr. Burr, the new manager, appears to have the confidence of the people of Bear valley, to whom the payment of cash to employees every Saturday night is a novelty. The work at present is confined to the running of the tunnel at Benton Mills, which gives employment to twelve men. Some necessary repairs will soon be made on the dam—that structure being in a shaky condition.

NAPA COUNTY.

THE LANGLEY MINE.—*Napa Reporter*, Nov. 21: On Monday last the miners at work on this mine were, for some reason not given, discharged. The superintendent, also, went down to San Francisco. The miners speak well of the mine, and the supposition is that it is either going to change hands, or that the owners are satisfied with the prospect, and are going to make arrangements to work it in some other way.

MORE SILVER.—Partiee prospecting in the mountains above and around Knoxville have discovered as good indications of silver-bearing ledge as are presented at the mines of Mt. St. Helena.

MINING RECORDER.—The election at Calistoga, for mining recorder, resulted in the election of Mr. E. E. Stacy.

A COAL STRIKE.—Indications of coal have been discovered for years past at the base of the mountain near Sulphur creek, back of St. Helena, but, until recently, no discovery of any workable vein had been made. Recently, however, a prospecter has come across a vein of coal five feet wide, at the opposite foot of the mountain, in a little vale called Gibbe' valley. It is the intention to make a thorough examination of the vein immediately, and, if it prove satisfactory, work will be commenced upon its thorough development.

THE PENOBSCOT.—F. W. Bean is the superintendent of the mine thus known, situated near the Geyser road, between the Missouri and the Geyser springs. He informs us that a Knox & Oeborn furnace will shortly be commenced upon at the mine, which can show some of the richest cinnabar to be found in the district.

NEVADA COUNTY.

THE MEDA MINING COMPANY.—Grass Valley *Union*, Nov. 21: The location of this company is on the dividing ridge between the North Fork of the American and Bear river, three miles below Colfax. The ledge was taken up a number of years ago under the name of the Live Oak. It has been idle for a long time, but the company has reorganized under the name of Meda. A tunnel has been driven in 250 ft., and the ledge, which is a strong one, is expected to be struck within 20 ft. The tunnel will strike the ledge at sufficient depth to give a great amount of backs, which will permit of the quartz being taken down easily and cheaply.

DISTURBANCE.—Foothill *Tidings*, Nov. 21: Trouble is likely to grow out of the introduction of Chinese labor to the mines here. Several shots have been fired into and about the works of the New York Hill mine; one on Monday night last. No other cause can be assigned for these acts than the fact that Chinamen are employed underground in this mine. Much as we deprecate the step taken by the owners of this mine—as likely to lead to a still more extended employment of these creatures, where not necessity, but the greed of gain, alone prompts thereto—we must decry against these unlawful acts, not only because likely to bring punishment upon the perpetrators, and discredit upon those in whose interest performed, but sure to strengthen the resolution of those inclined to the cheap labor system for mines. There are other ways of discountenancing this usurpation—means quite as effective, and not criminal or unlawful.

PLACER COUNTY.

IRON.—Placer *Herald*, Nov. 21: We doubt much whether there are better iron mines in the world than we have within a few miles of Auburn. Our iron beds seem to be inexhaustible, the ore of good quality, the mines easy of access, and convenient to the great trans-continental railway; still they are not worked. We have the cheapest fuel in the country, near at hand, and everything else, so far as we know, essential to the establishment of first-class smelting works. One of the grand features of Placer's future will be her iron mines, and the sooner they are opened the better. We know no better chance for the investment of capital, and why some efforts are not made to direct it to these iron beds, is one of the unaccountables.

SIERRA COUNTY.

BEUSH CREEK.—Mountain *Messenger*, Nov. 21: We learn that a tunnel has been commenced on the Woodruff creek side of the ridge, at the Mountain House, which is calculated to strike the Brush creek ledge considerably lower than the bottom of the shaft in the mine. The richest quartz ever taken out in this county came from here.

GREEN MOUNTAIN.—The ditch to convey water from Rock creek to the Green mountain hydraulic claim is completed, or will be in a day or two. The company have 400 feet of 18-inch pipe on the way up from below, and have a "monitor" ordered. The lumber for flumes and sluices will be on the ground in a day or two, the weather permitting. The company will have a pressure of 150 to 200 feet, which it is expected will be ample, although the ground is very hard. Gravel of the same character is successfully worked at the City of Six, by McNaughton, with less fall.

EUREKA.—The hoye at Eureka are at work in their diggings, closing up this season's, and getting ready for next season'e operations. Scott & Crooks are opening some mining claims just below the Butcha and Marietown trail, a short distance above Little Cañon creek. The early storms prevented their getting in timbers, thus delaying the prosecution of the work until another season.

TUOLUMNE COUNTY.

STAUCK IT.—*Tuolumne Independent*, Nov. 21: Springfield. Potter & Co. have found a fine prospect in their quartz ledge on the Columbia road, east of Springfield. The rock is very loose and of a rotten quality, and will pulverize under the forces of the arrastra.

GRAVEL MINING.—*Union Democrat*, Nov. 21: Work is progressing lively in the Kincaid Flat claim, where a hydraulic is constantly tearing into the huge banks. At the claim in Sullivan's Dry Arroya there are two hydraulic pipes engaged. Soon as the flume that conducted water to the old Rough and Ready claim in Table mountain, can be replaced by a pipe, hydraulic washing will be resumed there. These claims are all under the superintendence of James T. Macleau, Esq., who is making everything tell since the abundant supply of water came.

QUITE a number of claims on the recently discovered quicksilver vein, near Relief valley, in the mountains east of this place, have been recorded here this week.

Nevada.

WASHOE DISTRICT.

CONSOLIDATED VIRGINIA.—Gold Hill *News*, Nov. 19: The ore breast on the 1300, 1400 and 1500-ft. levels, are all yielding rich ore, and never looked more promising than at the present time. The face of both the north drifts on the 1300 and 1400-ft. levels, running northward toward the California line, are still in fine ore. Three winzes are being sunk, one from the 1200-ft. level, to connect with the north drift on the 1300-ft. level, one from the 1300 to connect with the north drift on the 1400-ft level, and one from the 1400 to connect with the north drift on the 1500-ft. level. These winzes are all in fine ore, are being sunk for air purposes, and are situated 100 ft. farther northward than the line of north winze No. 2, spoken of in our previous report. Cross-cut No. 2, 100 ft. south of the shaft on the 1500-ft level.

OPHIR.—The mine is looking splendidly throughout, and never gave more flattering promises of still greater developments on the 1700-ft. level than now. Sinking the winze in cross-cut No. 2, on the 1300-ft. level, is still going steadily on, the bottom still in rich ore.

SIERRA NEVADA.—Daily yield, 65 tons of ore, keeping the mill steadily running. The ore breasts in the old upper workings are still furnishing a good supply of ore, while the breasts being opened out on the ore body in the north drift from the Sierra Nevada tunnel are improving daily as the developments progress.

SAVAGE.—Sinking the main incline below the 2100-ft. level is making good headway, the bottom in good working ground. Sinking the winze below the 2000-ft. level is also making good progress.

IMPERIAL-EMPIRE.—Sinking the north and south winzes, on the 1850-ft. level, is making the usual good headway, the bottom of both still in fine ore.

OCCIDENTAL.—Sinking the winze from the upper level to meet the upraise from the lower tunnel is going steadily on without change of interest to report.

DAYTON.—Daily yield 70 tons of ore. The ore breasts south, on the second station level are yielding finely. The turn-table stopes on the third station level, are also improving in the quality of ore extracted. Two cross-cuts have been made from the north drift on the second station level near the Cherokee line, one east and the other west, which show the ledge to be 70 ft. in width, without yet reaching the west clay wall.

JULIA.—The new and powerful pumping engine was started up two days ago and found to work with the utmost smoothness and perfection. The pumps are all in place and everything in readiness to commence draining the water from the lower levels of the mine.

HALE AND NORCROSS.—Sinking the main incline below the 2,100-ft level is making good progress. The face of the main west drift from the 2,100-ft. station is in ledge matter, but has not yet encountered any pay ore. Sinking the north winze below the 2,000-ft. level is making good progress.

BELCHER.—Daily yield, 500 tons of ore. There is no change whatever to report of the condition of the ore breast in any portion of the mine. The mills are kept steadily running.

WOODVILLE.—The new ore body on the 300-ft. level, discovered last week is still improving as it extends to the southward. The ore stopes on both the 200 and 300-ft. levels are yielding finely, in fact, the entire mine is looking well throughout. The mill is kept steadily running on ore from the mine and is doing fine work.

CROWN POINT.—Daily yield, 500 ton of ore. The ore breasts on the 1,300, 1,400 and 1,500-ft. levels are yielding finely.

SUTRO TUNNEL.—The work in the header goes ahead as usual. Rock softer, with seams of clay and occasional streaks of quartz. No water. J. R. Johnson, Accountant; D. J. Bonsfield, Cashier, and I. Bluett, Foreman of the Sutro Tunnel Company, have resigned their respective positions. A. B. Johnson has been appointed Assistant General Superintendent.

CALEDONIA.—A drift east has been started from the 1,076-ft. station to cut and prospect the ledge. The usual amount of prospecting is being vigorously prosecuted on the 900-ft. level.

OVERMAN.—The pumps are all in, ready to open the 1,400-ft. level station, which will be commenced in a few days more.

YELLOW JACKET.—The cross-cut from the main incline on the 1,740-ft. level is still pushed ahead to prospect the ore vein at that point.

[illegible] of the west drift on the 400-ft. level is in much softer ground. There is a strong flow of water and a prospect of a better ore development ahead. The body of ore in the face of the north drift on this level is 14 ft. in width, but of low grade ore.

BULLION.—The south drift on the 800-ft. level, running toward the Exchequer ground, is being pushed ahead through promising ledge material. The north drift from the Imperial shaft on the 1,700-ft. level is making good progress, with good prospects of ore developments ahead.

LEO.—Fair progress continues to be made in driving the main tunnel ahead. The ore vein is about a foot wide, and the indications are that it will continue to widen as the rock becomes softer.

LADY BRYAN.—The new pumping machinery was completed and went into full operation on Sunday morning last. Sinking the main shaft will be resumed immediately.

KNICKERBOCKER.—The face of the west drift, on the 700-ft. level, is still in hard blasting ground. The main west drift, on the 700-ft. level, is also in hard blasting rock.

CHOLLAR-POTOSI.—Daily yield, 60 tons of ore, from the old upper workings. Bullion shipped during the week, $4,927.

GOULD & CURRY.—Sinking the north winze from the 1,500-ft. level to connect with the north drift on the 1,700-ft. level is making steady progress.

SUTRO.—The main west drift is making good progress to the westward, the face still in ledge matter with occasional spots and bunches of quartz.

TYLER.—The pumping machinery has been again put in operation to drain the mine. This is now almost accomplished.

BALTIMORE CON.—Sinking the shaft is progressing finely. The cross-cut from the north drift on the 400-ft. level is showing some very favorable indications of ore. The cross-cut on the 750-ft. level is also looking much more promising.

JUSTICE.—Prospecting from the old Waller shaft is progressing finely, with some prospects of good ore developments ahead.

DARDANELLES.—The drift for the ledge from the bottom of the new shaft progresses very favorably in the hard rock.

NEVADA.—Good milling ore is being extracted from the upper level.

INDUS.—The incline below the tunnel level is being driven downward through fine ore.

Arizona.

MINES AND MINING.—*Arizona Miner*, Nov. 19: We have heretofore noticed the arrival of a party of men from the General Crook mine with a lot of gold bullion, and now give additional particulars of their success. Ed. I. Johnson, with two partners, reduced in two arastras, twelve and a half tons of quartz, which yielded a little over 105 ounces of gold, and was sold at $17 per ounce. This is the discovery company and they are down with their shaft 30 feet, vein about three feet wide, and splendid specimens of ore, some of which may be seen at Buffum's store and at the Cabinet saloon. John White and three partners, working two arastras on an extension of the Crook, reduced 12 tons of ore, yielding fifty and one-fourth ounces. Wm. Cullomher, running one arastra on another extension, brought in about $200 from three and one-half tons. The Crook miners hope to be able to make another run before winter finally closes in on them, though they may be forced to quit grinding rock at any time. The elevation of the mine is about 7,500 feet, or 1,000 feet higher than Prescott, and ice forms in the arastras every night now, and the storm last week brought them some snow, and so soon as heavy snows come they will be compelled to send their motive power—mules and horses—to the valleys for feed. Probably 15 men will winter on the mine, and continue to take out ore till spring. W. F. Banning has been sending ore from his mine, the "U. P." a couple of miles west of the Crook, to Noyes' 10 stamp quartz mill by Simmons' pack train for two weeks past, at a cost of $10 per ton, and the mill started for the first time, yesterday morning, and our informant says is working beautifully. S. O. Frederick & Co., have 300 tons of ore piled up at their mill, and have been busy at work for two weeks, remodeling the mill building preparatory to putting in steam power to run ten stamps. The machinery is now on the road.

Colorado.

MINING ITEMS.—Central City *Register*, Nov. 18: The result of last week's run of the Briggs Bros. 25 stamp mill principally on Briggs' lode ore, is a handsome gold retort worth about $1,500 in currency. The First National G. M. Co.'s claims on the Burrough's lode, Hockings & Co., lessees, are turning out ore that runs 7¼ ounces per cord, or about $18 50 per ton, in the stamp mills. The bullion shipments of the two banks of this city during the past week, foot up at $22,626, coin value, in gold and silver. Added to Prof. Hill's shipment of silver, during the same time, the total coin value of gold and silver bars shipped from the county during the week, has been $38,420. This is, comparatively, an exceedingly light shipment, but is accounted for satisfactorily to all who understand the necessity that exists for doing a certain amount of dead or non-productive work in mining, from time to time, such as sinking shafts, erecting shaft houses, enlarging or changing hoisting gears, and making many other like necessary preparations for this kind of work is now going on in portions of the Kansas, Gunnell, and several other large mines, and their necessarily diminished bullion product during the progress of such work, is immediately and perceptibly felt in the aggregative bullion shipments of the county. In a very short time, however, these developments and improvements will have been completed and mining in all parts of the county, will have settled down to the regular and satisfactory business of the winter season, that of ore producing. During the last six weeks of the past season, the 135 feet of Wm. Queen's placer claims in Russell gulch, near the mouth of Elkhorn gulch, produced a little over 330 ounces of dust and nuggets, which were sold for over $6,000 in currency. Chinese labor exclusively, has been employed in these diggings, and a profit of about $2,000 is reported from about two months of sluicing. The shortness of the working season was due solely to lack of water. This want is one which we trust will never again be experienced after the return of spring, for with that, it is hoped, will come an unfailing supply of water through a country ditch.

Idaho.

ROCKY BAR MINES.—Idaho *Statesman*, Nov. 17th: Col. Mat. Graham of Rocky Bar, Alturas county, left here on Saturday morning for San Francisco, California; his object in visiting San Francisco is to effect the sale of certain mines which lie a little above the town of Rocky Bar, and known as the Idaho, Vishnu and Emmet. These mines are sufficiently developed to determine upon a value, and the only reason for offering them for sale, is the want of capital by the present owners to put up necessary machinery for operations. The Idaho mine is opened by two tunnels. The upper tunnel runs 350 feet on the course of the vein and is nearly all worked out to the surface. The lower tunnel is 400 feet long, and 150 feet on the course of the vein, when it shows all the way a splendid lead. The mine has yielded a large amount of money, paying from $20 to $75 to the ton, in free gold. The Vishnu mine is opened by a tunnel 330 feet in length, running 80 feet on the course of the vein, and 140 feet below the surface at the extreme end, showing a vein three feet wide of good paying ore. The ore yields from $50 to $150 per ton. The mine is well opened and timbered, and enough ore can be taken out of this mine to keep a 10-stamp mill running constantly. The Emmet or Wayanda has been opened by a tunnel 100 feet in length, which taps the vein, 70 feet below the surface, and runs 100 feet on the course of the vein. The level shows a vein two feet in width, and the ore yields from forty to fifty dollars to the ton, gold. These three mines all lie in the same mountain, one above the other, and could be worked from one tunnel with a track laid so as to dump the ore into a mill only a short distance below, with plenty of wood near by, and an abundance of water. In fact, the location and facilities for working are as good as in any quartz camp on this coast.

Seasonable Hints.

The early rains hsve heen a misfortune in some dietricts by destroying the dry feed of the pastures; but on geueral principles it is a great adventage to have the time for plowing so much extended that the fermer can, if he chooses, teke a few weeks for the preperstion of whet is properly the work of the season. Plowing mey be done eo much in advauce this ysar the ground will have time to eweeten, a very desirable preliminary to the plenting of orchards and ornemental trees. Every farmer who is creating a home ehould intend to plent all the pnblic roads which touch his property with shsde trees, and if he cannot do it sll at once, let him begin with a few near his building site, and add to his plsntations year hy year. The embowering shades around Locust farm house, at Walnut Creek, show what pleasantness a little care and forethought at the right time will secure. Make a hegiuning, the trees will grow while the family ere asleep, and year by year the noble forms of the arborial kingdom will be sdding grace, and giving unconscious instruction to all your lives. Have a few boxes of earth near your house by the well or spring, into which the chance seeds you gather from various eourcee may be planted, and you will be surprised to see how fast a collection will be made, and a hald, uninviting ranch, grow into a "country seat."

Heving decided to plant a border or roadway with shade trees, tho sooner the ground is worked the better. Don't put off this work till the crops are in—or uutil you get the trees. If you do they will not he half planted. They never are when the joh is done up at once. Nature will not put her seal of approval upon any work which doee not follow her methods. Therefore run two or three furrows along the line intended to be planted, and follow eech with a second furrow, or hetter still with a subsoil plow. Then mark off the position for the trees, say sixteen feet apart, digging a hole at each point, at least three feet in depth, and in digging throw the bottom soil further and further away from the hole, thst none of it may be fed to the roots of your trees. If the subsoil is clayey, or otherwise impervious to moisture, it ie an excellent plan to bore down from the bottom of your hole with a post augur as far ae it will reach. I have seen snch holes nearly full of water, why some many trees perish efter three or four years' vigorous growth, from water rolling off the roots. Good underdrainage is essential to the growth of forest trees.

The digging of the holes being finished, it is well to look over the nursery catalogues and think what is going to be the most profitable or ornamental. Our trees will be allowed to grow in their own form and likeness, open on all sides to the air and sunshine, if we plant them sixteen feet apart, in ten years we must cut out hslf, in twenty we must cut again, in csse we select from the Anstralian giants, as we probably shall. In twenty years the gum trees will make a noble avenue, and as no amount of toppiug will long restrain their disposition to rise above earthly thirgs, in forty yeare, if untouched with the kuife, they will show grand silvery trunks, with shimmering meesee of foliage too high for shade trees, hut giving picturesque beauty to the landscape. This applies more to the eucalyptus globulus or blue gum, the cheepest and commonest species. But in planting an avenne, or even ons side of a publio road, the effect would he more agreeeble if several kinds of trses were used, some decidous, as maples, sycamores or elms. And if every third or fourth tree was round headsd or spreading, thus filling the line with foliage at the ordinary hight of our native trees. Different species of eucalyptus may be used, but they are all evergreeu, end do not make the charm of variety complete. Eucalyptus engenoidss, the mountain blue gum, is a fine tree to plent along a road, or near gates, it can be arched and worked into ornamental forms. Along my iuterior drives or farm roads I should plant walnut and fig trees; the walnut ia one of the finest avenue trees in the southern part of the State. In a group of treee, the clean, white limbs of the fig or buckeye are charming, when relieved againsta backgronnd of dark evergreeus, such as laurels or oaks. Our California laurel deserves to be plented wherever the soil is moist enough; there is no foreiguer which can compete with it in the beauty and value of ite timber. Of the euoalyptus or gum trees, I should plant two different kinds, and ten to one of the blue gum, because it is soonest available for posts or other uses, end I should prefer to cut it in thinning out. Eucalyptus peperita, or peppermint gum, odorata, acmenoides or white mahogany, pendula, or weeping gum, amygdalina, or cinnamon bark, which is said to reach 450 feet in ite native wilds. Lsucelota and virninalee ought to be in every good collection. The readers of the RURAL PRESS will remember Dr. Gibbone illustration of the right and wrong way to plant gum trees, and what he said about trimming then, eomething like a year ago. The article ought to be pasted up were it can be read and re-read through the planting season. All the species of eucalpytus which I have named grow from 175 to 400 feet in hight; It only reqnires a moment's thought to see that they are not appropriete for door-yard trees or house sheltere. One of the prettieet trees to grow at a distance of a few rode from one's house ie acecia melanoxylon. A celamifolia is a rapid grower. Implexa is a fine tree with leaves like a Turkieh scimetar in shspe. Lineeris is a graceful, willow-like species.

Perhaps "Seasonable Hints" might include a word ahont the planting of city lots. Nearly ell lots are over plsnted, and there is too little individuslity exhibited in the selections.

It hss alwaye seemed to me that a misteke is made in growing grass in close proximity to our dwellings. The moieture required to keep it thriving is not wholesome after sunset. A few choice shrubs, carefully tended, and washed free from dust, a rustic basket, or two filled with gay climbers or trailing plants, with fine, dry gravel close to the building, is a good sanitary, if not æsthetic sense. When roses are grown against the house, they should be thrown out at least a foot by wire supports. A single city lot can always exhibit some fine plants in flower by making judicious selections, yet never look huddled or confused. J. C. C.

The Hop Crop of '74.

During the hop-picking seasou an article appeared in our paper which considerably overestimated the prospeotive hop crop. At the present time the crop hae mostly paesed out of the hands of the producers, and is now in those of consumers and dealers, or has been shipped to distaat markets; consequently a more accurate estimste may be formed of the extent of the yield. We find by inqniring of various reliable parties thst 5,000 bales is as close an approximation to a correct estimate as we can obtain. From our intercourse with hop-growers we were led to expect a much larger yield; and were prepared for an estimate a third larger; but we accept the report of 5,000 bales as reliable. This, we find, is a gain of abont 1,000 bales over the crop of '73. Of these 5,000 bales, about 1,500 only sre wantod for home ooneumption.

Dealers speak favorably of the late crop, both of the product iteelf and the manner in which the producers have placed it upon the market. They declare that it will do much towards estabiieh ing the reputation of California hops in the markets of the world. Observation and experience have proven that the peculiarities of the soil, as well as of the climate of California, are particularly favorable to hop culture; furnishing in remarkable abundance the materials which produce a rich, oily, fine flavored hop. An examination of samples exhibited at some of the commission houses in this city, and also at the growers' warehouses, is sufficient to satisfy any one of the correctness of this view; and also that the growers understsnd their business. We have never seen hops more thoroughly prepared for market. In moet cases the producers have nsed a heavier material for beling than is used at the East, and in this they have done well. Hops baled in this way will retain their flavor and color much longer than in light, thin material; thus retarding the depreciation in the value of hops which age produces. Such points tell in the commercial reputation of hops produced in any district.

So much for the hop crop of '74; it ie order now to begin to thiak and talk about what the year '75 is likely to bring forth. Probably none of the agricultural products of California have given a better return to the producer for the preeent year than hops. It has not been a "big thing," but has given good, remunerative prices; and even this view presents such a contrast to the returns from other crops thst, in the natural course of trade, we may look for something like a rueh from some other departments of farming to hop culture. We have taken occasion in former articles on hop mattere to point out the vicissitudes of thie business; and although we do not helieve that the hop crop in California is as liable to damage from vermin and mildew as in other hop growing localities, the danger from ovsr production is probably greater here thau in auy other quarter; all enterprises—agricultural as well as others—being of a more ehifting character than eleewhere. No eerious danger is to be apprehended from this quarter dnring the coming year, as eny increase of hop area that the profits of the late crop may induce, will not tell on the market until '76. It would he eafe to expect an increase in next year's crop of a thousand bales over that of the present year; but there is nothing ominous in this prospect; and we hope to be able to present in next season's hop report as satisfactory a showing as we have given of this; but if the inconsiderate advice which has been sown broadcast through the country ie followed ae rashly as it is giveu, we shall expect to ses the hop growere of California in a far worse predicament in the fall of 1876 than are the wheat growers at the present time. It is easier to go into anything than it is to get out of it; hence the propriety of looking before leaping.

POTTERS CLAY of fine quality is found both over and under the Lincoln coal deposit. An English gentleman who seemed to be conversant with such matters, informed Mr. Coflin, the new Superintendent of the mine, a few days siuce that these clay deposits will be likely to prove very valuable sometime; probably as much so ae the coal itself. We also learn from Mr. Patterson of this place, who has critically examined both the coal and clay, that this clay would make splendid bricks and he thinks it may provo that they will turn out good fire brick if properly manipnlated.—*Foothill Tidings.*

The Lincoln Coal Mines.

The good quality of the Lincoln Cosl heving been fairly estabiished by repeeted and thorough triels, it bscomes of the utmost importenoe to our county that the extent and value of the mines should be known. The coal hss been thoroughly tested at the Sscramento waterworks, and is pronounced superior to wood for making steam. It is considered cheeper at the seme price, and there can be no queetion that when proper arrangements ere concluded for sending it to merket, the fuel supplied by these mines will tske the plece almost entirely of wood. The mines are situeted within a few rods of the railroed station at Lincoln, a sidetrack affording ell necesesry facilities for shipping, the coal being dumped directly above the cars. The main shaft is sixty-eight feet deep, from which drifte have been run east, west, north and south, the longest extending two hundred end sixty feet from the shaft. Numerous side-drifte have also been run, and the extent of the hed developed. In the main tunnels, sawed lumber eight inches square is nsed for timbering. The vein is about eight feet in thicknese, varying of course in different plsces, but never less than five feet. The Superintendent informe us that the cost of getting out the coal and landing it on the cars will not exceed sixty cents a ton, and as they get $1 50, there is good room for profit. It occurs to us thst the company wonld consult their interests by selling at lower rates. The bituminous coals of Illinois and Iowa sre furniehed at $2 per ton. If this coal is to be extensively introduced, and made to play an important part in encouraging manufactures, it must be supplied ss cheaply ss possible. Only four men are engaged in the drifts at present, but it is the intention of the company to employ a large force aa soon as the mine ie sufficiently opened to work them to advantege. The hoisting ie done by a stesm engine of ten-horse power. The land on which the mine is sitnated belongs to Col. Wilson, but it is worked by a company formed for that purpose, of whioh D. N. Coflin is Superintendent. A fine vein of potters' clay from eight to twenty feet in thickneee overlays the coal, and it is not too much to say is likely to prove more valuable than the coal itself. The olay has heen tested thoroughly, and is said to be the best in the State. Conoiderable qusntities have been shipped to Sacramento, and it now brings the same price at the mines that the coal eelle for. There ie eome talk of establishing a pottery at Lincoln, and if thie is done it will add greatly to the wealth of the county.—*Placer Argus.*

Average Value of Farm Products for 1872.

The following table, taksn from the Report of the Depertment of Agriculture for 1872, showe the sverage value per acre of the agricultural products in tbe different States of the Union, the Territories being generalized under one estimate. Possibly thie, with other tahles in the report, may withstand the closest scrutiny; but for our part we confoss that this perusel doee not etrengthen our faith in the infalibility of the statisticisn. We can account for the position which Nevada holds—the very highest on the liat—by the supposition that tbe acreage under cultivation wae extremely small, that it was put under cultivation to eupply an nrgent locel want in isolated sitaations, to furnish prospsrous mining camps with vegetables, etc., but we can hardly find suppositions even to explain how it ie that Oregon stende not only above California in the value per acre of agricultural prodnots, but above Michigan, Ohio, Wisconsin, Illinois end Indiana. Following is the table referred to:

States.	Av. val. per acre.	States.	Av. val. per acre.
Maine	$14 15	Texae	$12 84
New Hampshire	19 50	Arkaneas	18 60
Vermont	17 87	Tennessee	12 70
Massachuecetta	31 10	West Virginia	15 04
Rhode Island	34 00	Kentucky	15 54
Connecticut	33 94	Ohio	14 57
New York	22 94	Michigan	15 55
New Jersey	27 96	Indiana	13 61
Pennsylvania	20 80	Illinois	11 13
Delaware	13 24	Wisconsin	14 28
Maryland	15 22	Minnesota	11 83
Virginia	14 15	Iowa	8 49
North Carolina	11 38	Missouri	11 99
South Carolina	10 45	Kaneas	8 92
Georgia	11 68	Nebraska	7 75
Florida	11 47	California	15 12
Alabama	13 77	Oregon	15 70
Miasisaippi	15 51	Nevada	44 30
Louisiana	15 57	The Territories	25 17

MORNING STAR.—This is the name of the rich gravel mine over at Iowa Hill that we meutioned last week as being partly owned by those lucky miners, the Meesrs. Coleman of thie place. It comes pretty near being a Gress Valley miue, as nearly two-thirds of the shares are owned here. Wm. Hoskins, who ia also snperintendent, John Polglase, Capt. Frank Richards, Mrs. Rodda and others of this place are fortunate owners of shares in the Star. To show how rich the gravel averegee we may mention that dirt taken out by two men engaged in drifting for one month, was recently washed and gave a product of six hundred dollars in gold. The regular work of sluicing, with 1,000 inches of water under a 500-foot head, will hegiu December 1st, after which time look out for cheering newe of nice clean-ups from there every little while.—*Foothill Tidings.*

UTILIZING COAL CINDERS.—A processe has been invented in Southington, Conn., by which it is claimed irou can be eeparated from coal, cindere and general rubbish which accumulatee about iron manufactories.

Report on California Mining.

In a short report to the Home Office, Mr. Consul Booker incidentelly refers to the snbject of mining in Californie. He mentione that the yield of the minee of California estimated at something like 3,000,000£., shows a falling off during the psst year as compsred with the previous year—a diminution which is attributed to the short supply of weter in many parts of the mining regions during the eummer and autumn. No reliable statistice exist ae to the yield of the different description of minee, but it ie seid thet each year hydrenlic mining in Californie increesses in importence; and with the completion of eome long tunnels for drainage purposes, which were recommended several years ago, it is anticipsted that there will be a great additiou to the yield. The attsntion of the capitelist, we note, continues to be devoted to quartz mining, there being no difficulty in finding persons willing to invest in the event of the prospects being at all encouraging. Lately there have not bsen many "diecoveriee" although quartz hes been found in eections of the State which were not before believed to contain minerals.

In Nevada it is mentioned that the Comstock lead hss maintsined its supremacy by the immense yield of the Belcher and Crown Point mines, forming part of it; the former is stated to have disbursed to its stockholdsrs during 1873 £1,352,000, and the lstter £1,020,000. On the other hand the Ely district, which at one time attracted attention in consequence of the largo yield of its two principal mines—the Raymond & Ely and Meadow Vslley—appears to have lost latterly its character, inasmuoh as the two mines mentioned have ceased to pay dividends, while no others have been brought into prominence. From a atatement giving the production of precious metals west of the Missouri river, we find that the value of this production in 1873 ie set down as considerably over £14,000,000 eterling. The production of quicksilver has not shown any particuler increase; indeed, the production of the New Almaden mine has gradnslly fallen off, while others show a diminished yield. A grest many new mines have, however, heen discovered in various parts of the State, and slthough a good deal of work has bsen accomplisbed on some of them, the total yield has been so far insignificant.

It is pointed out that the production of the State for some years had been under one control, but the demand became so active that it was found impracticable to renew the contract with the owners of leading mines; at the same time an increased demand upon a diminished supply has had the effect of rapidly sending up prices. Several shipments of chromate of iron ore have been made from California to New York and England, the greater part of the ore having heen received from a mine in Humboldt county, which hss been worked for some yeare. With regard to copper, it appesrs that very little was done in California laat year, although some mines are worked in the State of Nevada, and there were eeveral shipments to Englsnd.—*London Mining Journal,*

CURIOUS PROPERTIES OF WHITE SUGAR.—In many cases white sugar has been employed as efficaciously in remedying drunkenness as emmonia. No rationale of a very satisfactory character hss yet been adduced for the action of so simple a substenoe as sugsr under these circnmstances, except that it serves to bring on a different fermentation than the existing one in the stomach, and to neutralize, by the formation of new compounds, the action of the liquors. A curious fact hae long been observed, namely, that the life of animale which breathe in water is incompatible with the presence therein of oven an inconeidsrable quautity of sugar. In some parts of Europe one of the methods pursuod in the preservation of fish consists in removing the viscera and eprinkling sugar over the interior, keeping the fish in a horizontel position so that the sugar may penetrate as much as possible. It is said that fish prepared in this way can be kept completely fresh for a loug time, the savor being as perfect as if recently caught from the water; and eelmon, especially, treated in thie manner before being selted and smoked—a tablespoonful of suger to a five-pound fish—posecesses a much more agreeable taste.

KEEPING WATER IN ZINC RESERVOIRS.—In view of the fact that water reeervoirs are freqnsntly made of zinc or have zinc liniage, Zinck, a German chemist, has made some experiments upon the influence of water on this metal, and discovered that water kept in zinc vessels dissolves zinc in proportion to the time it remains in contact with the metallic surface, and to the amount of chlorides (common ealt, etc.) contained in the water. He shows also that hoiling not only does not precipitate the zinc from such a solution, but that it even augments the solvent power of the letter. Water containing zinc, and boiled in a zinc vessel to precipitate it, would actnally absorb more zinc, and precipitate none. Thie chemist found the amount of the metal in one instance, the water having been kept for a considerable time in a zinc reeervoir, to be as high as 1.0104 grammea to the litre, or nearly fifteen graine to the quart. A smaller quantity would be very injurious, if the water were used for drinking or cooking. It is therefore recommended to coat such reservoirs with good oil-paint, containing, not litharge, white-lead, or zinc-white, but iron-ochre or asphaltum.

Useful Information.

Fire-proof Starch.

In order to make ladiss' apparel fire-proof, a starch is nsed to which sulphate, phosphate, or borate of ammonia, or what is better, tongstate of soda is added. It appears, however, according to Prof. Gintl, (a competent authority in such matters,) in his report on practical chemical preparations at the Vienna exhibition, that manufactnrers who apply thom do not always act with the correct understanding, and do not consider that the compound used must be perfectly neutral and not impure; that it is not sufficient to use tho ordinary commercial article, for instance tungatate of soda, which often contains considerable quantities of carbonate of soda, or ordinary sulphate of ammonia, and this is especially very impure, so much so that the impurities cannot stand the application of the hot iron during the process of ironing without ruining the color as well as the texture of the material.

Tho result of such mistakes is that the fireproof starch has not become of aniversal application, and as long as the makers of this preparation do not use the most scrupulous care in its manufactare, its universal introduction is oat of the question.

Prof. Gintl also calls attention to the fact that, according to his experimonts, ammonia alum (sulphate of alumina and ammonia) and hyposulphate of soda are also additions to starch, which makes it very effectivsly fire-proof. This is important, as both are cheap substances, easy to obtain, and without aay action on most colors. The latter substance prevents, if not so perfectly as some other compounds, a full inflammation, which it is a fact worthy of remark that the quality of the starch which causes it to give stiffuees and gloss to the material to which it is applied, is not in the least affected. —*Manufacturer and Builder.*

Dead Surface Varnish.—Varnishes that leave a dead sarface on drying, capable of sabstitntion for gronad glass, as for glass stereographs, and of nse in retonohing negatives, may be made by mixing solntions of resins with liquids in which they are insoluble. A solution of sandarach resin in ether, when mixed with one-fourth as much benzole, affords an excellent imitation of ground glass; one of dammar resin in benzole, when mixed with ether, also gives a good dead surface; water instead of ether, renders it at the same time, semi-opaque. A mixture of benzole with common negative varnish frequently, but not always, gives a beautiful dead surface. In all cases a great deal depends on the purity of the ingredients. It is recommended to dissolve from three to five parts of sandarech in 48 parts of ether, and to add 24 parts of henzole; or aa much as may be necessary to produce the desired resnlt. The following, by Hughes, is said to give a perfectly colorless varnish of this kind: Ether, 560 grains; henzole, 240; sandarach, 40; Canada balsam, 10; the resins are first to be dissolved in the ether, and the beozole added to the solntion.—*Boston Journal of Chemistry.*

The use of the Tongue.—To taste aud talk, of conrse. It does neither. An ulcerated tongue was lately ent entirely out at the Royal Free Hoepital in London. Within a week the man was heard distinctly to say, "I would like to have some beef tea." Blindfold a man, and tell him to open his month wide and keep it open; pat salt on his tougue, or a drop of wormwood oil—he cannot tell the difference. Take half a teacnp fnll of ice water, pour it into the oenter of a dose of castor oil; open the month, put the rim of the cup far back on the tongue, toss np the cup, down goes the oil without a taste of it as long as yoa keep the mouth open, or do not allow the oil to touch the lips. Is taste, then, in the lips? To prodace the sensation of taste, the tongue, the lips and the sabstance mnst all come in contact at the same time, as in the process of smacking the lips.

A Strong White Paste.—Dissolve 2½ oz. of gum arahic in 2 qnarts of water, and stir it into 1 pound of wheat flour nntil the whole becomes of a pasty consistency. It is then to be heated, aud 1½ oz. each of sugar of lead and alum dissolved in a little water, added thereto, and the composition well stirred until it shows eigns of boiling, when it mnst he removed from the fire. Add while hot six drops of carbolic acid. This is a very tenacious and durable paste, and may be nsed on almost any substance.

To Dye Leather Blue-Black.—Take of beeswax 3 ozs., black resin 2 ozs. Mix together, and then add: Prussian blne 1 oz, lampblack ½ oz. While the mixtare is cooling, add turpentine till a suitable consistency is obtained. It should be applied with a soft rag, and the leather afterwards poliehed with a brush.

New Lubricant—An English patent describes a process in which resin oil is nlaced in a steaming apparatus and is then mixed with lime water. The semi-seponified oil which results if allowed to settle until the water rises to the top and the water is then removed and the oil distilled.

Roof Drainage.—In providing for the removal of rainwater from roofs, it is usual to consider the depth over the whole area of the roof at half an inch per hour.

A curious piece of mecheuism has been produced hy an Amsterdam jeweller, called the "Great Mecbanical City," and is twenty feet long by fifteen wide. There are housse, castles, churches, and stores in it, just as they appsar in almost any European city. People walk and ride about. Horses and wegons and railway cars paes throngh the streets. Boats pass up und down the river, while some are loading and others unloading at the docks. Mille are in motion. A foantain plays in the public park, and a band of music fills the air with melody. There are also forts with soldiers parading about them, blacksmith shops with artisans at work in them, and pleasure gardons with people dancing in them.

The Strasburg Cathedral is no longer "the highest spire in Europe." The new church of St. Nicholas, Hamhnrg, has just been finished, and the great cross was placed on the summit. The total hight is 472 feet. This is called six feet higher than Strashurg.

Simple Safety Fuse.—Soak a plaited cord in a solution of saltpeter.

Good Health.

The American Health Association.

This association recently held its annual session in Philadelphia. The meetings were largely attended, and attracted much interest. A committee was appointed to report on persons engaged in various ways for agricultural and other purposes. The next annual meeting will be held at Baltimore. A special committee was appointed to deviso a project of law to meet the public want in establishing Boards of Health.

The essays were of a practical nature and contained a great number of valusble snggestions. It is a remarkable fact that in consequence of the care and attention bestowed hy men of the class similar to this body upon the health of the great city of London, it has become one of the healthiest communities in the world, and its eanitary condition is very decidedly snperior to that of most of the English rural districts. This fact shows that the deliberations of the Boards of Health concern rural districts quite as mnch as populous cities, and the latter one not necessarily unhealthy.

Drs. Sterns, of Maryland; Snow, of Rhode Island; and Curtis, of the District of Colnmhia, read papers on saaitary relations of pharmacy, and materia medica was read by J. M. Marsh.

Dr. Hartshorne presented resolntions favoring the establishments of large abattoirs in preference to private slaughter-houses; hnt, as it is impossihle to enaure against all contamiuatione of water and air, snch establishments should be remote from the centers of population, and, if possible, on tide water.

A series of questions, accompanying the resolutions, were answered by Dr. Rsnch, of Chicago, who concluded by saying, "I do not hesitate to say that abattoirs can be so conducted as not to be injnrious to the public health." The resolutions were adopted.

Dr. Goodwin offered resolntions favoring the establishment of State Boards of Health. The closing address was delivered by Dr. Morgan Meyers, of New York.

To go to Sleep.—With many people who are past the meridian of life, it often becomes difficult to obtain a good night's sleep; indeed, the habit of waking at a certain hour of the night and lying awake for several hours, becomes fixed, and one which is very difficult to throw off. There may he various causes which will produce this effect, but there is one very prominent canse, and that is indigestion; and indigestion is often caused by the habit of drinking too mach tea or other fluids at supper; the conseequence is that steady and sound sleep throngh the night becomes impossible without the use of some means which will overcome this propensity to lay awake.

To do this and go to sleep in five minutes, is not a very difficult thing, and may he done hy applying friction to all parts of the body and limbs. To accomplish it take a crash towel, and give it a lively motion in rubbing downward from the head until the blood will be put in lively circulation, rubhing hardest upon the chest. If a towel is not at hand, the hand may he used for the purpoee.

How to Avoid Colds.—An editorial in the *British Mining Journal*, on catohing cold, concludes thus: "The practical considerations which are the outcomes of this review of the pathology of colds are these: Never to wear wet clothes after active muscular exertion has ceased, but to change them at once; to meet the loss of the body heat by warm fluids and dry clothes; to avoid long sustained loss of heat which is not met by increased production of heat; to increase the tonicity of the vessels of the skin by cold baths, etc., so educating them to contract readily on exposure, by a partial adoption, indeed, of the 'hardening' plan; to avoid too warm and debilitating rooms and temperatures; to take especial care against too great loss of heat when the skin is glowing; and to prevent the inspiration of cold air by the mouth by some protecting agent, as a respirator. We can readily understand how a respirator should be an effective protection against winter bronchitis in those so disposed."

Effect of Hot and Cold Fluids on the Teeth.

The effect of hot and cold fluids upon the teeth has herstofore been supposed to be injurions. The dental profession have encouraged this belief, the reason for the supposed effect being, not that the extremes of heat and cold injure the vitality of the teeth, but that they crack the enamel, and then expose the dentine to external influence which tend to produce decay.

Dr. Robertson, of Georgetown, Mass., communicates to the October number of the *Dental Cosmos* an account of experiments performed by him, which demonstrates that the supposed injury resulting from the use of hot and cold drinks has no foundation in fact. He first proves that during the act of swallowing fluids very little contect of the substance with the teeth takes place. The account of his experiments to prove that the cracking of the enamel is not dne to sudden changes of temperature we give in his own language: "The experiments made, and which proved that no amount of change of temperature can by any possibility be attained in the mouth, were: 1. I took a vessel filled with weter, which I heated until it boiled, and which I kept boiling until I had concluded my experimente. I then took a tooth which, on examination, proved to have a perfect enamel. This tooth I held in my closed hand until it had acquired the temperature of my hand, or nearly that of the mouth. I then unclasped my hand directly over and as near as I conveniently could to the hoiling water, and dropped the tooth in. I let it remain for a few minutes, and then took it out. First, I examined it with my naked eye; then through a double-lensed magnifying glass of about one and a half inch focus. There were no cracks visible in the enamel. Next, after bringing it to about blood-heat, I threw it into iced water. No cracks. Then I returned it to the hoiling water, and from thence immediately into water of the temperature of ordinary well-water; that is to say, of abont 60 degrees or 65 degrees. Still no cracks. Finally, I returned the tooth to the hoiling water, and from that plunged it into iced water. This cracked it badly. Thus I proved that it requires a sudden change of temperature of about 160 degrees to crack the enamel of a tooth which had been extracted and was deprived of all its vitality and other sustaining supports and adjuncts."

Dust as a Cause of Catarrh.

Dust as a cause of catarrhal affection is beginning to be recognized hy the members of the medical faculty. Some years ago the present editor of the *Artisan* contribnted to some journal, the name of which he cannot now recall, the result of his experience with acute attacks of the naso-phsryngeal membrane, affirming his opinion that city dust has caused this inflammation in many instances. His attention was attracted to this subject from the great relief he experienced through short voyages at sea, and the recurrence of the attacks upon his return to the city at a time when the streets were exceptionally dusty. Dr. W. H. Bennett, of New York, has contributed to the September number of the *Medical Record* a very able essay upon ahnormal conditions of the superior air passages and some of the causes of chronic inflammation of these parts, in which he ranks dust as one of the most efficient causes. He thinks that ho has proved satisfactorily that chronic catarrh may be produced by the action of dust, through experiments upon animals forced to breathe air which contained no more dust than is frequently seen in air in certain parts of the business portion of New York. Dust issuing from the registers of houses heated by hot-air furnaces, and dust of streets—which is a combination of nearly all substances, filthy and otherwise, known to mankiud—he regards as more effective in producing these complaints than clean earth-dust and dust occurring in various manufactories. It seems certain that chronic catarrh is more prevalent in cities than in country districts. Dr. Bennett estimates that at least four or five out of every twelve in the city of New York, irrespective of their calling or profession, suffer from chronic inflammation of some part of the respiratory membrane situated above the trachea. Naso-pharyngeal catarrh, he states, is extremely prevalent among the conductors of city horse-cars, and this disease is always aggravated when the streets are dry and the consequent amount of dust dragged after the cars is excessive.

Influence of Magnets on the Human Constitution.—A physician in France recently announcing the most decided and astonishing results by submitting nervous patients to the action of a magnet, the subject has been thoroughly tested by M. Volpuelli, who, after the most scrutinous search and patient observation, has come to the decided conclusion that neither natural nor steel magnets, nor electro-magnets, have the least influence on the nervous system; that the effects supposed to he produced by the magnet are solely due to the imagination of the patient when he knows that the magnet is there. He found that whatever kind of patients they may be—nervous persons, clairvoyants, mediums, etc., they could be approached with any number of powerful magnets without any effect whatever being produced, provided they did not see or suspect the presence of the magnets.

Domestic Economy.

How to Cook a Beefsteak.—Some time since a complete encyclopædia of useful knowledge in human form became an inmate of the family. When this learned guest came among them he was constituted as an oracle in many cases, and was asked one morning "Would he tell or show them a better way to cook the steak for breakfast?" He took the thin, long-handled frying pan from the nail, and putting it on the stove heated it quite hot. In this he put the piece of steak previously pounded, bat to their surprise did not put a particle of botter in the frying-pan and did not salt his steak. He allowed the steak to merely glaze over and then turned it quickly to the other side, turning it several times in this manner until the steak was done. Four minutes were not employed on the operation, but a jaicier steak was never eaten. It was, when done laid on the platter, previously warmed, and was buttered and salted and set a moment in a hot oven. Allowing the steak to heat but a moment on each side helped it to retain all its sweet juices, and putting the salt on at the last moment after it was on the platter drew out its juices.

To Make Superior Mince-Meat.—A Boston lady sends for publication in the *Germantown Telegraph* the following receipt for making mince-meat, which is now in season. She informs us that she has tried various modes but finds the following to be the best: Take seven pounds of currants, well-picked over and cleaned; of finely-chopped beef-suet, the lean of a sirloin of beef minced raw, and finely chopped apples, (the Golden pippin or Smith's cider preferred,) each three and a-half pounds; citron, lemon-peel and orange-peel cut small, each half a pound; fine moist sugar, two pounds mixed spice, an ounce; mix well and put in a deep pan. Mix a bottle of brandy and white wine, the juice of the lemons and oranges that have been grated together in a basin; pour half over and press down tight with the hand, then add the other half and cover closely. This will keep a whole year or longer, and is frequently made one season to keep over for the next.

Color in the Kitchen.—Alum in Bread.—In a recent work, F. R. Eaton, condemns the "finest white bread" so much in request in modern times, as not merely deficient in gluten and in the natural salts of wheat, but as tempting the baker to use alum. It is remarkable that not a few of the most dangerous adulterations spring from introducing the idea of color into our kitchens and our dining rooms. Alum, the author considers, tends especially to produce constipation. The alum in bread, however, is always accompanied by an excess of the phosphate of potash, present in the wheat. Hence we may infer that double decomposition will ensue during digestion, the alumina combining with the phosphoric acid to form the insoluble phosphate of alumina. This, then, is our opinion, the great objection to the use of alumised bread, that a considerable portion of the phosphoric acid in our food is thus rendered unavailable.

A New Article of Diet.—A writer in the Philadelphia *Medical Times* states that he has, by way of experiment, eaten small quantities of the transparent jelly of the ordinary jelly-fish as raw oysters are eaten, and found it not unpalatable; and the London *Lancet* says that at a luncheon given by one of the directors of the Brighton Aquarium, the *piece de resistance* was boiled octopus, or "devil-fish," which was pronounced to be very palatable, resembling boiled lobster and skate.

Should such diet become popular, its abundance on the Pacific coast would place it within reach of all. Which of our hotels or restaurants will he the first to add to their bill of fare "boiled devil-fish?"

A Nice Cream Pie.—One cup white sugar, two-thirds of a cup of cream, two eggs, two cups flour, one teaspoonful cream-of-tartar, half teaspoonful soda. This will make seven thin cakes, between which spread the cream.

For the cream, take half a pint of milk, put into a basin of hot water on the stove, heat one egg with white sugar enough to sweeten and add two tablespoonsful corn starch; stir this into the milk when hot, and flavor with vanilla or lemon. When cool put between the cakes.

Hop Yeast for Warm Weather.—Two quarts water, twelve potatoes, a good handful of hops; press the water from the bag of hops when the potatoes are done, and mash fine; add one teacupful of white sugar, a handful of salt, tablespoonful of ginger; strain through a colander and boil a few minutes; add yeast to raise when cool; no soda is required to make this bread. This yeast will keep in hot weather until it is used.

Digestive Biscuits.—Mix the flour or wheat-meal in as small a quantity of water as will cause it, after much kneading or rolling, to adhere; then roll, cut into biscuits about half an inch thick and three inches square, and bake well in a quick oven. The unfermented bread is made in a similar way, except being formed in rolls about an inch thick, cut deeply across, and baked in a moderately hot oven.—*Vegetarian Cookery.*

Grandmother's Gingerbread.—Cup and a half of molasses, cup rich sour cream, teaspoon saleratus, tablespoonful ginger; mix a little stiff.

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BIRDS AS WEATHER PROPHETS.—At the last meeting of the California Academy of Sciences Dr. Cooper stated that the bird presented by Mr. Blnnt, called "Foolish Guillemot" (*Uria lomvia*) by the whalers, was the first of the kind obtained on the California coast. It is common in the Arctic ocean and the far north Atlantic, and has doubtless been driven so far south by unusually cold weather. He also stated that Mr. Grnber has lately obtained here the first Californian specimen of the "Arctic Skua" (*Stercorarius parasiticus*), another evidence of severe weather approaching. The interior papers, about two months since, noticed also the uncommonly early arrival of the wild geese from the north. The unusual amount of rain already fallen is an evidence of cold weather northward, though we have not felt it here, as the nnder-current of cold north winds condenses tho moisture brought to ns by the warm sonth winds. These facts ehould be recorded, and we may find the "Foolish" Gnillemot really a very weather-wise bird.

UNIVERSITY LECTURES.—We give in another colnmn a lecture on metallurgy, delivered at the College of Mines, University of California, by G. F Becker, B. A. Ph. D., a graduate of the Royal Academy of Mines, at Berlin. Arrangements have been made by which a number of lecturee on snbjects connected with mining mattere will be delivered by different pereons. We ehall endeavor to obtain those of general interest for pnblication.

THE OAKLAND FOUNTAIN.—The temperance people of Oakland enjoyed a gala day on Saturday last, heing the occasion of the unveiling and inauguration of the memorial fountain. The fountain has been erected to commemorate the temperance victory won at the ballot box on the local option question.

Look Out for Your Claims.

Owners of unpetented mining claims ere hereby reminded that the time for the first annual expenditure on cleims located prior to the passage of the act of May 10th, 1872, expires on Jannary 1st, 1875. The paragreph in the law referring to this, reads as follows:

On each claim loceted after the pessage of this act, and until a patent shall heve been issued therefor, not less than one hundred dollars' worth of labor shall be performed or improvements mede during each yeer. On all cleims loceted prior to the pessage of this act ten dollars' worth of labor shall be performed or improvements made for eech one hundred feet in length elong the vein until a patent shall have been issued therefor, but where such claims are held in common such expenditure mey be made on any one claim; and, upon feilure to comply with these conditions, the cleim or mine npon which such a failnre occurred shall be open to re-location in the same manner as if no location of the same had ever been made.

The bill was so amended that the time for the first annusl expenditure on claims loceted prior to the passage of the act, was extended to January 1st, 1875. Those claims which are not patented are subject to the provisions of these laws requiring the annnal expenditure, and where work has not been done it is time now to begin.

There is another exceedingly important feature of this provision of the law, in this—that elthough all proceedings for patent may have been had, the final payment made to the receiver, and the case sent to Weshington for patenting; thet until the petent itself is actually issued the necessity still exists for doing the work or meking the expenditure upon the cleim to prevent a re-location, the seme as if the application for patent had not been made, as the law requires the annnal expenditure to be made until the issnence of a petent for the claim. Parties heving claims pending et Washington should not, therefore, fall in.to the error of supposing that they are relieved from doing work to hold such claims, tho patent title itself alone relieving the claim from that necessity.

Placer mines are exempt from annual expenditures. The acting Commissioner of the General Land office decided, April 25th, this year, thet the 10th section, teken in connection with the 5th section of the act of May 10th, 1874, showed that it was the intention of Congress to require annual expenditnres ouly upon veins or lode claims, leaving placer claims as they had been previous to the pessage of said act, subject to the operations of the *local* laws, rules, regnlations and customs.

The metter of annual expenditures is one which should be attended to without delay, as there ere doubtloss e number of men who have "spotted" desirable properties upon which the requisite emount of labor has not been done. The time for the first annnal expenditure has been postponed so long that there is no excnee for failnre to work, if the mine is supposed to he worth the outley.

Burnt or Missing Coal Vessels.

No less than *nine* vessels loaded with coal for California, are reported as having been destroyed by fire within two or three months peet. The loss of life and property from spontaneous combustion of coal on shipboard seems to be rapidly on the increase of late years.

A return has lately been made to the British House of Commons from which it appears that 38 coal-laden sailing vessels and one steamer were reported as burnt or missing from 1868 to 1873 inclusive—involving a loss of 358 lives. Of the total nnmber of lost and missing it is known that at leaet 24 were burned and it is bnt reasonable to suppose that at least one-half the "missing" were also burned.

The liability of coals to spontaneous combustion, if placed in bulk when wet, is well known; but it is not so well known that many coals will also generate heat when placed in bulk *dry*—yet snch is the case, especially if they are so placed as to be subjected to great pressure, and the slight friction inseparable from a cargo of loose material at sea. The fire-damp which escapee from coal mines arises from slow decomposition (combustion) of the coal at a temperature but little above that of the atmosphere.

This decomposition or combustion is contentantly going on with all coals, at all temperatures and under all conditions. But when it ie placed (even dry) in bulk and subjected to accumulated pressure, this heat, nnless the most perfect ventilation is kept up throngh the mass, will also accnmulate until active combustion sets in. Even common charcoal, when in a fine state of subdivision, will ignite epontaneously when piled np in a dry room, in large bulk. There is really no positive safety in traneporting soft coal in bulk, by sea-going vessels.

DEPLORABLE.—Some 200 blast furnaces in various sections of the country have suspended operations, and the workmen, on the eve of a severe winter, are thrown out of employment.

THE prospecting drifts in the old Sacramento gronud of the Sierra Novada mine are ehowing some very favorable ore developments.

The Wheeler Expedition.

The present campaign of the Wheeler exploring expedition has been quite successful, and some of the results are of great interest. A number of very valneble paleontological discoveries have been made. Professor Cope and Dr. Yarrow have unearthed in the valleys of the San Jnen, a lerge nnmber of vertebrates of enormous size, some of which are entirely new to science, and those that are not are of a very rere and comparatively unknown species. Among them are several very perfect skeletons of the mastodon race, and a very large variety of memmoths, cousin-german to to that elephant of the past. The discovery has not been arranged and classified, so that a complete list of the different specimens embraced in it cannot be given, bnt this work already is in progress, a nnmber of the specimens having been forwarded to Washington soon after their discovery, where competent persons at once set to work npon them. Besides these, es meny as a hundred additions to the known list of invertebretes have been made. The natnral division of the survey under Dr. Rothrock, the well-known botanist, has also achieved substential snccesses. An immense nnmber of specimens of mammals, reptiles end fishes, and as many as 1,000 bird-skins, some of them new varieties, were obtained.

The most interesting work to the people of Colorado, says the *Denver News*, was prosecuted by Dr. Leow, chemist in ordinery to Lieutenant Wheeler, who has analyzed all the thermel and mineral springs in the regions traversed hy the snrvey. He has also enalyzed the soils of the different formations found in the sonthern part of the territory, in northern Mexico and eestern Arizona, and from this valnable resnlts are expected. The expedition has also succeeded in carrying out the work of triangulation begun in 1873, and, as a result, a csrefnlly prepared and accurate map of portions of Colorsdo, and contiguous territorics to the south, now known only to prospectors, and that indifferently, will before long be issned by the War Department. In the prosecution of this work the surveyors, by speoial orders of Lieutenant Whceler, have been on the lookout for feasible passes in the mountains for the trensportation of army supplies across the main range, and Lieutenent Marshall's discovery of a pass second only to the Coochetope end Tennessee, is a proof of how faithfully their endeavors have been cerried out.

Prospectors in the Black Hills.

Tho Black Hills excitement seems to have subsided considerably within the pest mouth. A few months since tho papers were full of accounts of tbe Black Hills end their richness. We heard of numeroue parties who intended going on prospecting expeditions this winter into the Sioux country, but probably most of them have conclnded to wait until the opening of spriug. Now, e report having been rceeived from the Cheyenne egency, Dakota, that abont 60 white miners are working on the Sioux reservation in the Black Hills, Secretary Delano reqnests the War Department to remove any persons so trespessing, in order to avoid trouble with the Indians.

We do not know how this will end. It looks as if there would be eome kind of a fight, either between the Indians and the minere, the War Department and the minere or a general row all round. If the prospectore have struck any diggings half as rich as were reported a few months since, it will be difficult to drive them away; and, if they are driven away, it is probable that they will return again with others to help them. If there is very much gold scattered round in the Black Hills the probability is that the miners will get it eooner or later, bnt naturally they are desirons of getting it as soon ae possible. Theee men have taken their lives in their own hands by going into the reservation, as they mnst have known they would have trouble with either the Indians or the Government. It is hardly probable, however, that they will resist the authorities—more especially as there are so few of them.

AGASSIZ THE YOUNGER.—It may not be generally known that eince Professor Agassiz death his son, Alexander Agessiz, has filled the chair at Harvard, formerly occupied by his father. He is assisted by Connt Pourtales and Col. Lyman, who attend chiefly to the details of the profeesorship. Alexander Agassiz has aleo been placed in charge of the school of natural history on the Penekeese Ieland, near New Bedford. It is now understood that this arrangement will be a permanent one; Agaseiz the yonnger giving every promise of being the most fitting man to fill the place of his lamented father.

THE Consolidated Virginia mine is yielding 400 tons of ore per day. The amonnt of ore extracted has been considerably increased during the past week, for the purpose of creating a reserve for some of the mills away from the line of the railroad, so that, in case heavy snow storms should blockade the roads dnring the winter months they will not bo nnder the necessity of suspending operations.

The Mineral Hill Mines.

We learn from reliable anthority that the Minerel Hill mines, Neveda, which were sold some yesrs ego to an English company, are now looking as well and with more ore in sight than when they were sold, and to all appearances it will be a long time before they ere worked ont. These mines have yielded a good profit in the working since the sale, notwithstanding reports to the contrery.

Some of our readers will recollect that the people on this side of the ocean sold the mine at a fair price, but that the English buyers put it on the English market at sn ontrageous figure, end trouble was the result. The mine was bonght for some $400,000 and put on the London market for about three million dollers. So it could not be expected to pay a very large profit on snch an exorbitant capital.

We mention this fact to show that there aro faults on both sides of the water in the sale of mining property, and that in this case the Nevada people sold a good mine for a reasonable price, while the English buyers floeted it for a sum out of all proportion to its value. This is by no means the first case of the kind; bnt it is high time that English investors recognized the fact thet their own people cen commit these little irregulerities ae well as the Americans. These mines have peid a profit ever since they were worked, never having run behind tho expenses, although at one time the margin wes very small; but there has been considerable trouble with the property, because it could not pay lergo dividends on the enormous capital. It was ststed at one time that the purchesers hed bought a mere shell, and that the mines were worked out; bnt that this essertion was untrue appears from recent developements. The mines were really worth the sum originally paid for them, but not the sum at which they were "floated" by the English purchasers.

DEATH OF D. B. FRINK.—The telegraph brings us intelligence of the deeth of Mr. D. B. Frink, editor and publisher of the Truckee *Tribune*. A secret vigilance committee had been formed in the town, and he was supposed to be a member of the seme. While walking in the street on Tuesdey, between 10 and 11 P. M., he received, without warning, a death shot in the breast by some unknown hand. Report eays he wee *probably* ehot by a vigilante, by mistake. Mr. Frink was an old resident of Nevada City, and well-known in that place and Grass Valley for his industrious and irreproacheble character. He was a good thinker and writer, and a soccessful journalist; the *Tribune* being one of the most frequently quoted locel journale of Californie. A vein of humor accompanied the good sense of much of Mr. Frink's writing. For years peet, some of hie most pungent erticlee have been copied in *Frank Leslie's Journal*, with ideal cute, illnstreting the novel pointe suggeeted. Mr. Frink leavee a grown-up daughter, to whom he has seemed entirely devoted since the death of his wife, some eight ycare since. As an energetic, honoreble man and a true friend, we deeply deplore his lose. And all who knew him well, we dere say, will sincercly feel his death as a personal and public calamity.

BONDED.—We learn from Mr. P. A. Forrester, says the San Luis Obispo *Tribune*, that the Quien Sabe quicksilver mine wae bonded on Wednesday of this week for $40,000, to Mr. E. B. Burdick, of San Francisco. The money to be paid in three installments, within eight months from date of purchaee. This mine sbows excellent prospects, and we have no donbt but Mr. Burdick will count this the most profitable investment that he ever made. We are afraid that San Luie Obispo county will tip soon, ae heavy amounte have been invested in the north end of it in the past year. Four-in-hands will be common in Cambria if this thing continues.

BELCHER AIR SHAFT.—Sinking another air ehaft on the Belcher has been commenced at a point 150 feet west of the one burned out a week or two eince. Thie shaft will be pnshed to completion as fast as it is possible to perform the necessary work, and when it is completed it is hoped that, heing on more elevated ground, the draft or current of air will be turned up and out of the mine, instead of downward, as before.

THE Ophir mine ie yielding 120 tons of ore per day. The company have now three mills crushing ore from the mine—the Empire State, Nevada and Papposse, in Lower Gold Hill. The last named, although a emall mill, will help greatly to swell the net proceeds of the present month.

THE crushing and amalgamating machinery for the new mill for the Consolidated Virginia mine is all in place; the erection of the immense driving engine is fast approaching completion, and the entire mill will be ready to start np in a very short time.

DRINKING FOUNTAIN. — The monumental drinking fountain, erected in Oakland recently, was purchased of the mannfacturer's agent, Capt. J. M. Keeler, No. 306 California street.

THE late rains in Idaho came very opportunely, and mining was commenced with vigor.

The Eocene Epoch in California.

At the last meeting of the California Academy of Sciences, Dr. J. G. Cooper read the following paper on "The Eocene Epoch in California:

Why are no Eocene Fossils Found?

In describing the miocene formations of California I made the remark that no positively eocene fossils had been found here, either marine or terrestrial, indicating a wide gap in the early tertiary age. Two explanations of this have been suggested. One is, that the land embraced in our limits was entirely above the ocean during that epoch, so that no marine deposits could be formed on it. But, if so, the land must have been so extensive that it would almost certainly have had a fauna and flora, like those so richly stored up in the Rocky mountain eocene, and traces of them would surely be found fossil.

The second theory is that the present dry land was then sunk so deep beneath the ocean that such marine animals as live near the shores and have furnished most of the fossils in other formations could not exist, or that the rapid sinking of the rich cretaceous shores, caused so rapid a deposit of sand and mud to accumulate, that marine animals could not flourish. There is some proof that this might have been the case, in the fact that we find great thicknesses of shales and sandstones, above the so-called cretaceous fossils, with no fossils in them except obscure marks, chalk-like tracks or burrows of marine worms and casts of sea-weeds. If sunk very deep, we should find, however, some of the chalk-forming protozoa, still living in the bed of the Atlantic, which are so abundant in the Old World.

Another cause for scarcity of organic life in these beds is suggested in the greater prevalence of volcanic action on the shores of the Pacific than of the Atlantic, by which, during periods of rapid subsidence, the water was probably heated or poisoned through vast extents of the ocean.

I have before stated the evidence to show that during the miocene and pliocene epoche California was constantly rising above the sea, and we have evidence also that this rise was commenced in the cretaceous, from the existence of coal-beds referred to that age, in the strata adjoining to which, we find fossil land plants, and trunks of trees. But as the cretaceous elsewhere was an age of almost general subsidence of the continents, we might rather suppose that after the burying of these coal-beds beneath strata of marine formation, the land would rise still more extensively than before, and, as in Europe, we would have a grand terrestrial eocene fauna, with comparatively narrow deposits of marine fossils along its shores. We find, however, that the old geological divisions of time founded on studies in Europe, are still less applicable here than in the Atlantic States, and there is reason to suspect that while the great and complete change from the cretaceous to the tertiary ages was occuring there, this coast was undergoing a very gradual transmutation, with only partial extinction of the cretaceous life, or a derivation of the tertiary therefrom.

The evidence is so far derived from only a few marine fossils which have been referred by different authors to the cretaceous, the eocene, and the miocene. Conrad, the Nestor of American paleontologists, over twenty years ago, described as unmistakably eocene, a group of fossils, now known as the Tejon group, among which he thought was the *cardita planicosta*, "that finger post of the eocene, both in Europe and America." Mr. Gabb, finding from better specimens that this shell differed from *cardita planicosta*, described it as new, and referred the Tejon group to the cretaceous, finding in it a very few species which he considered identical with the lower beds, proved to be cretaceous by the presence of numerous ammonites. He also stated, in an article in our proceedings, published November, 1866, that "a solitary ammonite represented by half a dozen specimens, has been found by myself, *in place*, even to the very top of the formation." This slender evidence, (which might be rejected after finding a carboniferous fossil in a pliocene deposit,) is all the proof we have of the Tejon beds being cretaceous, and that it is quite arbitrary is shown by the other fossils found with it being nearly all different from the lower ones, less than one-tenth, of the cretaceous shells being common to both according to Gabb, of which several *may be* distinct. On the other hand, many of the Tejon group are scarcely distinguishable from tertiary and living forms. One, *Aturia Mathewsonii* is so near the eocene *A. zigzag*, as to have been taken for it, no other cretaceous *Aturia* being known.

I may add that the ammonite, (*A jugalis Gabb,*) was found by me in a stratum just beneath the Mt. Diablo coal, and apparently on the same level as those from Clayton and "Cnrry's" found by Gabb, so that its existence above the coal, or in the Tejon group, itself, is perhaps accidental. But, to pass by this doubtful era, we have still later strata, referred to the eocene by Conrad, near the mouth of the Columbia, where we would expect the first tertiary to rise near the surface, and this time the eocene *Aturia zigzag*, again appears, though with a different group of shells. Mr. Gabb, while admitting that this time it is the true *zigzag*, is so opposed to recognizing any eocene here, that he calls the formation miocene! The general character of these fossils, of which there are several in the Academy's Museum, shows however, that they are of a more tropical group than any of our miocene species, the *Aturia* itself, being very similar to the *Nautili* now living in the tropics. Though, perhaps, mixed with miocene species among the broken rocks so numerous on the lower Columbia shores; it is most probable that true eocene strata exist there, and, as shown by the Academy's specimens, extend south nearly to California, where later strata cover them.

From all we yet know, we may assume that the gap between the cretaceous and tertiary, so marked on the Atlantic shores, was bridged over in part by the existence here of the "Tejon Group" continuing cretaceous forms of mollusca down to as to be contemporaneous with the eocene epoch there, or the earlier

COMMON MAGPIE.

part of it, just as we find the flora and fauna of Australia, resembling forms fossil in the eocene formation of Europe, but continued to the present epoch. After, perhaps, a short geological period of convulsions and death, we find the eocene mollusca appearing in Oregon, just preceding the miocene, nearly like those of the Atlantic basin.

Though I cannot speak positively on the subject, my impression is that the plants found fossil in our coal measures, are of a more temporate group than those of the cretaceous coal beds of Vancouver's Island, which, if so, will be good evidence of their indicating a newer age.

Have the Poles Changed?

It will appear from the preceding remarks, that it is not necessary to suppose a change of the poles to account for the absence of eocene fossils in California, but I still believe that the existence of tropical and temperate groups of beings within the Arctic circle, in not only the miocene but the carboniferous age, prove either such a change, or the existence of some light-giving medium there in those ages, of which we have no knowledge. It is easy to account for a hot climate there, either by supposing the internal heat of the globe to have been greater, and the amount of radiation less, or by the existence of hotter regions of space through which the solar system was then travelling, but that alone could not produce the vegetation found there.

2. An increase in the obliquity of the earth's position in its orbit could only present each pole alternately to the sun, though more directly than now, so that, while each hemisphere would have six months of greater heat and constant light, they would also have six months of greater cold and darkness.

3. Judging from what we know, a vegetation so much like ours could not exist in a climate very different from ours, for we find entirely different vegetation in regions both north and south of us, having comparatively similar climates. A duration of day or night for months would be as great a change as one of many degrees of temperature. A four months night, with warm climate, would either blanch or decay nearly all growth above ground.

4. The objection that the flattening of the poles proves a permanent position of the earth's axis, although now true, if the earth is nearly solid, need not have been so when it was semi-fluid in the interior, with a thinner crust. Even now, if the earth was to stop revolving, the water must run from the equator toward the poles, and cover them deeply enough to restore nearly the perfect spherical form, at the same time uncovering much of the land now submerged in the tropics. The flattest parts of the sphere would then be the deep bed of the ocean in or near the tropics. The difference between them and the summit of the Andes or Himalayas, is nearly as great as that between the convexities of the poles and the equator.

5. The objection that no cause is known that could produce a change in the earth's axis, is answered by the geological evidence of periodical changes in the elevation of the land, amounting to many thousand feet, which must, it seems, cause a change in the center of gravity of the earth, and a consequent shifting of its axis, not to mention the disturbing effect of the attraction of asteroids, etc.

6. Astronomical observations, extending back only about 4,000 years, may prove that no perceptible change has occurred since then, but cannot concern preceding ages. The earth's present oblique position is itself good evidence that the distribution of land and water have disturbed its axis from a position in which the equator would be always turned directly toward the sun, as in our semi-annual equinoxes.

Common Magpie.

Nuttall, Bonaparte, and Swainson regard the magpie of America and Europe as identical, and Audubon approves their judgment. Its range is general throughout Europe, but in this country it is restricted to the northern and western regions. It is stated by Dr. Richardson that it has not been seen nearer to the Atlantic on this continent than the head of Red river, in Louisiana. It dwells in the far countries of the North in winter as well as in summer, and is a common resident of the interior of Texas, Western Louisiana, Arkansas, and Missouri. It suffers from the want of food, but not from cold, in high northern latitudes, where travelers have been almost unable to protect their galled horses from its assaults. Unlike the magpie of Europe, it then has little fear of man, the young especially coming to his encampments or habitations, and greedily devouring whatever food they can obtain, even from his hands. The raven is often its companion, but the crow is not found with it.

In the central table-land of the Rocky mountains, the nests of the magpie may be seen, usually in low, thick bushes, barricaded over and floored with interlaced twigs; and it is common in many parts of this State. Its common call is *pay pay*. When approaching each other, they practice a low chatter, but utter a monotonous and gluttonous croak while eating.

The account of the habits of the European magpie, given by Macgillivray, is recited by Audubon in trusting of the American bird. He states that its food consists of testaceous moluscs, slugs, larvæ, worms, young birds, eggs, small quadrupeds, carrion, and sometimes grain and fruits of different kinds, in search of which it frequents the fields, hedges, thickets, and orchards; it occasionally visits the farm-yard, prowls among the stacks, and perches on the house-tops, whence it sallies to examine any attractive spot. It is probably unjustly accused of picking out the eyes of lambs and sickly sheep; but it eats eggs, or the young of chickens or ducks, when the old are not present to repel it. Its more wary character, in Europe, is the result of the persecution it experiences because of its depredations.

The magpie walks like the crow, but often leaps in a sidelong manner. It is prompt to apprize its companions of the approach of danger, which it does by a chatter indicating its own fears.

The eggs of this species are from three to six in number, and vary in form and color. In general, they are regularly ovate, or a little pointed, more than one and a half inches in length, and nearly or quite an inch across. They are frequently pale-green, freckled all over with umber-brown and light-purple, and sometimes pale-blue or bluish-white, or greenish-white, with smaller spots and dots of the same dark colors, so as very nearly to resemble the eggs of the jay, which, however, are smaller.

SUPERINTENDENT MULLET.—Quite a sensation was created in Washington, a few days since, by the announcement that Supervising Architect, Mullett, had resigned his position, rather than surrender to Secretary Bristow the control of the contingent fund, amounting to $100,000, although the law places the fund under the control of the Secretary. It is said, however, that the real difficulty grows out of the extravagant ideas of Mr. Mullett, in regard to construction of public buildings. Secretary Bristow is opposed to expending enormous amounts of money for such purposes, when a much smaller amount will answer, and still gives us substantial buildings of good architectural proportions and construction. The people will sustain the Secretary by acclamation, and the President dare not interpose, notwithstanding his great partiality for Mr. Mullett and extravagant architecture. It is said that any interference in favor of the retiring architect will be met by a prompt resignation from the spunky Secretary, who knows he is doing right in the eyes of the whole country.

THE JETTY SYSTEM OF IMPROVING RIVERS.—The plan of improving the navigation of rivers, particularly at their months, by compelling, through artificial means, large quantities of water to flow through narrow channels, is proving a great success in the Eastern world. This system has proven a success in every instance, when it has been properly applied. The depth of rivers has been thus permanently increased in some cases from five to fifteen feet. The system has been applied even to the Danube, one of the largest rivers in the world, with the most complete success, and now it is proposed to apply it to St. George's channel, which discharges four times as much water as the Danube. Russia is also preparing to apply it to the Volga, the Dwina and the Neva. And now it is proposed to apply the same system to the mouth of the Mississippi. The improvements now in progress at the Oakland harbor improvement are founded on the same principle, and can scarcely fail of meeting the most sanguine expectations of their projectors.

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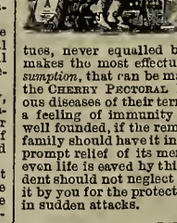

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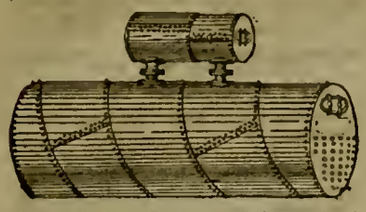

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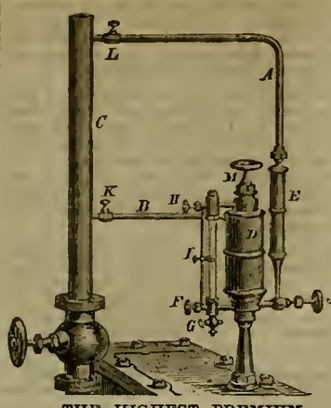

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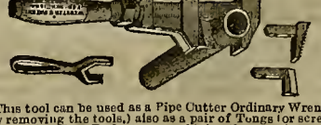

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15 " " " "	⅛	to	1½	"	60	"
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This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

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The Juice of California Grape as Adapted to Wine Making.

[A paper read before the Oslifornis Academy of Sciencee by James Blake, M. D.]

Having, whilst in El Dorado county, tasted some wine which was evidently superior to anything I had before tasted, as the produotion of our State, I inquired of the maker the variety of grape from which it was made, and found that it had been made principally from a grape known in this conntry as the Zinfindel. Since my return, I have made an analysis of the jnioe of this grape, and also of some otbers which are now bsing propagated for makiug wine. The grapes were grown at the vineyard of the Vinicultural Society at Sonoma, and were apparently perfectly ripe. The varieties analized, beside tbe Zinfindel, were the Reimer, a large white grape; the Riessling, also a white grape, and the Oalifornia Mission grape. The method of analysis was to take the sp. gr. of the juice—heat it to ooagulate the albuminous matters, filter through a Bunsen filter, and after bringing up the juice to the original quantity, to neutralize with a standard solution of potash or ammonia, so as to ascertain the total amount of free acid. Another portion of the juice was evaporated to about one-third, mixed with alcohol and ether to precipitate the tartrates; Tbe ether and alcohol distilled off from the filtered juice, which was then neutralized to ascertain the amount of malic acid. The amount of sngar, as indicated by tbe sp. gr., was controlled by direct analysis of a portion of tbe juice cleared by acetate of lead by means of Febling's copper teet; and the result tbus obtained is that recorded:

	Sp. gr.	Sugar.	Free acid.	Malic acid.
Zinfindel	1072	16.8	1.73	0.60
Riessling	1083	18.7	1.10	0.57
Reimer	1057	14.0	1.30	0.80
Mission Grape	1088	21.5	0.60	0.11

As there can be but little doubt that the development of the ethereal substance on whicb the aroma of wine depends is owing to the presence of free malic acid, and more particularly, I believe, of malio acid, the above figures explain the cauee of the absence of aroma from the wine made from tbe juice of the Mission grape; for wbilst the three varietiee of foreign grapee analyzed contain respectively 60.57 and 80 parts of malio acid to 10,000 parts of jnice, the Mission grape contains but 11 parts. The presence of this comparatively large portion of malic acid in grape juice is a fact which has not I thiuk received tbe attention it deserves. I believe the acid itself splits up into an etber and an alcohol; aud this independently of its action on the alcohol already found in the wine. Wialicenus has sbown that lactio acid forms an ether even when being dried at or dinary temperaturee over snlphuric acid, and alcohol is one of the producte of tbe fermentation of malic acid. There wonld seem to be enough potash in the grape juice to form with the tartaric acid the slightly soluble bitartrate of potash, as after this has been precipitated by alcohol and ether, and the juice then nearly neutralized with potash, no more bitartrate is thrown down by again mixing the juice with alcohol and ether, but malate of potaeh separates as a thick cyrupy depoeit.

Theee figuree as far as they go, give, I think, a satiefactory explanation of the superiority of the Zinfindel ae a wine-producing grape, and fully bear out the conclusione I expressed eome 14 yeare ago, in a report I drew up as one of a oommittee for examining the wines at the Agricultural State Fair at Sacramento, in 1860. As theee remarks contain suggestione which I think will be useful to our wine-growers, I sball offer no apology for quoting them. After pointing out the great advantages as regnrds climate and soil found in our State for cultivating the grape, and which I believe ensure its being the finest wine-producing country in the world. I remarked on the imperfect manner in which these advantages had bsen utilized by our wine-growers, as indicated by the quality of the wines exhibited, and poiuted out what I then considered to be the cauee of our want of euccess; observing "in view of these faots yonr committee believe that tbey are authorized to call the serious attention of our wine-growere to the necessity of an early introduction into this country of varieties of foreign grapes which appear to possess those qualities wbich are wanting in our own, or in other words which contain less sugar and more free acid." After mentioning some of the varieties of European wine grapes which poeeessed these qualities, I remarked "it ie highly probable that the grape now cultivated in thie State is about the worst that would be selected for making a first-olase wine." The truth of this remark is now being realized by our wine-growers, wbo are replacing as fast as possible the Missiou grape by foreign varieties, for it is found that even where a portion of these foreign grapes are used in tbe manufacturing of the wine, it commands a much higher price thau tbat made with the Miesion grape. I believe tbat either of tbe varietiee, the analyeis of which I have made, ie capable of making a good wine when the soil aud climate to wbich it is most suited is properly selcoted, of the necessity of paying some attention to the eelection of the variety best suited to tbe very marked varieties of our eoil and climate. I quoted the following remarks of Mr. Bender, Inspector-General of Agricnlture, in France, and author of a work on the vineyards of that country. After describing 144 varieties of grapes that are grown for making wine, he says: "Almost every variety of soil is found in our more celebrated vineyards, and appears able to furnish a superior wine when the variety of grape cultivated has been well selected, that is, when it is perfectly appropriate to tbe soil and climate. The choice of the proper variety of grape that will suit the soil and olimate is after all the great secret for obtaining superior wines iu a climate where the grape flourishes." That so little success has up to the preseut time attended the efforts of onr wine growers to produce a first-class wine is not surprising when we consider that not only have they been working with probably the worst grape for the production of such a wine, but have been endeavoring to make the same grape produce good wine in tbe moist alluvial soil of Los Angeles, and in the heated volcanic hills of the Sierras. [I would observe that the Zinfindel from which tbe wine I tasted was made, wss grown near Coloma, and I believe on a soil of decomposed granite.] A long experience, however, will be required to discover the most appropriate variety of grape suited to our varied conditions of soil and climate. As showing the influence of soil and climate on the qnalities of the grape, it is interesting to compare the analysis of the same variety of grape when grown in Germany with those grown here. Iu Watts' Cbemical Dictionary I find an analysis of the juice of the Riessling made in Germany by Freeenius. The quantity of sngar is there given as 15 per cent., and of free acid ae 53 per cent., whilst here the juice contains 18 per cent. of sngar and 1.10 of free acid or three per cent. more sugar and twice as much free acid. Sbould the presence of the free acid influence the quality of the wine in the manner I have poiuted out, it is evident that the Riessling may make a superior wine here to that made from it in Germany; that is, when grown iu the localities which suit it.

General News Items.

A Good Inea.—The Sacramento *Record* says: In the Catholic church, the other day, the priest officiating gave notice that he wnnted the names of the boys and girls who have just left scbool and want employment, that the plan of finding employment for youths had been accepted by that church all over tbe State. He also desired people wishing to employ boys or girls to notify him.

Oaklann Library.—Thie library bas recently moved into new quartere, near the City Hall, Oakland. The library now contsios about 4,000 volumee. On Friday night last there was a social meeting of the intelligent oitizens of Oakland, on the occasion of the opeuing of the new quarters. The library is now in a prosperous condition.

Philosopher Pioett still languishes in jail. The Virginia *Enterprise* comments: "Pickett hae been for mnny yeare considered little else than a half-crazed, harmless old man, nud it is simply unworthy tbe dignity of the California Supreme Court to persist in wreaking vengeance upon such a helpless object."

Granges iu Wisconsin have on hand $250,000 toward a State Agricultural Implement Society. They have already established 41 cooperative associations for selling goods and manufacturing, and 29 iusurance companies, all flourishing, and representing capital to tbe amount of $4,000,000.

Mammoth Beef.—A Short-born steer was butohered laet week in Detroit that weighed 4,110 pounds alive; weight of dreseed beef, 3,000 pounds; hide, 130 pounde, and rough tallow, 300 pounde. This ie supposed to be the largest animal ever slaughtered for beef on this continent.

Cheap Foon.—The London *Agricultural Gazette*, in an article on the Englieh crops eays that "wheat hae yielded so abundantly everywhere this year that it ie now one of the cheapest foods in the market, cheaper probably than oats or barley, cheaper than Indian corn or oil-cake."

A Baptiet Church in Gallatin, Tennessee, bne decided that a Granger cannot remain a member of that church while he is a member of the Order of Patrons of Hnsbandry. The ground assumed by the church is that the Patrons of Husbandry is a secret order.

A Granoe Wagon Road.—It is reported that the Rogue River Patrons of Husbandry propose the construction of the proposed wagon road from the head of Illinois valley to Chetco harbor, on the coast, and that the eurveyore are now marking out tbe line of the road.

Drowned in a Well.—George N. Murray, living on Valencia street, in this city, miseed his son, five years old, on Monday of laet week. On Wednesday evening he fonnd him dead in the bottom of a well, not far from the house.

Somebony Saye.—"California ie the nobleet State in the Union. Sonoma county ie the choicest part of California. Cloverdale is the lovlieet spot in Sonoma county. Therefore, Cloverdele is the nicest place in America."

Honey in Ren Woon Boxes.—Several late consignmente of honey, packed in green or new redwood boxes, have arrived at San Francisco in a badly damaged condition.

There are forty iron sbips now at San Francisco—a much larger number than was ever there before.

A Lany in Newport has a ring out out of a solid diamond. It is said to be the only one in the country.

Heavy Fog.—England and Scotland were enveloped in such n dense fog on Satnrday and Sunday last that no steamboats conld run on the Thames during these two days. At Liverpool forty boats stopped. Railroad accidents are reported at Wolverhampton, Shrewsbury, and elsewhere. At Newport, in Monmouthshire, a railroad collision occurred, and fourteen persons were injured. The fog was still hanging over London on Wednesday.

Robbery on the Cliff House Road.—A gentlemen, with two ladies, in a buggy, wae stopped on the Cliff honse road a few evening's since, and robbed of his valuables. The robbers also compelled the occupants of the carriage to alight, when they jumped in and drove into the city. Tbe gentleman and ladies were compelled to take a long moonlight walk to tbe nearest street car.

The Pacific Mail S. S. Co. seems to be in a flourishing condition just now—full of passengers and freight, and rapidly increasing their facilities for bueiness. The increase in the nnmber of passengers carried during the month of October over those transported during the corresponding month of last year, was 1,129.

Chinamen Voting in British Columbia.—Eight Chinamen voted for members of the Local House nt Victoria, B. C., at the recent election. Their votes secured the success of the opposition ticket. These Chinamen are regularly natnralized British subjects.

Elections in France.—Tbe Republicans were everywhere successful in France at tbe elections on Sunday last. The Imperialists are much discouraged at the result, and Count Chambord has resolved to issue another manifesto to prop up his failing fortuues.

Bold Robbery.—A young man nsmed Browu was savagely attacked and robbed at the corner of Pncific and Kearny streets on Tuesday night. The supposed robbers were arrested ahout an hour later, only about two blocks distant from the scene of the robbery.

Incendiary Fires.—The city of Cronstadt, Ruesia, suffered from a severe iucendiary fire a few days since, and now letters have come to hand threatening similar outragee in otber Russian cities.

Grape Shipments.—Tbe Vallejo *Chronicle* learns that 912,498 pounds of grapes were shipped from St. Helena last montb. Total shipments for the season, 1,374,185 pounds.

Barley in Los Angelos.—A sale of 2,600 sacks of barley wae made this week at the cooperative warehouee, Willmington, Los Angelos county, at $1 per cental, cash.

Nevada, having the emallest population of any State in the Union, will have the two richest men in the whole United Statee Senate.—*Springfield Republican*

It is said tbnt one of the first pbotographers of the United Statee, aud who made a fortune of over $100,000 in San Francisco, is now a high private in the ranks at Mare Island.

The Paris correspondent of tbe London *Times* writes that a better feeliog seeme to have sprung up between the governments of France and Germany.

Severe Storm on Lake Erie.—One of tbe most severe etorms ever known on Lake Erie was experienced on Wednesday. Much damage was done to shipping.

Notary Appointen.—Governor Booth has commiesioned Alonzo Rhodes as Notary Public for San Joaquin county, Cal.

Forney's *Press* bas been sold to Marshall O. Roberts, tbe millionaire steamship owuer, of New York.

Bog Oranges is a fancy name given to potatoes np in Sierra conuty.

The Inyo *Independent* saye it eeems that the new road from San Bernardiuo to Panamint is very nearly impracticable. There ie one stretcb of ninety miles in whioh water cau be had in bnt one or two places, and the sand is so heavy that the brake blocks of wagons drag the ground a long way at a time.

A reift running sonth on tbe ore vein in the Dayton mine, on the Comstock, toward the Kossutb line, has penetrated the ore body a distance of 100 feet, at which point a croes-cut hae been made, which ehows the ore body to be 24 feet in width, and of a much richer character than that opened at the turn-table slopes.

The new pumping engiue at the Julia mine, on the Comstock, hae a capncity of 200 horsepower, and the shafts of the hoisting and pumping engines are so arranged that in case of a continnous heavy flow of water they can be coupled together and the power of both enginee combined to reduce it.

The east ore body on the 1,500-foot level of the Crown Point mine is opening up much better than was expected, and promises a fine yield of rich ore.

A Thousand Bankruptcies—Would not create as great a panic in commerce as the withdrawal of *Hale's Honey of Horehound and Tar* from the market, would create among the sick. The reason is obvious. Tens of thonsands of both eexes would be hankrupted in health by such an event. The famous specific is effecting such curee in cases of chronic congh and cold, Influenza, bronchitis, bleeding from the lungs, and apparent consumption, as have never heretofore been accomplished within the memory of man.

Pike's Tooth-Ache Drops—Cnre in one minute.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Nov. 24th, 1874.

For Week Endino Nov. 10th, 1874.*

Olon Breaker. — Addo Borchers, Albany, Oregon.

Portable Cutting Table.—Benjamiu Strawbridge, Stockton, Cal.

Coal-Oil Stove.—Benjamiu R. Sweetland, Sacramento, Cal.

Horse Detacher.—Anatole Ehret, Telegraph City, Cal.

Sash Fastener.—Bartlett Doe, S. F., Cal.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

From an Inventor.

The following letter, which was recently received from an old client of Dewey & Co., now residing in one of the Eastern States, speaks for itself, and will do more, perhaps, to convince inventors of our capacity for business than any number of local compliments. We extract as follows:

Gentlemen: It was through your house that I secured my first patent, and although I have since done business here in the Atlantic States with the ablest patent solicitors—gentlemeu who have done me justice—yet I have often regretted that you were too far off to advise with me in my cases. It has taken a longer time with every patent I have taken out since I left California and came East, than in the cases you prepared for me in San Francisco, which is certainly very creditable to you.

By the way, one of my patents has passed the ordeal which is the essential test of a patent's value. I mean that of a trial in the courts, and it stood the battling of one of the best lawyers in the country. The specifications and claime were completely made out and there was a perfect comprehension of its principle during the trial. Since giving it this test we thought that we would make it even stronger, if possible, and submitted it to one of the best patent solicitors for advice. After a careful examination of the case he advised us to let it alone as it stood, saying that whoever made up those papers nnderstood their business. I then informed him that they were drawn up by Dewey & Co., of San Francisco, and he replied that he knew you well by reputation. * * * * * Very truly yours,

L. L. Sawye

Meriden, Conn., May 16,

Goon Prospect.—Tbe lode known as the Spanish lode, at Yeomet, is turning out very fine rock indeed. The ehaft is now down 180 ft., with a well defined ledge, rich in free gold. What is a little singular, up to, or rather down to the depth of near 180 ft., not a single atom of gold could be discovered in the rock taken out in einking, but on reaching tbe depth above named, gold eeems diffused through the entire ledge, much of the rock being remarkably ricb. It is the intention of Mr. McKillican to eink still deeper and to thorougbly prove the mine, and with this object, he is now putting up steam hoisting works. The mine at the present depth we are informed looks promising.

It ie stated that tbe English company wbo have purchased the soda mine near Buffalo Salt Works, in Lassen county, will erect extensive worke there next spring.

Five locatione on a cinnabar ledge were made in the mountains laet week, about sixty miles above Sonora, and three miles west of the Middle Fork of the Stanislaus river.

The Henry Mining Company, near Marshfield, Coos conuty, have three veesels chartered to take their coal, and are endeavoring to secure some steamers.

The Inyo *Independent* says tbat the proper name for Independence ie now the Deserted Village, as everybody ie off for Panamint.

The Olive mine, Sonoma county, last week shipped four tons of copper to San Francisco, to be crushed and sampled.

The Pbœnix Mine, in Napa county, is mining at the rate of 100 flaske of qnicksilver per month.

The Mission of San Diego ie the oldest in the State, having been established July 16, 1769.

E. E. Staoy has heen elected recorder of the Calistoga mining district.

Travelling Agent East.

Mr. Wm. C. Quinby will act as agent for thie paper in New York and other Eastern and Western cities. Business men will find a favorable opportunity to patronize the Press whenever he calls. 1m

METALS.

WEDNESDAY M., Nov. 25, 1874.

American Pig Iron, ₱ ton	—	@	45 00
Scotch Pig Iron, ₱ ton	42 00	@	45 00
White Pig, ₱ ton	—	@	46 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ ℔	—	@	3½
Refined Bar, good assortment, ₱ ℔	—	@	—
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9¾	@	—
Norway Iron	8	@	—
Rolled Iron	6	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Braziers'	31	@	32
Copper Tin'd	45	@	—
D.Nail's Fas	50	@	—
Sheathing, ₱ ℔	—	@	24
Sheathing, Yallow	—	@	25
Sheathing, Old Yallow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	13 00	@	15 00
Plates, I C Charcoal	13 00	@	14 50
Roofing Plates	12 50	@	15 00
Racca Tic, Slabs, ₱ ℔	32½	@	33
STEEL.—English Cast, ₱ ℔	20	@	25
Anderson & Woods' American Cast	10	@	17
Drill	18	@	22
Flat Bar	18	@	22
Plough Points	16	@	17
ZINC	—	@	11
Zinc, Sheet	—	@	11½
Nails—Assorted sizes	5 25	@	8 00
QUICKSILVER, per ℔	—	@	1 50

GENERAL MERCHANDISE.

WEDNESDAY M., Nov. 25, 1874.

BAGS.

Eqr. Stand Wht.—	—	@	12
Detrick's Machine Sewed, 22x36 R.	12	@	12½
do 22x36, do E W	—	@	13½
do 20x40, do A	—	@	13½
Flour Sacks ½s	9½	@	11½
" " ¼s	6	@	7
Stand. Gunnies, double seam	15	@	15½
single seam	13½	@	14
" Wool Sacks, 60	—	@	67½
Barley Bags 24x36	—	@	14
do 22x40	—	@	11½
do 24x40	—	@	15
do 24x36	—	@	16
Oat Bags, 24x40	18	@	15½
do 28x36	—	@	17
Hessian 40-in. gda	9½	@	9¾
do 45	10½	@	11
do 80	—	@	15

CANNED GOODS.

Asst'd Pie Fruits in 2¾ Cans	2 50	@	2 75
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	—	@	3 50
Sardines, qr box	80	@	—
do hf boxes	3 20	@	—

COAL—Jobbing.

Australian, ₱ ton	10 50	@	12 50
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11 —
Cumberl'd, cks	—	@	18 00
do bnk	16 00	@	17 50
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 50
West Hartley	—	@	14 00
Scotch	10 00	@	11 00
Seattle	—	@	11 —
Cumberl'd, cks	—	@	18 00
do bnk	16 00	@	17 50
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 50
West Hartley	—	@	14 00
Scotch	10 00	@	11 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11 —
Cumberl'd, cks	—	@	18 00
do bnk	16 00	@	17 50
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 50
West Hartley	—	@	14 00
Scotch	10 00	@	11 00
Charcoal, ₱ sk	75	@	—
Coke, ₱ bbl	—	@	60

COFFEE.

Sandwich Island	—	@	22
Central America'n	20	@	22
Costa Rica per ℔	23		24
Guatemala	20	@	22
Java	—	@	28½
Manilla	19	@	20
Ground in Cs	—	@	27
Chicory	9	@	10

FISH.

Pac. Dry Cod, now in cases	5	@	—
do boneless	11	@	12
Eastern Cod	—	@	—
Salmon in bbls	9 00	@	9 25
do ½ bbls	50	@	4 75
do 2½ lb cans	—	@	4 00
do 2 lb cans	2 65	@	2 75
do 1 lb cans	1 75	@	—
Do Col. R. ½s	—	@	—
Pick. Cod, bbls	8 00	@	8 50
do ½ bbls	4 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No. 1, ½ bbls	8 00	@	8 50
" Extra	—	@	9 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½ hs	—	@	12 00
Sm'k Her'g, hx	56	@	60

NAILS.

Assorted size, ₱ ℔	5 37½	@	7 50

OILS.

Pacific Glue Co. Neat F't No. 1	—	@	90
Pure	—	@	1 —
Castor Oil, No. 1	—	@	1 25
do do No. 2	—	@	1 12½
Cocoanut	14½	@	1 50
Olive Plagniol	—	@	—
do Possel	—	@	—
Palm ₱ ℔	9	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in os	77½	@	82½
Sperm, crude	—	@	1 40
do bleached	1 90	@	2 25
Coast Whalee	45	@	—
Polar, refined	50	@	52½
Lard	1 15	@	1 30
Coal, refined Pet	37½	@	—
Oleophine	21	@	24
Devoe's Bril't	25	@	28
Long Island	21	@	24
Eureka	—	@	—
Dovne's Petro'm	21	@	24
Barrel kerosene	21	@	24
Olive	4 20	@	9 25
Downer Kerose'e	—	@	37
Gas Light Oil	—	@	26

PAINTS.

Atlan. W. Lead	6	@	10
Whiting	—	@	2
Putty	4	@	5½
Chalk	—	@	2½
Paris White	2¾	@	—
Ochre	2	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10

RICE.

China No. 1, ₱ ℔	5½	@	6¾
do 2, do	5¾	@	6
Japan	6	@	7
Siam Cleaned	7	@	—
Patna	6	@	6½
Hawaiian	7¼	@	8
Carolina	10	@	10½

SALT.

Isl. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	24 00
do coarse	16 00	@	—

SODA.

Castle ₱ ℔	10	@	11
Local brands	5	@	8

SPICES.

Cloves	50	@	55
Cassia	26	@	27
Citron	—	@	30
Nutmeg	1 20	@	1 25
Whole Pepper	18	@	19
Pimento	—	@	15½
Gr'nd Allep'r d'z	—	@	1 12½
do Cassia do	—	@	1 50
do Cloves do	—	@	1 50
do Mustard do	—	@	1 20
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	2 00

SUGAR, ETC.

Cal. Cube per ℔	11	@	—
Part'd Pre. Cube hhl or 100 ℔ hxs	—	@	11½
do in 50 ℔ hxs	—	@	11½
do in 25 ℔ hxs	—	@	11½
Circle A crushed	—	@	11
Powdered	—	@	11¼
Granulated	—	@	11
Dry granulated	—	@	11½
Golden C	—	@	10½
Hawaiian	8	@	10½
California Sest.	10¾	@	11½
Cal. Syrup in tc	—	@	6
do in ½ hlf	—	@	70
do in kegs	—	@	70
Hawaiian Molasses	25	@	30

TEA.

Oolong, Canton, ₱ ℔	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	1 00
Gunpowder, Canton	30	@	42½
do Pingeney	50	@	90
do Moyune	65	@	1 25
Young Hy., Canton	28	@	40
do Pingeney	40	@	70
do Moyune	65	@	85
Japan, ½ chests, bulk	30	@	75
Japan, lacquered hxs, 4½ and 5 ℔s	45	@	57
Japan, do, ½ ℔ hxs	45	@	90
do pl'n hxs, 4½ ℔	35	@	65
do ¼ & 1 ℔ paper	30	@	55

TOBACCO—Jobbing.

Bright Navye	50	@	80
Dark do	50	@	55
Dwsf Twist	70	@	72½
12 inch do	50	@	70
Light Pressed	70	@	80
Hard do	50	@	60
Conn. Wrap'r	35	@	40
Penn. Wrapper	20	@	45
Ohio do	15	@	20
Virgi'a Smok'g	50	@	75
Fine ct she'g, gr	8 50	@	9 25
Fine cut chewing, huo'ts, ₱ ℔	75	@	90
Banner fine cut	9 00	@	9 25
Eureka Cala	8	@	9 00

TURPENTINE.

Eastern	55	@	60

LEATHER.

WEDNESDAY M., Nov. 25, 1874.

City Tanned Leather, ₱ ℔			26@29
Santa Cruz Leather, ₱ ℔			26@29
Country Leather, ₱ ℔			24@28
Stockton Leather, ₱ ℔			25@28
Jodot, 8 Kil., per doz			50 00@54 00
Jodot, 11 to 19 Kil., per doz			66 00@90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz			55 00@72 00
Cornellian, 12 to 16 Ko			57 00@67 00
Cornellian Females, 12 to 13			53 00@57 00
Cornellian Females, 14 to 16 Kil			71 00@76 50
Simon Ullmo Females, 12 to 13, Kil			60 00@64 00
Simon Ullmo Females, 14 to 15, Kil			70 00@72 00
Simon Ullmo Females, 16 to 17, Kil			73 00@75 00
Simon, 18 Kil. ₱ doz			61 00@63 00
Simon, 20 Kil. ₱ doz			65 00@67 00
Simon, 24 Kil. ₱ doz			72 00@74 00
Robert Calf, 7 and 9 Kil			35 00@40 00
French Kips, ₱ ℔			1 00@1 15
California Kip, ₱ doz			40 00@60 00
French Sheep, all colors, ₱ doz			8 00@15 00
Eastern Calf for Backs, ₱ ℔			1 00@1 25
Sheep Roans for Topping, all colors, ₱ doz			9 00@13 00
Sheep Roans for Linings, ₱ doz			5 50@10 50
Oelifornia Russett Sheep Linings			1 75@4 50
Best Jodot Calf Boot Legs, ₱ pair			5 00@5 25
Good French Calf Boot Legs, ₱ pair			4 00@4 75
French Calf Boot Legs, ₱ pair			4 00@—
Harness Leather, ₱ ℔			30@37½
Fair Bridle Leather, ₱ doz			48 00@72 00
Skirting Leather, ₱ ℔			33@37½
Welt Leather, ₱ doz			30 00@50 00
Buff Leather, ₱ foot			17@23
Wax Side Leather, ₱ foot			17@—
Eastern Wax Leather			—@—

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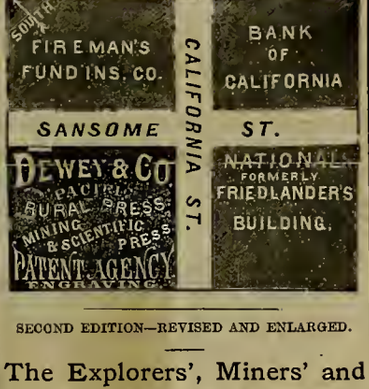

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MESSRS. DEWEY & CO.—*Gentlemen:* To-day I received the patent and other papers of my animal trap, that you so successfully worked through the patent office for me, for which please accept my best wishes. The chances are that I will have another application for you to make for me before long. I am well satisfied with your manner of doing business, and I think inventors of this coast stand in their own light when they do not put their business into your hands.

I remain yours truly, A. M. GASS.

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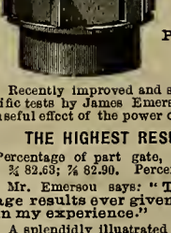

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To Mining Secretaries.

An amendment to Section 336 of the California Code, taking effect **July 1st, 1874**, provides that in addition to the regular publication of the assessment and sale notices as heretofore,

PERSONAL NOTICE

Must be served as provided in the following quotation from the law:

"The notice must be personally served upon each stockholder, or in lieu of personal service, must be sent through the mail, addressed to each stockholder at his place of residence, if known, and if not known, at the place where the principal office of the Corporation is situated."

The above refers to the ASSESSMENT NOTICE only. Advertisers in the MINING AND SCIENTIFIC PRESS will be furnished with copies of assessment notices printed on slips suitable for serving personal notice under this law at short notice.

DEWEY & CO., Publishers.
June, 1874.

Mining and Other Companies.

Land Purchasers' Association—Office, No. 331 Montgomery street, Room 7, San Francisco, Cal.

Notice is hereby given, that at a meeting of the Directors or Trustees of this corporation, held on the 28th day of October, 1874, an assessment of ten dollars per share (being the 42d monthly installment on the subscription to the stock) was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at No. 331 Montgomery street, Room 7 San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 30th day of November, 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on the 24th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

C. S. WRIGHT, Secretary.

Office, No. 331 Montgomery street, Room 7, San Francisco, California.

☞This assessment is levied to pay the taxes on the property for 1874 and 1875.

Mansfield Gold Mining Company—In accordance with a resolution adopted at a meeting of the Board of Directors of the Mansfield Gold Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, to be held at the office of said company, in San Francisco, No. 531 California street, room 1, on Monday, the 21st day of December, 1874, at 1 o'clock P. M., to take into consideration and act upon the proposition to increase the capital stock of said company from nine hundred and ninety thousand dollars, divided into thirty-three thousand shares, of the par value of thirty dollars each, to one million, nine hundred and eighty thousand dollars, divided into sixty-six thousand shares, of the par value of thirty dollars each. Also for the transaction of any other business that may properly come before the meeting.

R. COULSON, President.
J. HISHFELD,
J. E. HILL,
F. W. VOLL,
J. L. SMITH
} Directors.

San Francisco, Nov. 20, 1874. no28-4t

Orleans Mining Company—Location of principal place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 16th day of October, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Charles Platt	9	59	$59 00
Silas C. Hey	10	59	59 00
William G. Grant	11	119	119 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of October, 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction, at the office of the company, room 8, No. 315 California street, San Francisco, California, on Tuesday, the 15th day of December, 1874, at the hour of one o'clock P. M., of such day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

F. P. WESMITH, Secretary.

Office—Room 8, No. 315 California street, San Francisco, Cal. no28-2t

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Julian Mining District, San Diego County, Cal.

Notice is hereby given, that at a meeting of the Directors held on the second day of November, 1874, an assessment (No. 3) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room 4, Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the seventh day of December, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 28th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

FRANK SWIFT, Secretary.

Office, Room No. 4, Hayward's Building, No. 419 California street, San Francisco, California. no7-5t

Virginia Consolidated Mining Company.

In accordance with a resolution adopted at a meeting of the Board of Directors of the Virginia Consolidated Mining Company held this day, a special meeting of the Stockholders of said Company is hereby called, the same to to be held at the office of the Company in San Francisco, No. 318 California street, Room 13, on Monday the 21st day of December, 1874, at 2 o'clock P. M., to take into consideration and decide upon the proposition to increase capital stock of said company from three million dollars, divided into thirty thousand shares of the par value of one hundred dollars each, (the present capital stock,) to six million dollars, divided into sixty thousand shares of the par value of one hundred dollars each. Also, for the transaction of any other business that may properly come before the meeting. By order of the Board of Directors.

AUG. CHEVIOT,
ROBT. P. CHASE,
A. F. BENARD.
} Directors.

SAN FRANCISCO, November 12, 1874. 21v26-4t

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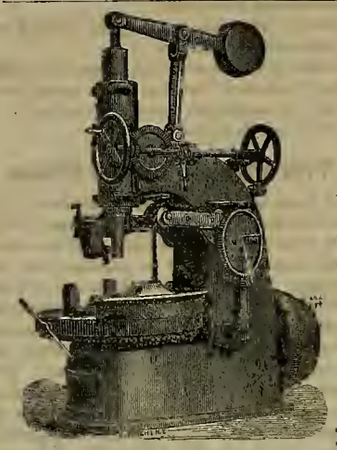
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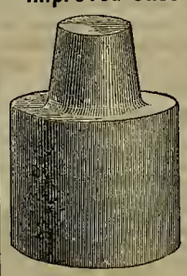

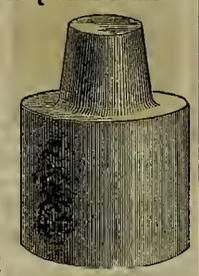
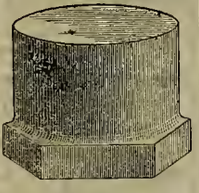

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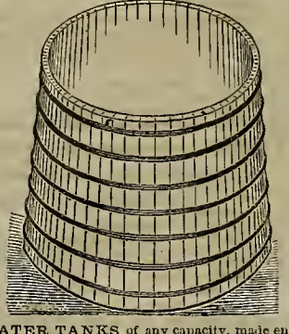
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Sugar in California.

It is highly probable that the southern counties of the State, or particular portions of them, may, through irrigation be favorable to the growth of the cane. It is not of this that we would now write, but rather of the cultivation of Beet Sugar, and its industrial importance to the State. The production of first-class Sugar from Beets, has long been a success in continental Europe, and has to a certain extent revolutionized the Sugar trade of that continent. It has not entirely superseded Cane Sugar there, nor is it in the nature of things that it ever should, as people will have variety in articles of food, dress, etc., no matter what the cost—under any and all circumstances. For instance French, Spanish, etc., Wines will be always in demand in California, though the State itself should produce thousands of millions of gallons. But the production is so great in some European countries, that it has become one of the principal farming staples, that whole towns are employed in its manufacture, and that in some cases, as in that of Austria, not only is there made sufficient for home production, but there is a large surplus for export.

Until recently it was complained that California Beet Sugar possessed an unpleasant flavor, and there was no doubt of the fact, but improved manipulation has done away with all this, and the samples of all this year's production that we have seen, can, in no way be distinguished from those of the best refined Cane Sugar. Indeed it is claimed that in some points they are far superior, and that at the same price they are more economical and cheaper. But apart from this it has been conclusively shown that Sugar inferior to none in the market can be made from California Beets. The quantity made this year will be but small, but there is room for immense development of the business.

California, and that part of the Pacific Coast which receives its supplies through San Francisco, consumes annually 66,000,000 lbs of Raws, the purchase money of which paid away to the planters of the Philipines, Central America, Java, China, and Peru is equal to $2,500,000. With duty superadded, the whole cost is not less than $4,000,000. It would be something to save this amount to the State, more especially as it has the greater part of it to be paid away in hard coin, the balance of trade against our Sugar importing countries being against us. It is, however, not reasonable to suppose that the public would give up entirely the consumption of foreign grown Sugars, and looking at the matter from this point of view, it would appear that the field for the production of Beet Sugar is rather limited; this, however, is a mistake, as the increase yearly of consumption, and the number of years elapsing before the Beet Sugar interest could assume such gigantic proportions, must be taken into account.

The Pacific Coast is now increasing in population annually at the rate of 85,000. California will have added by Dec. 31, fifty thousand to its population this year by immigration, and Oregon, Washington, Utah, Colorado, Idaho, Montana and Arizona 20,000. The natural increase will be 15,000, so that our figures are not beyond the mark. In ten years the increase from immigration, added to the natural increase, would have doubled the population of the Coast, and it would take ten years for the industry to grow so as to furnish the amount of Sugar that is now annually consumed. There need therefore be no fear among refiners of imported Sugar, that even a rapid increase in the production of Beet Sugar will interfere materially with their business.

One thing the Beet Sugar men will be able to do which the refiners of Cane Sugar have not yet succeeded in doing, and that is, to compete with Eastern refiners in their own market. We are informed by those practically acquainted with the cost of making Beet Sugar in California that it can be sold with a profit at 7½ cents per lb. Therefore, with freight at the rate say, of $30 per ton, the best Cube Sugars could be laid down in St Louis or Chicago at 9 cents per lb, that is, ½ cent per lb less than it is to-day sold at in New York. In this direction the field is practically illimitable, and it would be a quarter of a century before California could supply even a large proportion of the Sugar needed in the Central and Western Mississippi Valley.

With such inducements as these, it might be thought that the cultivation of Beet Sugar would attract considerable attention among our capitalists. And so it has, or, at least among the thinking portion of them, and we understand that preparations are on foot to establish several new Beet Sugar plantations and refinery works, and to import the necessary machinery and skilled labor. Let all interested in the business remember that the United States imports every year 1,600,000,000 lbs of Sugar, worth $77,000,000, and that the quantity and value is rapidly increasing. Let them remember that the Beet Sugar business is a paying one, and that twenty years ago California Wheat, Wine, and Wool were as little known as California Sugar is to-day. What changes twenty years more may bring about it is impossible to predict, but it is quite within the probabilities that California Sugar will then be as well known in the United States as California Wheat is in Great Britain.—*Journal of Commerce.*

CAR OSCILLATOR.—M. Giffard, of injector fame, has invented a method of fitting railway carriages which eliminates oscillation. The carriage is suspended by powerful springs at each end; and at the trials recently made in the presence of some members of the French Association for the Advancement of Science, the carriage was found to be so steady that reading and writing could be easily carried on. It will shortly be exhibited to the English public.

A Wheat Steam Fleet.

We learn that the Greek merchants of the Mediterranean are about to substitute steamers for sailing vessels in the transportation of Wheat from Southern Russia and from Trieste to England. This is a step long way in advance of us, but it is one which should learn a lesson to those interested. The Wheat trade from California to England will be this year much greater than that from the Black Sea to England; every year the disparity will increase and a steam fleet will become absolutely necessary to us.

The advantage would of course consist mainly in the economy of time. By way of Cape Horn the time taken by large steamers of 3,000 tons, would be about two months, or about one half of the time now spent in a voyage from San Francisco to Liverpool. By way of Panama, that is with steamers plying between San Francisco and Panama on the one hand, and between Aspinwall and Liverpool on the other, the time taken would not exceed a month. With way coaling stations for the Cape Horn steamers, and without that the Panama steamers could each readily carry 3,000 tons or 60,000 centals of Wheat each. That is, that making a trip a piece, the whole of the anticipated surplus of the year (14,000,000 centals) would be carried in 233 steamers. They would, however, make five round trips in two years by way of Cape Horn, and five in one year by way of Panama. By the former, 93 steamers would be required; by the latter, only 47.

The benefits derivable would be that the farmers and California commission merchants of San Francisco would be brought into quicker communication with the millers and consumers in Liverpool; that there would be less risk in losing on cargoes which cannot reach a market until four months had elapsed, and that in consequence a better price could be expected in this market. Especially by the Panama route would these benefits be derivable; as owing to the shortness of the time required to lay down a cargo in Liverpool, freights could be reduced to a minimum, and the change in the English market would not, under ordinary circumstances, differ more than five to ten cents from that prevailing when the Wheat was shipped. But at present, a shipper who buys in July, on the basis of $3.20 (present price in Liverpool), may be obliged to take $2.50 when the cargo arrives in Liverpool in November, thus losing on the money invested. On the contrary, should the Liverpool market rise, the producer in California loses in the same proportion.

The establishment of a steam fleet would render such a state of things impossible, and it would also demonstrate that California was likely to keep abreast in the general march of improvement with its neighbors on the coast of the Pacific. The South American Republics have long since been brought into steam communication with England, and many large and powerful steamers ply between that country and her colonies in Australia. The Chinese and Japanese waters swarm with steamers that carry freight from one port to another cheaply enough to compete with the native craft. It is therefore an anomaly to find one of the richest, most progressive and most civilized communities on the Pacific so much behind its less civilized and less progressive neighbors as to be dependent entirely on clipper ships for the transportation of its greatest staple. And it is one which we hope will not be allowed to exist much longer.—*Jour. of Commerce.*

ROCKY POINT.—Work has been discontinned on the Rocky Point quartz mine for the winter and the superintendant, Mr. Pickett, has gone below. The tunnel was ron 160 feet when the ledge was reached. When work was stopped, eleven feet had been run in the ledge, and still the headwall had not been reached. Where the ledge was tapped above, it was twenty feet wide, and the probabilities are that it is equally as wide in the lower tunnel. Every blast put into the ledge has been prospected, and not one failed to show gold in the horn. The ledge also carries a large body of sulphurets rich in gold. Machinery will be put up in the spring. A few days after the ledge was struck, Mr. Pickett received a letter from his company, in San Francisco, stating, in substance, that a reliable person and an old miner—one who was well acquainted with the lay of the land, had informed them that the tunnel was being run parallel with the ledge, and would not strike it till on or about the milleninm; and their advice was that he had better run a cross tunnel, if he wished to find any ore. Now, it seems to he in order to remark that these reliable old miners are often times reliable humbugs, and nothing more; and make more trouble than their infernal old carcasse are worth. As a rule they are ready to swear that a mine is not worth a cent unless they own an interest, and that all efforts to develop one are being prosecnted in an entirely wrong direction. They can just sling their eye along under ground, and tell exactly how the lead lies with the utmost ease and infallibility. They will say that rock is barren, at the same time they don't know the difference between molibdinum glance and a rip-saw. These men, in times past, have succeeded in getting capitalists to invest considerable money in mining enterprises that did not pay, very much to the prejudice of rich ledges and good miners.—*Mountain Messenger.*

Two new hoisting engines are now being made in thie city for the Savage mine. These engines are intended to be of sufficient power to work the mine to a depth of 4,500 feet.

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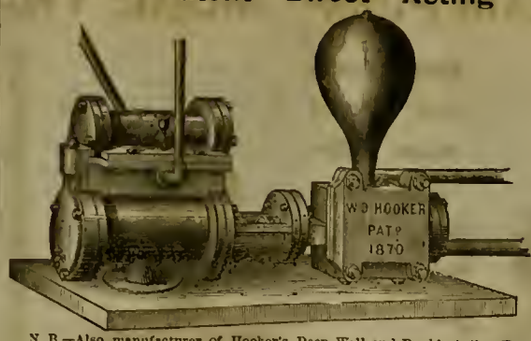

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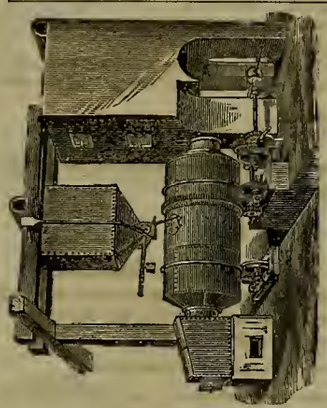

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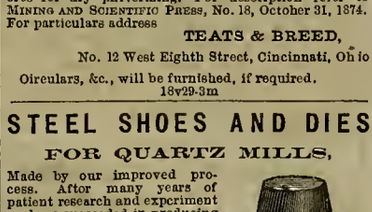

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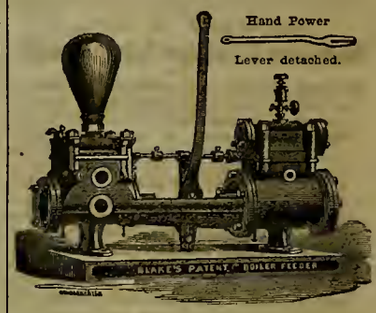

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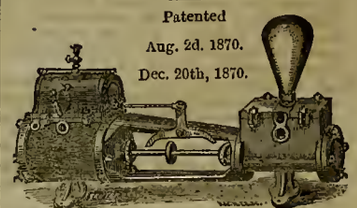

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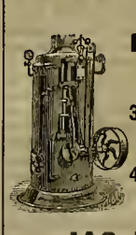

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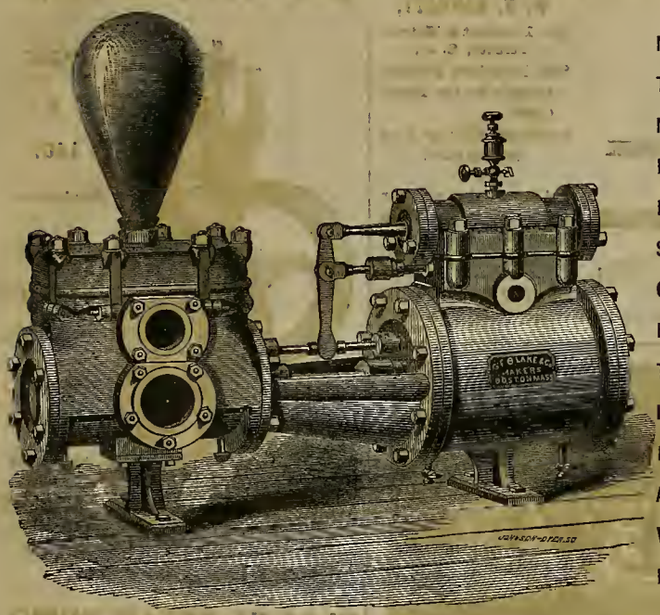

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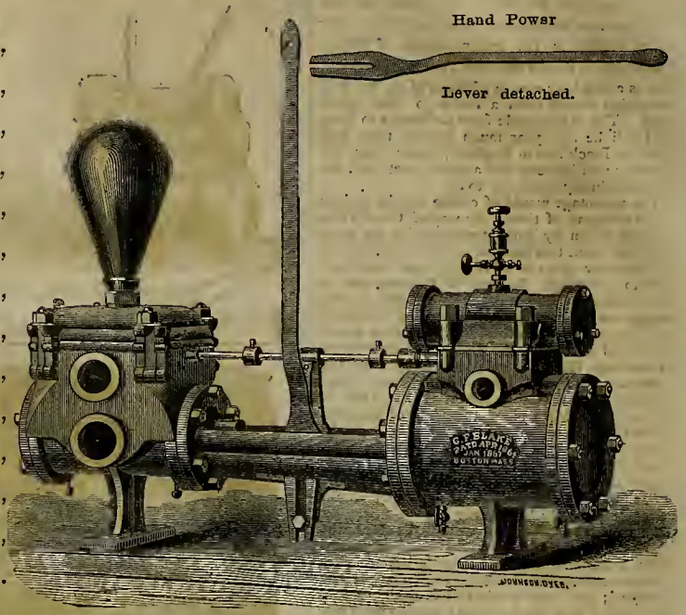

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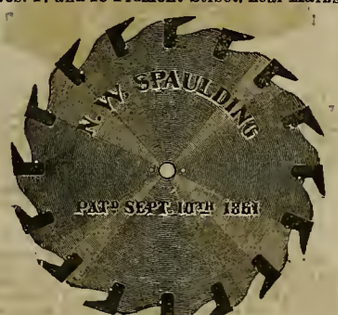

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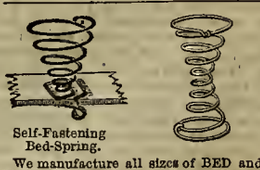

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SAN FRANCISCO, SATURDAY, DECEMBER 5, 1874.

VOLUME XXIX Number 23.

Emerson's Diamond Stone-Sawing Machine.

The nse of the blsck diamond for rock-drills, as first invented in France, ten years ago, then in ordinary reciprocating stone-saws by Young, then for belt-saws by Cottrell, (using 450 diamonds), has nnw been succeeded hy its applicstion to circulsr-ssws for sawing stone; and our engraving gives a fnll illustration of this novel use of diamonds, being made after a photograph of the machine, as it appears when ready to operste. The saw is 73 inches in diameter, and csrries either 48 diamonds, or as many steel points. A peculiar arrangement allows the speed to be vsried from 5 to 500 revolutions per minute, with ths same velocity of the msin shaft.

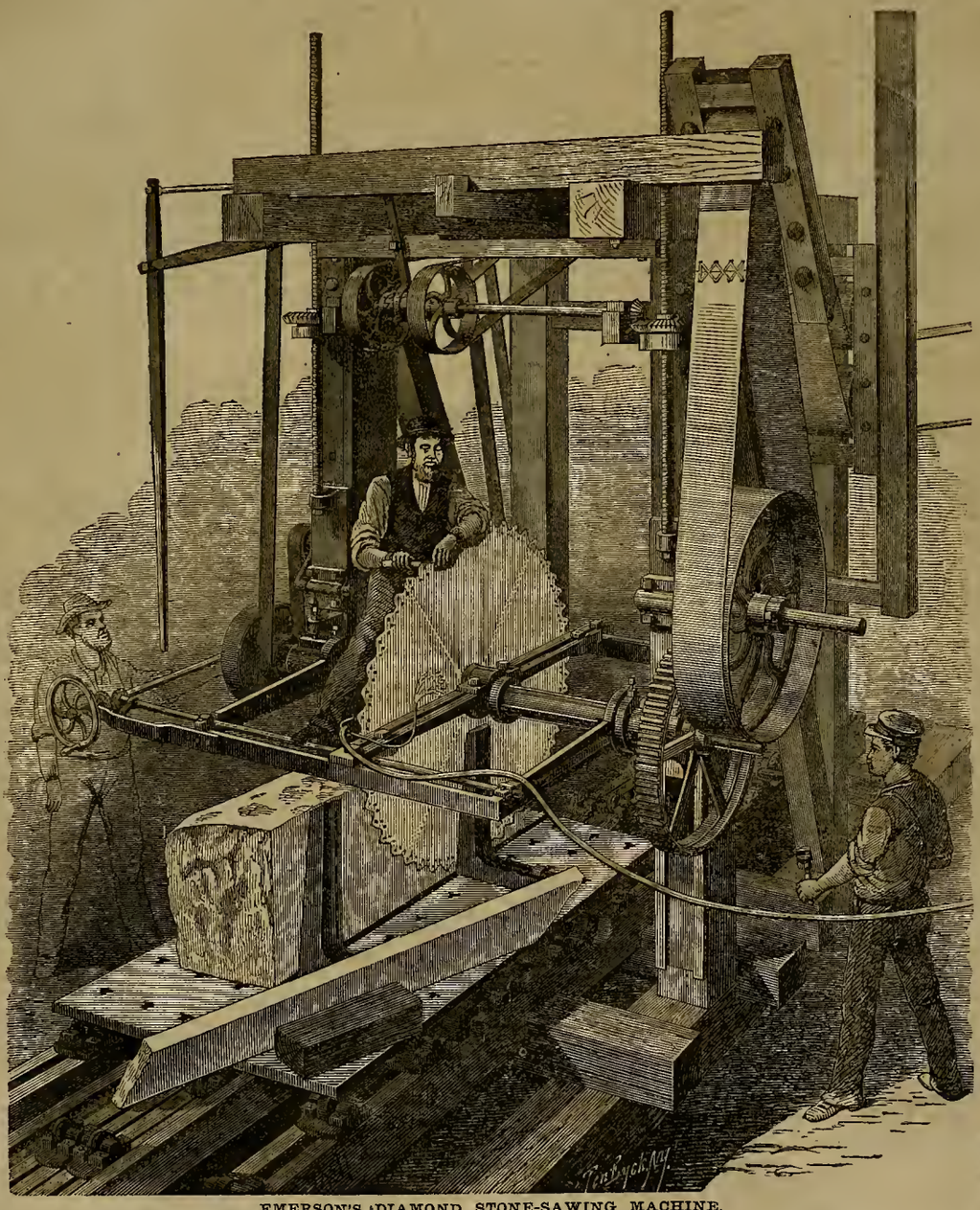
The feeding of the stone may also bs varied from 1-16 to 4 inches for every revolution of the saw, while the carrisge on which the stone lies, msy also be moved by hand, by a separate feed motion, back and fonrth, by mesns of a single hand-lever. Another hand-lever may raise the ssw while in motion, so thst when a stone is more thsn 30 inches thick, the saw may make a cut 30 inches deep on top, then run under the stone and make a cut from below npward. Ordinsrily tho stone is not moved when once placed cn the bed, hut sfter every cut, the ssw is moved sideways to an amount according to the required thickness of the slabs.

This machine fulfills a want which for a long time has existed, as skilled mechanics snd inventors have for yesrs been employed on devicos for a spoedy and cheap method of sawing stone in forms suitable tor building purposes. The stesm "ssnd-saw" wss thus far the general method in use, but it made elow progress — about 7 inches per day, in the ordinary sized blocks of marble; while the machine here described, in regard to rapidity, is equivalent to more than 100 ssnd-saws, even if driven by stesm. It has executed 125 superfioisl feet of actual cutting in one hour, snd this of the hardest kind of sandstone, requiiing diamonds as cutting points.

The capacity of the machine here represented, and which weighs 12 tons, is to ssw any length of stone np to 14 feet, and of a depth to 5 feet, so thst corner pieces may be sawn out. The diamond points are used for granite and hard grades of stone, while for soft sandstone of the ordinary grindstone, the hardened steel points sre found sufficient. That the work must be perfectly trnc, follows from the consfnction of the bed and accessories.

The manner of properly fixing the diamonds, or steel points in the saw teeth, was a matter of ingenuity, study and experience. The way it is accomplished ie shown in fig. 2. (page 361) showing two of the adjustable teeth; A is for diamonds, B. for steel points, and they are interchangeable, so that the same saw msy be armed with steel or with diamonds, as required. C, fig. 3, is the diamond holder and diamond detached from the saw, as seen sideways, and helow it as it appears when seen on edge; E is the diamond partly enclosed in its copper casing, and D. is the half section of C, showing the eavity which is to receive the diamond. The whole secret of setting is in the copper casing, which mnst envelop every jagged shspe and irregularity, and all surplns of the oopper mnst be cut off, then it is pressed into the cavity of the holder, which keeps it the same as in a jsw, and is still further closed hy being brought between the vise-like attachments of the saw's circumference, as seen in fig. 2. Figure 4 is a holder with three or more diamonds set in one piece, designed more particularly for straight saws, to he used with reciprocative motion

The diamonds used ars either the carbon or black diamond, or the "bort," an inferior stone, not used as a jewel. They are of an irregular form, as nature left them, presenting sharp, rugged corners and jagged forms, but are set uniformly, so as to give a small clearance for the saw, but not hslf that required in sawing wood, there being no fihre in stone Their corners mnst project exactly alike, so that they follow each other in their course, and leave a perfectly smooth surface. The circular saw which Mr. Emereon hss put up at Beaver Falls, Pa., is 73 inches in diameter, and holds 48 diamonds, the diamonds averaging about two carats, and costing from $15 to $18 each.



EMERSON'S DIAMOND STONE-SAWING MACHINE.

It is in the ordinary huilding-stone that the quick work of the ssw is most noticeable. A variety of stone was gathered at the mill, for experimenting. There was St. Genevieve stone, of which large quantities are used in St. Louis and Chicago; Berea, a hard, gritty stone from Ohio; elate; a coarse and hard stone from the water-works' quarries of Pittsburg, Pa.; snd also what is known as the Serpentine stone from Choster conuty, Pa.; a handsome and valuable variety which has come into extensive use, owiug to the difficnlty in dressing it. Through these stones, the Emerson diamond saw works its way much as a circular saw goes through hard wood. Of the ordinary building stone, it cut 2¼ feet a minute, or 306 superficial inches, at 100 revolutions per minute. The most striking illustration of the work of the saw wss on a block of conglomerate, imbedded with quartz, rock cryetsl, flint and agste, some of which were hard enough to cut glass. This was sent on from one of the Colorado mines, to see whst conld be done with it, as the stone is used out there for the same purpose as fire-brick. The ssw cut through the block—qusrtz, flint and crystal, with facility — leaving a smooth surface. This will bring this stone into value for the purpose indicated, in the construction of furnaces, etc.

In sawing through a block of the Berea stone, one of the diamonds was made to protrude a little out of line, and the result wss a beautiful and uniformly corrugated surfsce. This at once indicated the possibilities of the saw in turning out ornamentsl stone work. The surface of other blocks was somewhst similar in their lines to thst of twilled oloth.

Stone may be sawn to any length up to 14 feet, and of any angle or depth up to 5 feet, so that a corner piece may be sswn out of a stone block. All stone to the hardness of ordinsry grindstone may be sawn with hsrdened steel or metal points. Dismonds are snbstituted in working up the harder grades. The steel holders sre made sdjustsble and interchangeable in the saw, so tbat either the steel tooth holders or diamond holders msy be used in the ssme blsde. This machine received s gold medal at the late Cincinnsti Industrisl Exposition, where it attracted a great desl of sttention. The rapidity of its performsnce at the Exposition may be judged from a single specimen, when it sawed from a block of Alsbama fossiliferous msrble a slab 6 feet by 30 inches in 22 minutes. There seems to be no doubt thst it will cut, easily and satisfsctorily more thsn 1,000 superficial feet per day; snd such a fsct means a most thorough and sbrupt revolution in the stone bueines. And it does not get out of repsir easily. Running more or less nearly every day of the entire Exposition, it did not cost one dollar to keep it in order, neither lost nor broke is dismond, and we are told a in as good condition to-day as when first set up. What ponderous machine, newly invented and plsced in operation for tbe first time, (this is the first and only one of the kind ever hnilt), can, after a thirty days' rnn, show so desirsble a record? Parties desiring further inuformation concerning this mschine can address Emerson, Ford & Co., Beaver Falls, Pa., or R. S. Robertson, No. 12 Smithfield street, Pittsburg, Pa.

THE Baltic Mill, at Ophir City, Utah, is now running, the new battery and water wheel working well. The battery—five stamps—was made in Chicago.

THE new spur wheel for the works of the Justice mining company weighs 26,400 pounds. This is the largest wheel ever brooght to the State of Nevada.

Traps for Sewers and Water-Closets.

The importance of trapping the communication between sewers, cess-pools and in-door water-closets, basins, etc., is generally appreciated, but information concerning the construction of traps, the circumstances which render them ineffactual, and the expedients, temporary or remedial, by which noxious gas may be shu ont of dwellings, should have more publicity.

An elnborntion of the subject would require an illustrated treatise, but I will crowd asmuch as I can within a moderate compass, regardless of ronnded periode.

Different Kinds of Traps.

We have box-traps, bell-traps, globe-traps, p-traps, s-traps, how-traps, basin-traps, and a oombination of the last named with others. Some are made of wood, some of masonry or earthenware, some of porcelain, some of iron, some of brass, some of lead, nnd some of tinned iron or copper. Their names are suggestive of their several forms. My remarks will refer chiefly to those ordinarily used in dwellngs.

The Depth of a Trap.

Theoretically, the efficiency of a trap depends upon its depth; that is, the vertical distance between the surface of the water it will contain (in a state of rest,) and the "drop" or "dip" of the trap. Tecbnically, the water which is designed to shut out the noxious gas is called the "seal;" so, the depth of the trap, and the depth of the seal are convertible terms, and it is correct to say, "the deeper the trap the deeper and stronger the seal."

The Dangers.

There are sundry contingenciee to which even good traps are liable, if not guerded, each of which will admit noxious gas into the house.

First, the wnter forming the senl may evaporate; eecond, it may be siphoned; third, it may be eucked out; fourth, it may he blown out; or, fifth, it may be forced back by the preasnre of gas in tbe water-pipes. The first occurs when there is too little weter for the surface expcsed, or when the receptacle, above, remains long unused. Hence, *idle basins* are sometimes dangerous.

The seoond is of very common occnrrence, and results from the most inexcusably bad consiruction. The trap and waste are made to form an infallible siphon which will empty the deepest trap when the plug is withdrawn from a full basiu or tub.

The third and fourth are likewise due to had construction. Several basins, at different elevations, are made to discbarge inlo a waete system so defective that the weter from one sucks the trap of another, by creating a partial vecuum in the intermediate pipe. Or, if the main waste becomes "air-bound," which is not nncommon, a full pipe end a rnpid flow will compress the retnined air sufficiently to blow out the contents of one or more traps, and leave them comparatively empty. Again, when a street sewer is full of rapidly flowing water, traps in houses communicating with it, through a defective waste system, are liable to be sucked; and, even when the sewer is not full, if the wasts eyetem discharges beneath the surface of a rapid current, the liability is the same. After the current subsides, houees with open traps sre liable to receive the benefit of the noxious gas from their own wnstes, at least. Hill-side residents should remember thie.

The fifth contingency referred to is, perhnps, the most dangerous, for it frequently remains undiscovered until after the funeral. The pressure of gas which forces back the wster in n trap comes from well known sources, yet I will briefly enumerate them: First, pressure from accamnlation in nnventilated sewers, cess-pools, or "air-bound" house wastes; eecond, pressure from choked sewers and drains; third, pressure from hack-weter in sewers, or the filling of close cess-poole with water.

The pressure of the gas gently "backs" the water in the traps, just enough to allow the meseenger of denth to sneak eilently into your house, in the form of infinitesimal globnles, which noiselessly escape from their watery film, and mingle with the breath of your noetrils.

Coneidering our defective sewerage system, our numerous cess-pools, the contingencies nbove mentioned (which are by no meens small), and the fact that the eeal of the trap is the only barrier between the ges of sewers and cess-pools and our living and sleeping apnrtments, it is an alarming reflection that the grenter proportion of the treps in San Francisco(nnd I doubt not in many other citiee) are liable to the contingencies referred to.

Temporary Protection.

The only temporary expedient available as a protection against unreliable baein traps ie also applicable to those of bath-tubs. When empty, turn the faucet a little, and let the water run slowly until there is au assurance of a full trap. Then plug the outlet and cover the plug with water. Finally cover the overflow holes with several thicknesses of wet paper, or its equivalent. This expedient, which experience bas tnught to many, should be known to all.

It is almost impossible for a trap to be sucked with the air passages thue closed. Evaporation ia retarded, and so ia the ingress of gaa —provided the overflow escape ia made secnre.

The Remedy.

Tne only remediel expedient which ie worthy of triel ia that of leading one or more air-pipes from the waste system to the roof of the building. This is a device well known to intelligent architects, end to plumbere. Its adoption in the building of a house involvee only a trifling cost, and rendere every good trnp infalible; yet it ie not commonly noticed in architects' specifications, or in plumhers' work.

A ventilating shaft huilt in conjunction with a kitchen chimney, is a most valuable aid in relieving a wa-te syetem, and in default of that the chimney can thus be utilized.

The Way They Do It.

Remarkable to relate, wash-basin traps, as eupplied by plnmbere in San Frencisco, vary in depth from balf an inch to thres inches. By far the larger number in use are made by bending a section of lead pipe in the form of a horizontal S, or a horizontal loop. The caliber of the pipe is generally contracted in bending. By filling the pipe with sand, before hending it, the liahility of contracting the caliber is decrensed; hut even that is too much trouble, in cheap work, and the difficulty in avoiding the contraction is the incentive to make shallow trapa. Ae a rule a gentlemnn's stable is trapped more securely than hie bed-chamber.

I will not describe the severel kinds of traps made of cast-iron or brass, lest I should extend my remarks too far. The cast-iron traps imported from the East are nbout one inch deep. They are adopted by some plumhers and rejected by othere.

Reliable Basin Traps.

The most reliable indoor traps are of sheet lead, made of two pieces, hammered into form, matched and soldered. For wash-baein, kitchen and laundry traps, they should never he shallower than three inches. Plumhere disagree concerning the proper depth, but it is conceded that San Francisco requiree deeper traps than Now York.

Closet Traps.

Soil-pipes should be double trapped. Four inches is the approved caliber of the pipe and msin trap, and the depth of both traps should be one inch and a-half. No single-trap closet should he nllowed within a dwelling. What ie known as a "baein closet" is the best. A general description of one will suffice. Say the porcelain basin is encircled by an outside flange, about midwey of its depth. It is set partly into an iron bowl that has a flanged rim which fits the flange on the basin The two are festened together with some intermediate putty, so thet no gas can escape. The main trap is attached to the bottom of the iron bowl. The second, or auxiliary trap, ie the movable one formed of the metal hasin which ie in sight, and which is under command of the lever-rod. It traps the vent of the porcelain basin, and is a "basin-trap" in the donble sense. It may be termed an "inverted bell-trap." It works within the iron bowl, and thue the double trapping is accomplished. Tho apparatus which governs the basin trap is outside of the iron bowl; and, beiug complex, it shonld alwaye be accessible, and generally is. The raising of the lever-rod removes the metal baein, and flushes both basins and the iron bowl; and the same water flushes the mein trap.

The flushing ceases so gradually that it insures full trnpa, even if a mass of paper, etc., escaping from the main trnp, causes a momentary euction; nor is the supply of water efficient to siphon it.

As a rule, a double-trap closet, if kept clean, ie lese dangerous than a wash-basin that communicates with the same sewer or cess-pool. The noxious gas from such closets emanates from the filth wbich is allowed to accumulate above the main trap. If the basin is cleaned daily, and tho iron bowl and the soil-pipe, as far down as the trap, are cle nsed twice n week, there will be no offensive smell. The best cleansing implement is a common hearth-broom, which ehould be kept for the purpose. Nevertheless, it is a wise precaution to rnn an air-pipe from every soil-pipe. The bnth-waste should not enter a soil-pipe. The alternate expansion and contraction caused by the use of a large amouut of hot wnter at one time, fol lowed by a sudden rush of cold water, is particularly injurions, in San Francisco experience.

Trapping the Drain.

Where a waete system concentrates into one drain-pipe, it is well to trap the drain before connecting it with the sewer, remembering always that two lrnps on the same pipe or drain will not opernte without an air-pipe.

It ie to he hoped that my remarks will contribute toward popularizing the fact that there is no economy in cbenp plumbing, if the cost of repaire, doctora' bille and fnneral expenses are considered. In conclusion, I will add that much cheap plumbing is attributnble to the paraimony or ignorance of those who build houses "For Rent;" much is due to competition among architects and contractore, and the failure of nrchitects to drnw specifications clearly and fully; and much to the tricks of dishonest plumbera, who rely upon their ability to cbeat nine-tenths of the architects and 99 hundredths of the owners.—*Pacific Medical and Surgical Journal.*

THE mill at Reno will herafter charge $35 per ton for redncing silver ores, allowing in hullion eighty per cent. on ores, the assay value of which ia $400 per ton or loss.

The Boston and Colorado Smelting Works.

A correepondent of the Colorado *Democrat* says: The Boston and Colorado smelting company handle more ore and ehip more bullion than any other establishment in Colorado. The older and main worke, containing three furnacee, are at Black Hawk, while the newer ones, conteining two furnaces, are located at Alma, in Park county. The process is that of Swansea, Walea, and such close and reliable results are obtained, that all of the high grede ores that can he treated are constantly received from all parte of the Territory, over half a million dollars' worth of ore being carried on hand throughout the year. We are informed by the head of the company, Prof. N. P. Hill, that the product of both worke would aggregate $2,000,000 for the year 1874. Of this amount about $500,000 ie obtained from the gold minee of Gilpin county, being from the high grade ores not treated by the stamp mill process. The remaining million and a half is mainly from the silver mines of Clear Creek county, and from Mount Lincoln and Caribou districts. The latter furnishes over $20,000 per month to the Bleck Hawk works, while Mr. Church, the company's agent, paid out $80,000 in September, in Georgetown, for silver oree for the same institution. From February 6th to October 31st the purchases at Georgetown amounted to $312,033.95, but would hnve been much larger but for the injunction on the great Dives end Pelican mines. From September 22d to October 10th, $129,000 worth of silver bricke were sent East, one shipment amounting to $75,000. Previous to October, 1873, the precious metals were shipped to Swansea, Walee, in the form of matte, where the gold, eilver and copper were extracted, but the eilver is now turned out at Black Hnwk, both for these works and those at Alma, in the shape of beautiful bricks 999 fine, while the gold is sent to Boston in alloy for parting.

Dnring the past year twenty-four tons of silver bricks (29,966 ozs.) were produced. The Black Hawk works hendle twenty-nine tons of quartz and thirty-five cords of wood daily, giving employment to seventy men, who are paid from $3 to $6 per dny, while an equal number are engaged in cutting and hauling wood for fuel purposes. Duriog the next week about 400 tons of copper will be shipped. These works are mnnaged and conducted hy thoroughly competent men, and hnve proved eminently successful, but the process is too expensive to smelt the lower grade ores.

DEEP SEA SOUNDINGS.—The U. S. steamship "Narraganset" hns been making an experimental cruise outside the Golden Gate, in deep sea soundings. The sounding apparatus is of the Thompson pattern, but of heavier metal, and the specimen cups are known as the Belknap Cylinder, the invention of Commander Belknap, of the United States Navy. The heavy shot, weighing 58 pounds, specimen cup and Cassill's thermometer, were attached to 25 fathoms of Albecore line, and lowered into the water until the strain came upon the wire, when they were let go to the bottom of the ocean, which was reached at a depth of 2,199 fathoms in 26 minutes and 41 seconds. The drum containing the wire was then connected with a large balance wheel hy means of an endless bend, and this great length of line was recovered in 33 minutes and 24 seconds. The temperature of the bottom, registered by the thermometer, was 34 degrees, which agree with the results of previous experiments. A quantity of green matter was brought up, which, when put under the microscope, was found to be composed of diatomacea and their debris. The experiment was attended by highly satisfactory results, and at one P. M. another cast was taken at a point twelve miles nearer the South Farallon light-house, in 1,993 fathoms, with satisfactory results.

A $500,000 SUIT IN NEVADA.—A very important lawsuit, involving the title to mining ground worth over a half million of dollars, is at present being tried in the District Court. It is entitled Sol Weil vs. the Lucerne Mining Company and the Silver Hill Mining Company. The action is brought to recover possession of "all that portion of mining ground and quartz lode commencing at the south boundary of the Justice claim, and running thence southeasterly upon and embracing said lode a distance of 927 feet, and lying wholly in Gold Hill mining district." In other words, the suit ie for the whole of the Silver Hill mine, which comprises nearly a thousand feet of ground, extending south from the line of the Justice mine. Weil's claim is based on a location made in 1859. The Lucerne company applied for a United States patent for the ground in 1872, which application Weil resisted, and brought the present suit. The Lucerne company subsequently sold their interest to the Silver Hill company, but are joined with them as defendants. The trial is before a jury, and the case will probably not be finished for a week, as it is progressing slowly, and a large number of witnesses are to be examined. Stone, Lewis and Deal are attorneye for the plaintiff, and Meeick, Seely & Wood for defendants.— *Virginia Chronicle.*

A CORRESPONDENT at Tybo says: Mines of carbonate ore have been discovered in Rattlesnake canon. They are not yet fully developed, but at present open a fine field to the prospector. A considerable amount of bullion has been shipped lately, and a large amount ie still on hand awaiting transportation.

Gilpin County, Colorado.

A correspondent of the Colorado *Democrat*, writing from Central says: The bullion product of this, the leading gold region of Colorado, has been steadily increasing during the past three months and the gold shipments of the year will considerably exceed those of 1873, which were less than usual. During the nine months ending October 1st, $793,800 worth of mill gold was shipped East through the Central express office; the B. & C. smelting works sent forward during the same time about $375,000. These figuree are as nearly accurate as can be obtained at the present time and foot up for nine months a total of $1,163,000, or at the rate of $1,461.000 for the year. But as the last quarter's shipments will, from present indications, fer exceed thet of any previous one, we can eefely put down the gold shipments of Gilpin at over $1,500,000 for 1874, outside of a considerable amount of the precions metal that remains here or finds an outlet through other channels. The eilver shipments which pass through this county or are sent East from the smelting works do not enter into the above figures.

Nineteen stamp mills with 518 stamps are now running in Gilpin county and quartz ie much more plentiful than during the past summer, causing several idle mills to he set in operation. The new dressing works of Collom & Co., at Black Hawk, erected for the purpose of concentreting low grade ores and thus rendering them marketable and profitable, are shut down for the present, hut, the owners assert will be going again as soon as smelting works can be erected.

Many mines that have been idle for months or years are again resounding with the drill, pick and shovel, and are often proving quite remunerative to the owners or lessees. While no such massee of precious metal are met with just at present as have lately been found in the Sherman, yet old Gilpin can show many minee that are yielding handsome profits to their operatore. Among them is the 900 feet of property of the Burroughs lode, of Quartz hill, leased by Roberts & Co. This mine previous to 1873 had remained idle and filled with water for years, but in little over a year ending with last June, $75,961.55 had been obtained from it, while the amount of gold now produced is double that of the year above mentioned. Probably the last half of 1874 the mine will yield over $75,000. The lessee began working out the levels and drifts, but, emboldened by their success, began siuking until they are now down 800 feet below surface, being the greatest depth attained in any mine in Colorado. At the bottom of the shaft, as well as in the various levels, is found the same width vein of ore, yielding from $40 to $50 per ton in the stamp mills, while the more valuable ie sold at the smelting works at $100 per ton and over. Thirty-five men are employed, and about the same number of tons of ore are raised every twenty-four hours. Thie is the same mine that the famous Pat Casey once made his "big raise" and sale on, in the days of '60 and '62, and of Casey's night hands, and its late history has proved that Colorado mines do not "play out" in deep workings, a fact that will encourage many a doubting and disconreged miner to push on through "cap" to the riches that lie stored beneath.

The old and reliable Gregory is again being worked extensively, and is generally maintaining its record as the grandest mine in the country. Something over 100 men are employed upon it, and the recent consolidation of the Briggs and Black Hawk interests encourage the hope that another season will see as many men at work there as in the prosperous times of days gone by. The Briggs property has been paying large dividends during the past year. The Leavitt mine is yielding as largely as ever, carrying a very wide crevice, and employing from 80 to 100 men. Thie lode shows what careful, economical management will effect in mining operations, for the owner.

Bela S. Buell has been enabled to reap a steady profit on a class of oree that were considered worthless but a few years ago. The sixty-stamp mill, immediately over the mine, was completed over a month ago, at an expense of over $100,000, being the most expensive and finest affair of the kind in Colorado, and is working most satisfactorily. From fifty to seventy tons of quertz are raised daily, being something over the capacity of the mill. Rock yielding but $7 per ton is here mined and milled, and made to yield a steady profit. Work has again been resumed on the Bates, Bates & Hunter, Sudeberg, Smith and other valuable lodes, while the Kansas and Gunnel are extensively worked in several places. The Kansas has yielded about $100,000 during the past year, and is still in pay.

RYE VALLEY MINES.—A Baker city letter to the Oregon *Statesman* says: "Rye Valley, in this county, is just now the exciting point among the people, rich strikes having lately been made. Green's discovery, at water level, actually assayed $10,000 to $35,000 silver to the ton. Complete and extensive reducing works are now in course of erection on this and other mines in the district, which will all be in working order in the spring. Workmen will be engaged underground all winter in getting out ore from the Green discovery mine. Many new and interesting discoveries are being made daily, prospectors being out in large numbers. A mountain of gypsum has lately been found which, after being tested by competent hands, is pronounced equal to the best imported plaster of Paris."

MECHANICAL PROGRESS.

The Proposed Substitute for Steam.

The interesting announcement of a substitute for steam as a motive-power has been recently made in Germany from a source entitled to a hearing. The rapid consumption of the earth's fuel supply and the drain on its forests, attended by so many disastrous consequences, have stimulated scientific inventors to find a successor for steam, and it is to be hoped the present discovery will prove a success. The new motor is carbolenm, and its application to machinery is claimed for Dr. Beins, of Groningen, who has devoted many years to its study and utilization. Experiment first taught him that when the bicarbonate of sodium is heated in a closed space, at a temperature of eight hundred degrees Fahrenheit, liquid carbonic acid is distilled out of it, having the expansive force of fifty or sixty atmospheres. Carboleum is not dangerous as an explosive, and the fact that, thus employed as the German inventor proposes, it is possessed of enormous motive power, was attested by scientific men to whom the experiments were shown. The heat required to bring out this motive power of the carbonic acid in the new caiboloum engine is apparently very small when compared with that requisite for producing a high pressure of steam in the ordinary engine. In the former it is only three pounds of coal per hour for each horse-power represented by the engine—an amount so small that it would be unnecessary in ships driven by the new process do devote much space for fuel. The chief value of the invention, however, is claimed to be its practicability in large factories. The author thinks that for the great industries the carbolenm engine can, in nearly every instance, take the place of steam.

The scientific value of this discovery is immense, if mechanical ingenuity can successfully apply it in the direction indicated by Dr. Beins. If it is said that the supply of carboleum is not as plentiful as that element from which steam is made, it may be answered it is almost as large as that of coal in some parts of the world. Carbolenm is found inexhaustible in beds of common chalk in all parts of the earth. As common chalk contains carbonic acid to the amount of half its weight it will yield double its volume of carboleum. And the chalk resources of the earth are vast beyond computation. The cretaceous rocks cover a large extent of subterranean Europe and Eastern Asia, and abound in North and South America. The chalk beds which cross under the English Channel at Dover have been gauged at five hundred feet thickness, and similar beds have been found in France, Germany and Denmark, while the soundings of the ocean bottom show that they probably exist in a growing state in many geological districts. In the United States few formations are more widely distributed than the chalk, varying in thickness (according to some authorities) from four hundred feet along the Atlantic seaboard to two thousand five hundred feet in the Upper Missouri valley.

It is evident, therefore, that the proposed successor of steam, if mechanically applied, would be used over the larger part of the world as an invaluable auxiliary of steam, with an enormous economy of wood and coal. The successful introduction of such a motive power, minimizing the fuel consumption, would be a boon of incalculable importance in the manufactures and arts. That the principle upon which its introduction is claimed to be feasible is scientifically correct seems hardly to be doubted. If the immeasurable chalk beds are stored with mechanical energy, as we know the coal beds are, the anxiety of physicists and economists, lest the world's fuel supply may fall short in the lapse of a few centuries, is dissipated. The utilization of the new fuel would give an impetus to all industries, and might revolutionize the commerce of manufacturing nations whose wealth and political power are mainly due to their coal supplies.—*N. Y. Herald.*

Soldering Broken Files.—A writer in the *English Mechanic*, who had broken the only half-round file he had by him, says: "After trying to use the broken end (it was broken about the middle) I was about to give up in despair, when I thought I would try soldering; and, to my surprise, it not only stood while I completed the small job I was then doing, but is in use still, and will stand all the force such a file needs to have applied to it in ordinary use. I used ordinary solder, Baker's solderiug fluid, and a Bunsen burner. The temper at the joining is not in the slightest altered. Of course I was careful not to heat it more than requisite to melt the solder."

Elastic Glass.—Patents have been taken out in several European countries, by M. Bastie, a Frenchman, for elastic glass, which we are told is to supersede much of the crockery and metal used for kitchen utensils and table-ware. A tumbler made of it is not broken by falling ten feet on a hard floor. The introduction of a new material that has come into general use for most articles of table-ware has been a rare event in history, and we shall follow with interest the fortunes of Bastie's discovery. A change in such matter implies economy and convenience.

Utilizing Wave Motion.

The *Melbourne Argus* says: "Regarding Mr. R. S. Deverell's experiments with ocean-wave power machinery, Mr. Ellery, in his address at the Royal Society's meeting, gave the following information: Some months ago Mr. Deverell devised an apparatus by which the movements of a ship at sea could be registered. This was placed in charge of his brother, who went to England in the ship "Norfolk" for the purpose of making observations with it on the voyage. From the results of these, Mr. Deverell deduced the following:—'The duration of the voyage was 2,026 hours. During that time the ship made 1,764,088 beam oscillations or rolls, and 1,011,137 fore and aft oscillations or pitches. The average number of oscillations in both directions per minute was 14. The aggregate arc of pendulum registering beam movements was over 15 million degrees, while that of the fore and aft movements was nearly 5 million degrees.' Mr. Deverell also considered he had definitely established from these observations the following propositions: 1. That between ocean limits the swell of the ocean is unceasing. 2. That the oscillation of a vessel in an ocean fetch is unceasing. 3. That the motion of an independent body within a ship on the ocean is unceasing. Here then was represented an immense amount of conservable energy, and the question remained, 'Could a practicable method be found for conserving it for use on board ship?' Mr. Deverell believed it could, and to a sufficient extent to be useful in auxiliary propulsion. Mr. Deverell expected to be in a position in a few months to detail his method of putting his propositions into practice, and promised to bring it before the Royal Society of Victoria as soon as it was matured. Mr. Ellery mentioned that Mr. Bessemer had purchased from Mr. Deverell the instrument the "Norfolk" voyage observations were made with, for his famous saloon ship. This fact had probably led to a report which appeared in print some time ago that Mr. Bessemer and the Admiralty were building ships on Mr. Deverell's principle, but which was entirely without foundation.

Carbonized Brass.—For the last eighteen months Mr. B. W. Baldwin, of Philadelphia, has been manufacturing an article which he calls "Carbon Bronze," or Carbonized Brass. This article has been in use by several prominent firms here, and has received a fair test in rolling mills and on railroads, for car machinery and other purposes where great durability is required of anti-friction metal. After 25 years of experience in the manipulation of copper and its alloys, with the assistance of Prof. Weisman (metallurgist, late of Franklin Institute), the inventor succeeded, nearly two years ago, in establishing the theory of its mixture, and perfected and brought it into practical use. In casting it resembles gun metal, but its fiber is more compact and close, giving it great elastic resistance under heavy and repeated strains. In finishing, it receives a high degree of polish. It is perfectly homogeneous, and under a tool cuts easily and smoothly. There are two other advantages which this metal possesses, one is that if it is cast in fine sand it is ready to go upon the bearings without being reamed or otherwise finished; another is that it will not cut the necks of rolls, car axles or journals. It casts remarkably sound, and when confined, as in a "sousing," it will wear to a fine shaving, no lining with Babbitt metal being required. Messrs. Hutchinson & Co. are testing it in pump linings, as to its merits of resisting the action of sulphur water. The cost of this metal is about 15 per cent. less than gun metal.

Substitute Wanted for Mica for Stove Lights.—Mr. J. A. Price, of the Scranton (Pa.) Stove Works, writes to the *Iron Age* as follows:

Since the illuminating principle in stoves has become so thoroughly established, and the consequent demand for mica has become so disproportionate to the supply, is it not possible for some of our chemists to produce some chemical substitute for the same that shall be cheaper and as durable? Illuminating stoves to the household are like pictures on the walls, refining and civilizing in their influence and tendency, and as great a boon to mankind should not be jeopardized by fear of any failure of the supply in an article that possesses the quality of so much pleasure and health-giving comfort. Should this suggestion be within the possibilities of chemical combinations, a liberal reward would be paid by the stove manufacturers of the country.

Illuminating stoves are most desirable and should become more general; but we think that in view of the important discoveries of that mineral now being made in this State, the trade may soon be supplied with almost illimitable quantities.

Petroleum for Alcohol.—M. Masson, a Lyons chemist, struck by the saving which might be effected by the substitution of purified petroleum for alcohol, in a great many preparations, set himself to work to make experiments and now announces that he has discovered a simple and economical means of purifying, disinfecting and deodorizing mineral oils; and that a saving of 70 per cent. may be made by substituting this sort of petroleum for alcohol in chemical preparations.

SCIENTIFIC PROGRESS.

Steel Direct from the Ore.

The system of Ponsard, for producing steel direct from iron ore, has attracted much attention, and *La Metallurgie* gives the following account of an experiment made on this system:

For several years metallurgists have essayed to treat iron ores in a reverberatory furnace, instead of the blast furnace, which, besides being very costly, can only, as yet, be worked with coke or charcoal, of which the cost has largely increased of late years. All the attempts made in Europe and America have heretofore been unsatisfactory, but the problem has at last been solved.

On the 27th of September, at the forge of the Veriores, at Vienne, France, the first production of pig iron by the direct treatment of the ore in the gas reverberatory furnace system of Ponsard, took place under the superintendence of the inventor, with the assistance of M. S. Perisse, director of the General Metallurgical Society of Paris.

The apparatus consists principally of a gazogene, which transforms the fuel in a series of large chambers, and of an apparatus in brick, called the recuperator of heat, which receives the flames from the furnace, and restores the caloric in the form of hot air. The compartments of the chamber serve successively for the reduction of the ore, for the reactions which are effected, and, finally, for the fusion of the whole charge in such a manner that the separation of the component parts is effected by the difference of density. These various phases of the operation require very different temperatures, and the production of these is the special object of the apparatus. On the side of the furnace doors the temperature is only that of red heat, while beyond the heat is so great that the eye is unable to support the intensity of the glow. This extraordinary heat is estimated at 2,000° Cent.

The success of the experiment is reported to have surpassed all expectation, and the result obtained is considered to demonstrate the possibility of producing steel direct from the ore without any of the transformation necessary under existing systems. Of course this is a fresh revolution in the history of metallurgical industry; and it is almost unnecessary to add that, should the system justify the report, it will prove a revolution indeed.

The Divisibility of Matter.

So far as our senses, aided by the most powerful microscopes, are able to discern, matter is infinitely divisible. Chemical experiments seem to prove that there is a limit beyond which we cannot go. Let us take a particle of chloride of silver, and subdivide it until we reach that limit, and the infinitely small particle of chloride of silver which remains to us is called a molecule. Let us divide the molecule and we have no longer a particle of chloride of silver. A molecule is so small that it cannot be divided without breaking it up into its constituents. When water is heated and converted into steam, the particles of water become so small that they are invisible; as the heat increases the particles of water break up into smaller ones, until finally the molecule is reached; then increase the heat still more, and the molecules break up into atoms of hydrogen and oxygen. To this particular phenomenon the name of dissociation is applied. Assuming, then, that all matter consists of atoms united in the form of molecules, which may be simple or complex, we have one system on which to base our system of notation. These atoms being invisible, as the word implies, must have certain definite weight, which weight has been relatively ascertained by careful experiments. Ampere has satisfactorily established the following law: that equal volumes of all gaseous state contain the same number of molecules. Hence it follows that the molecules of all bodies, when in the gaseous state, are of the same size. This makes it a very easy matter to ascertain the weight of a molecule of any given substance, if that substance be a gas or convertible into gas. Oxygen is sixteen times as heavy as hydrogen; hence if we call the molecular weight of hydrogen two, the molecular weight of oxygen must be thirty-two. Having learned the molecular weight of any simple substance, by finding its specific gravity as referred to hydrogen, we only need to divide that by its atmospheric weight to find how many atoms there are in the molecule of that substance. The atomic weight of oxygen is sixteen; its molecular weight is thirty-two, hence there are two atoms in its molecule. With a very few exceptions, the molecules of all simple substances, contain two atoms each. The molecule of a compound body may contain one or more atoms of several different substances, but it always remains of the same size, even if it contains fifty atoms.

More Air to Science.—A gentleman of Milan, named Ponti, left his property, amounting to $165,000, to the three Academies of Science in London, Vienna, and Paris, and to the General Hospital in Vienna, the last-named institution being also entitled to any increase beyond the original sum; and the value of the property being now estimated at $360,000, the hospital is likely to receive a large share.

Lord Shaftesbury on Scientific Inquiry.

In a recent address the Earl of Shaftesbury says: If he had the wealth of Glasgow, or the wealth of a few people in it, so far from fearing the progress of science, as many people did, he would spend no end of money to encourage it. He would urge upon these masters of wisdom that they did not plunge deep enough; they should go further and wider and higher. He wished a thousand times as many minds were engaged in scientific pursuits. A few eminent men held a monopoly, and they crushed the public with their crude and abundant fancies. But there was no greater folly than that committed by those who would maintain revealed truth by counter theories. The Bible has suffered far more from its friends than from its enemies. In their timidity they have deprecated inquiry, and so have appeared to distrust their own Zion. In their over zeal—as if the Bible could not take care of herself—they have proceeded to give explanations and interpretations which the language of Scripture would never justify, and then some clever scientific man laid hold of it, and in his criticisms has overthrown the faith of many by his just and his ridiculing observations. Had he the wealth of Glasgow he would say to Max Muller and his Orientalists: "Here is the sum of £50,000; collect the facts you require. Send abroad your men. You say languages are dying out; send abroad and take the dying speech, the last confession of these dying tongues." He would send the same sum to Professor Tyndall and say to him: "Accumulate the facts; I don't care about your theories, but turn your powerful intellect to the pursuit of facts." He firmly believed that if Glasgow or any wealthy city were to come down with such a means of advancing science they would see that in less than 10 years that grand old book would be like the ark upon the top of Mount Ararat, surveying the subsiding of the waters and rejoicing in the restoration of life and joy.

The Use of Tin Vessels.—In a paper addressed to the French Academy of Sciences, Dr. Fordos gives the results of some experiments of his on tin vessels used in laboratories and hospitals, and even in private families, for infusions and similar purposes. These utensils generally contain lead in certain proportions, and it was, therefore, not inexpedient to learn how far that poisonous metal might be injurious to health in the long run. Dr. Fordos began by introducing water acidulated with one per cent. of acetic acid into a tin jug provided with a lid. After letting it stand for a few days he observed on the inner surface of the vessel a slight white deposit, which was soluble in the acidulated water, and communicated to it all the characteristics of a lead solution; iodide of potassium yielding a yellow precipitate, sulphuric acid a white one, and sulphuretted hydrogen a black one. Nevertheless, the latter test is not reliable, since it causes a black precipitate with a salt of tin likewise dissolved in the liquid. The existence of a salt of lead in the white deposit is, however, sufficiently proved. It is confirmed in another way; if the inner sides of the vessel be rubbed with a piece of clean wet paper a solution of iodide of potassium will turn it yellow. In certain experiments a crystallized salt of lead was detected at the bottom of the jug. In other series of experiments wine and vinegar were tried; they both became charged with lead, as they dissolved the lead salt deposited on the sides. Again, tartaric lemonade, left for twenty-four hours in the vessels, became impregnated with lead. Hence Dr. Fordos concludes that in alloys of tin and lead both metals are attacked, the latter being generally the first, when in contact with the atmosphere and acid liquids, such as wine, vinegar, lemonade, etc., and that consequently there may be serious danger in using such alloys, either in the shape of vessels or in tinning culinary utensils.

A New Form of Electro-Magnet.—A contributor to the *English Mechanic* thus describes an electro-magnet, constructed upon a novel plan and possessing a power far greater than those of the ordinary type:

"First, I took a number of pieces of iron wire, 16-guage and 12 in. long, and, commencing half an inch from the end, I wound fine silk covered wire (as used for the secondary in coils), for 2½ in. down, then gave two or three long turns, carrying the wire to within three in. of the other end, and wound that in the same manner as the first, and leaving long ends of the fine wire for subsequent attachment. The covered wire was then dipped in a spirit varnish and put aside to dry. When I had covered a number of these I bent them up into the form of a horse-shoe magnet, and put around them a number of pieces of similar wire, but uncovered, so that I had a horse-shoe magnet much resembling the bundle of wire in the core of a 'coil.' The whole lot was then wound with eight coils of 16-guage covered wire in the usual manner, and all the ends of the fine wires soldered to the outside copper wire. The result quite surprised me, and no doubt will be of some use to those who do not mind a little trouble for the sake of a superior article."

M. Hannecker uses for the oxhydrogen light (and obtains increased brilliance) a cylinder composed of carbonate of lime, magnesia, and olivine, compressed by hydraulic pressure. The olivine used is a natural silicate of magnesia.

Mining Stocks.

The Stock Market during the week under review has been unusually buoyant. Prices of several stocks have in the last few days touched the highest figures for a year. The chief excitement has been in the Con. Virginis group, including that mine, California, Ophir and Union Consolidated. There has been considerable movement in the Gold Hill stocks, consisting of the Yellow Jacket, Empire Mill, Imperial, Confidence, etc. Reports of extensive strikes in the American Flat mines will doubtless favorably affect stocks of that locality. It will be remembered that we predicted some weeks ago, when the market was thought to have already reached its best, that the highest prices were yet to come.

California, Nevada, Pioche and Idaho stocks are comparatively neglected.

The Rye patch mine, which declared its first dividend this month is situated in Rye Patch, Nevada. The dividend is equal to 50 cents per share, or $15,000. The Rye Patch Mining Company are working twenty men in the mine, and taking out sufficient ore to run their ten-stamp mill night and day. They ship about $6,000 worth of bullion weekly, and there is sufficient ore in sight in the mine to run the mill for months. A few months ago the property was encumbered with debt and very little ore in sight in the mine. To-day the company is out of debt and has $20,000 in its treasury.

The Late Storm and its Effects.

The meteorological phenomena developed in this State during the past season have been the most remarkable on record. The frequent thunder storms, during summer, were supplemented by an unusually early setting in of the fall rains, which have been both continuous and abundant, enlminating, for the present, with the very severe storm of Sunday, Monday and Tuesday of last week. The table of rainfall for the season, which we annex hereto, shows that rains have been general throughout the State, although the pluvial favors have been rather unequally distributed. The neighborhood of Petalnma, San Rafael, St. Helena and Santa Rosa seems to have been the most abundantly favored of any portion of the agricultural districts. At the latter place 8.84 inches of water fell in twenty-four hours, as recorded, with only a slight variation by two ganges.

Considerable damage was done by the storm in Sonoma county, and all the way thence to quite a distance up the Feather river. The railroad embankment was badly washed away near Petaluma and Tomales. Much damage was also done along the line of Russian river.

At San Rsfael the rainfall was the heaviest ever known, and the streams were higher than at any time last winter. The streams that rise in the Sonoma mountain were higher than at any time since the memorable winter of 1862.

The Clipper sawmill at Stewart's Point lost logs to the value of $75,000, and the Russian gulch bridge was washed away. About $30,000 worth of grain in sacks was destroyed in Colusa county. About 1,500 head of cattle disappeared from a ranch on the river bottom a few miles below Yuba City. The Feather river was never known to make such a sudden rise as on Monday of last week.

The levee was broken on the west side of the Feather river, near Nicolas; also at Star Bend, ten miles below Yuba City.

We append the rainfall at various localities as we have been able to gather the facts from our exchanges and other sources.

Our Rain Guags.

Name of Place.	Latest Report.	Total.
San Francisco	Nov. 18 to Nov. 24	2.00
Sacramento	Nov. 17 to Nov. 23	1.07
Santa Rosa	Nov. 22 to Nov. 23	8.84
St Helena	Nov. 23	8.80
Davisville (Yolo)	For the Season	15.75
San Rafael	" " "	6.05
Petaluma	" " "	18.41
Santa Cruz	" " "	8.81
Antioch	" " "	5.22
Sonora	" " "	6.22
Gilroy	" " "	10.10
Pine Flat	Nov. 22 to Nov. 24	7 00
Colusa	" " "	1.80
Napa City	" " "	3.43
Chico	" " "	6.10
San Mateo	" " "	5.53
Yolo	" " "	2.49
Weaverville	" " "	1.97
Forrestown	" " "	6.75
Grass Valley	" " "	16.00
Yreka	" " "	10.32
Monterey	" " "	1.15
Stockton	" " "	1.65
Martinez	" " "	2.27
Shasta	To Nov. 23	2.35
		14.12

If our exchanges and correspondents will continue their reports (weekly) throughout the season, we will take pleasure in collating them, as above, for the benefit of the State. Rainfall reports, as heretofore given for two or three localities, have very little general value; but such a report as the above, from a great number of localities in all parts of the State is of inestimable value.

Opening up the 1,500-ft. level of the Belcher mine, on the Comstock is just about being commenced in good earnest with every indication of a good yield of rich ore. The machinery of the mine is all in splendid working condition, and sinking the main incline will soon be again resumed.

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Deling'nt.	Sale.	Secretary.	Place of Business
Arizona S M Co	Unionville Nevada	1	1 00	Nov 30	Jan 8	Jan 29	Wm Willis	419 California st
American Flag M & M Co	Ely District	6	50	Nov 10	Dec 14	Jan 11	G R Spinney	320 California st
Buckeye G & S M Co	Nevada	12	1 00	Nov 14	Dec 18	Jan 7	C A Sankey	331 Montgomery st
Caledonia S M Co	Washoe	9	3 00	Oct 13	Nov 17	Dec 8	H Wegener	414 California st
Cedarberg G M Co	Cal		50	Oct 29	Dec 1	Dec 21	D M Bokee	218 Sansome st
Chollar-Potosi M Co	Washoe	5	5 00	Nov 14	Dec 18	Jan 7	W E Dean	419 California st
Daney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Empire M Co	Idaho	8	1 00	Nov 10	Dec 10	Jan 4	William Wills	419 California st
Empire M & M Co	Washoe	16	50	Oct 21	Nov 25	Dec 21	G R Spinney	320 California st
Golden Chariot M Co	Idaho	11	3 00	Oct 9	Nov 16	Dec 7	L Kaplan	Merchants' Ex
Ida Elmore M Co	Idaho	15	1 00	Nov 16	Dec 21	Jan 12	William Wills	419 California st
Julia G & S M Co	Washoe	20	2 00	Oct 30	Dec 4	Dec 23	A Noel	419 California st
Justice M Co	Washoe	12	3 00	Nov 13	Dec 15	Jan 15	J S Kennedy	Merchants' Ex
Knickerbocker M Co	Washoe	10	1 50	Oct 30	Dec 5	Dec 24	H Bayle	Stevenson's Bldg
Lady Bryan M Co	Nevada	4	50	Nov 11	Dec 16	Jan 11	F Swift	419 California st
Mahogany G & S M Co	Idaho	14	2 00	Nov 3	Dec 10	Dec 31	C H Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
Mint G & S M Co	Washoe	8	10	Nov 17	Dec 22	Jan 15	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	Nov 10	Dec 14	Jan 4	W W Hopkins	411½ California st
Newark S M Co	Ely District	9	50	Nov 4	Dec 7	Dec 28	Wm Willis	419 California st
Original Hidden Treasure	White Pine		1 00	Oct 12	Dec 11	Jan 7	D A Jennings	401 California st
Pauper M Co	Idaho	3	50	Oct 26	Nov 30	Dec 21	D Wilder	Merchants' Ex
Pictou M Co	Washoe	6	25	Oct 24	Nov 28	Dec 16	S Phillips	408 California st
Raymond & Ely M Co	Ely District	2	3 00	Nov 3	Dec 10	Jan 7	T W Colburn	418 California st
Rock Island G & S M Co	Washoe	5	1 00	Nov 16	Dec 21	Jan 12	J W Clark	418 California st
Red Jacket M Co	Idaho	5	50	Nov 28	Jan 5	Jan 26	Wm Willis	419 California st
Sander-oo G M Co	Cal	13	50	Oct 12	Nov 16	Dec 4	W Stuart	113 Wiedenfl st
Silver Cord M Co	Idaho	6	50	Nov 5	Dec 9	Dec 29	Frank Swift	419 California st
Silver Hill M Co	Washoo	4	2 00	Oct 28	Nov 30	Dec 22	W E Dean	419 California st
South Chariot M Co	Idaho	11	50	Nov 5	Dec 11	Jan 5	C H Bogart	402 Montgomery st
Tyler M Co	Washoe	7	50	Nov 19	Dec 22	Jan 13.	O D Squire	Stevenson's Bldg
War Eagle M Co	Idaho	8	1 00	Nov 9	Dec 16	Jan 6	L Kaplan	401 California st
Woodville G & S M Co	Washoe	8	1 10	Nov 9	Dec 14	Jan 5	W M Helman	401 California st
Yule Gravel M Co	Placer Co	Cal	5	10	Nov 9	Dec 14	Jan 5	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Baltic Cons M Co	Washoe	1	15	Nov 18	Dec 23	Jan 20	B Burris	507 Montgomery st
Buena Vista Petroleum Co	Cal	23	75	Oct 5	Nov 16	Dec 14	L Hermann	330 Pine st
Obance S M Co	Cherry creek	1	50	Oct 7	Nov 18	Dec 14	J Marks	414 California st
Cherry Creek M & M Co	Nevada	1	15	Nov 10	Dec 14	Jan 7	D F Verdenal	409 California st
Cherokee Flat Blue Gravel Co	Cal	33	5	Nov 10	Dec 14	Dec 29	H Pichoir	603 Washington st
Cederberg G M Co 1st S Ex	Cal	7	4	Aug 27	Nov 30	Dec 18	J N Webster	420 Montgomery st
El Dorado Water & Deep Gravel Co	Cal	6	10 09	Oct 26	Nov 27	Dec 12	H Elias	416 Montgomery st
El Madre Quicksilver M Co	Cal	2	8	Oct 27	Dec 4	Dec 23	A Halsey	312 Montgomery st
Excelsior G M Co	Tuolumne Co	Cal	14	15	Oct 29	Nov 25	E Chastin	442 California st
Gould Mt G M Co	Holcomb Valley	Cal	3	50	Nov 19	Dec 29	J P Cavallier	513 California st
Gold Run M Co	Nevada Co	Cal	8	15	Oct 14	Nov 16	Dec 3	C O Palmer	41 Market st
Howard Hill G M Co	Cal			50	Nov 7	Dec 16	Jan 7	F J Hermann	418 Kearny st
Imperial S M Co	Washoe	20	1 00	Nov 28	Dec 29	Jan 19	W E Dean	419 California st
Lake Tahoe & S F Water Works	Cal	6	25	Nov 18	Dec 23	Jan 18	E Chastin	808 Montgomery st
Mount Savage M Co	Utah		10	Oct 16	Nov 18	Dec 10	D F Verdenal	409 California st
Omega Table Mt M Co	Cal	4	2½	Oct 15	Nov 23	Dec 14	D Wilder	Merchants' Ex
Oneida M Co	Amador Co	Cal	9	75	Oct 8	Nov 30	L Kaplan	Merchants' Ex
Orleans M Co	Nevada Co	Cal	1	1 00	Oct 10	Nov 24	J F Nesmith	315 California st
Owens G & S M Co	San Diego Co	Cal	1	1 00	Nov 3	Dec 7	Frank Swift	419 California st
Peerless G & S M Co	Idaho		1	50	Nov 13	Dec 18	Jan 11	William Wills	419 California st
Succor M & M Co	Washoe	10	1 00	Nov 27	Jan 4	Jan 25	W H Watson	302 Montgomery st
Table Mt Blue Gravel M Co	Cal	4	30	Nov 4	Dec 7	Dec 24	W M Helman	401 California st
Thrift G & S M Co	Calaveras Co	Cal		50	Nov 24	Dec 26	Jan 16	H R West	240 Montgomery st
Utah S M Co	Washoe	7	1 00	Nov 25	Dec 30	Jan 20	W E Dean	419 California st
Victoria & Imperial T & M Co	Utah		3	10	Oct 7	Nov 11	Dec 5	W H Watson	302 Montgomery st
Watson M Co	Robinson Dist	Nevada	1	1 00	Nov 16	Dec 21	Jan 13	W H Watson	302 Montgomery st
Woodville M & M Co	El Dorado Co	Cal	1	25	Nov 10	Dec 19	Jan 8	J Glaseman	336 Montgomery st
Zacatero G M Co	Cal			50	Nov 4	Dec 7	Dec 29	L Hermann	330 Pine st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Andes S M Co		Edward Landers	507 Montgomery st	Annual	Dec 18
Chicago G & S M Co		F P Reynolds	111½ Liedesdorff st	Annual	Dec 7
Golden Sun M Co		O A Thompson	Cor Market & Kearny	Annual	Dec 14
Empire M & M Co	Washoe	G R Spinney	3 0 California st	Annual	Dec 16
Granite Tunnel M Co	Nevada	W G Holmes	Cor Wash & Battery sts	Annual	Dec 7
Gold Canon Cons M Co	Washoe	A A Pardow	420 California st	Annual	Dec 18
Ophir S M Co	Washoe	J Marks	419 California st	Annual	Dec 12
Providence M & M Co		F Pyat	President	Annual	Dec 11
Shasta Bullion G M Co		F P Reynolds	117 Liedesdorff st	Annual	Dec 1
War Eagle M Co	Idaho	L Kaplan	Merchants' Ex	Annual	Dec 14

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Nov 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Nov 16
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	Nov 11
Crown Point M Co	Washoe	G E Elliott	414 California st	3 00	Nov 12
Diana M. Co.		N. G. Fassett.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	1 00	July 6
Eureka M. Co.	Grass Valley, Cal.	R. Wegener,	414 California st	1 00	Dec 1
Keystone Quartz M Co	Cal	L. Yesaria.		50	Feb 16
Phoenix G M Co		Charles E Elliott	419 California st	50	June 30
Rye Patch M Co	Nevada	D F Verdenal	409 California st	50	Dec 5

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco

Oriental Steamship Co.—Object: Constructing, purchasing, running, freighting, controlling, managing and owning steam and sailing ships and vessels, therewith doing and transacting all kinds of transportation and shipping business on the oceans, seas, bays, sounds and rivers of the world. The principal place of business is to be this city, and the term of existence fifty years. Directors; Leland Stanford, Charles Crocker, David D. Colton, Loyd Tevis, and Mark Hopkins. Capital stock, $10,000,000, in shares of $100 each. This company is an outgrowth of the quarrel between the Pacific Mail company and the Central Pacific railroad, and an indication that the long threatened new line in opposition to the Pacific Mail is soon to become a reality, and compete for the carrying trade between this country and China and Japan.

Fall Creek M. Co., Nov. 28.—Location: Nevada county, California. Directors—George W. Kidd, John Bell, C. Greatbouse, Sampson Tams and O. P. Robinson. Capital stock $5,000,000.

Amazon Consolidated M. Co., Nov. 28.—Location: Devil's Gate Mining District, Lyon county, Nevada. Capital stock $6,000,000. Directors—James A. Pritchard, J. L. Thorp, J. W. Phillips, F. A. Ronllau and Samuel Miller.

Vivian M. Co., Nov. 28.—Location: Devil's Gate Mining District, Lyon county, Nevada. Capital stock $5,000,000. Directors—A. K. P. Harmon, J. D. Fry, R. F. Morrow, A. M. Edgerton and D. X. Bliss.

Vulcan Coal M. Co., Nov. 28.—Location: Santa Cruz county. Directors—Joshua Gray, Hale Rix, H. D. Jameson, Henry Schunaman and William Schrader. Capital stock, $2,000,000.

Corrallitos Coal M. Co., Nov. 28.—Location: Santa Cruz county, California. Directors—Joshua Gray, Hale Rix, H. D. Jameson, Henry Schumann and William Schrader. Capital stock $2,000,000.

Mammoth Cons. Quicksilver M. Co., Nov. 30.—Location: Lake county, California. Capital stock $1,000,000. Directors—Henry Cohn, M. Weil, E. W. Bradford, John W. Lynch and Jasper O'Farrel.

Garrison Consolidated G. and S. M. Co., Nov. 28—Location: Virginia Mining District, Nevada. Capital stock $7,800,000. Directors—J. D. Prescott, W. H. Farnham, L. H. Nichols, E. Skerritt and Stephen Hewitt.

Mexican M. Co., Nov. 28.—Location: Nevada. Capital stock $10,000,000. Directors—J. P. Moore, O. H. Bogart, R. H. Rodgers, Marshall Hubbard and Charles W. Rand.

Maryland S. M. Co., Dec. 1.—Location: Inyo county, California. Capital stock $3,000,000. Directors—John H. Armstrong, L. H. Edelen, Frank L. Creiper, John C. Burch and John C. Hughes.

Blue Jacket South M. Co., Dec. 2.—Location: Bull Run Mining District, Elko county, Nevada. Directors—Thos. H. Blythe, H. G. Bixby, A. E. O'Neill, J. S. Phillips and W. B. Cluff. Capital stock $5,000,000, divided into 50,000 shares.

Zadig Pavement Co., Dec, 2.—Object: To manufacture and put down pavements under the Zadig patents. Capital stock $1,000,000. Directors—Daniel Meyer, Joseph Brandon Helms, Phillip Zadig, Thomas Price and Gustav Sutro.

Eureka Stone Manufacturing Co., Dec. 2.—Object: To manufacture artificial stone and cover brick walls and roofs with waterproof stone plaster. Capital stock $600,000. Directors—Wm. Flood, Charles J. Pilsbury, Peter Portois, Paul D. Morrell, M. McDonald, A. D. Splivalo and Daniel Sweeney.

The following companies have filed certificates of incorporation in the office of the Secretary of State, at Sacramento:

California Land, Stock, Wool and Manufacturers' Association.—Location: Santa Barbara. Capital stock $1,000,000. Directors—R. B. Westover, Gilber Barber, W. L. Woodruff, Geo. W. Blanchard, Geo. A. Lee.

Bald Mountain Extension G. M. Co.—Location: Sierra county, California. Principal place of business, Downieville. Directors—William Stoddart, Robert Forbes, J. A. Vaughan, W. T. Luther, H. T. Briggs. Capital stock $600,000, in $10 shares.

Coquille Coal and Prospecting Co.—Incorporated at Coquille City, Oregon. The object is to prospect for coal, and acquiring, holding and developing coal lands in the State of Oregon, and the building and equipping of railroads for the use of such coal properties. Capital stock, $240,000; shares $25.

Mexican Land and Improvement Co.—Incorporated at Binghampton, N. Y. Capital stock $15,000,000. The company contemplate extensive mining operations in Sonora and Arizona, but their principal object is to construct a railroad from Tucson, Arizona, to the city of Guaymas, Sonora, or to El Paso. Mr. Blair is in the City of Mexico now for the purpose of obtaining from the Central Government a confirmation of the grants and privileges extended to the company by the State of Sonora. Whenever the confirmation of the Acts of the Legislature of Sonora is obtained from the Mexican Congress, now in session, the corporation say the work will be commenced and pushed vigorously to completion. The incorporators are Cyrus Strong, T. R. Morgan, J. C. Truman and D. B. Blair.

Los Angeles and Inneependence R. R.—Mr. Crawford, engineer of the Los Angeles and Independence railroad, has returned from a survey of the route over the mountains by the way of Cajon Pass, for a narrow-gauge road to Panamint and Cerro Gordo. He has established a practicable grade of less than 140 feet to the mile at the worst point, and most of the distance of less than 100 feet. He speaks well of the route, and says no insuperable difficulty will be encountered anywhere.

Sales at the S. F. Stock Exchange.

Wednesday, Nov. 25.

Morning Session.

745 Alpha....21¢@2¢
3092 Beet & Bel....21¾@22½
30 ....b 1....22½
50 ....b 30....2
1620 Bull Con....8¼@8½
100 ....b 10....8
250 ....b 30....8
260 Bacon....7@8
280 Bullion....20@21
720 Belcher....51@52½
130 ....b 30....51@52
1305 Confidence....32@3
50 ....b 30....35½
290 Con Virginia....155½@158
20 ....b 5....15
180 Chollar....64@66
10 ....b 30....65¼
50 ....b 5....64
1150 Crown Point....58@59¼
25 ....b 30....59½
50 ....b 5....59
410 ....b 4....58
1050 Caledonia....23¼@24
155 California....86@87
170 ....b 5....76@78
50 Daney....32
415 Exchequer....23@23
230 Eclipse....15¾@15¾
160 Gould & Curry....23@23¼
200 ....b 30....24
480 G H Quartz....6½@7
225 Globe....1¼@1¾
2350 Hale & Nor....34@36
400 Imperial....15@16
1030 Justice....44@43
150 Julia....5@5½
....b 30....5½
585 Knickerbocker....6@6¾
1730 Kentuck....20½@22
1055 Lady Bryan....3¼@3½
220 Overman....63½@65
....b 30....68
110 ....b 5....64
275 Ophir....77@81
3385 Savage....85@8
106 S Nev....11¼@10¾
50 ....b 30....11½@11¾
50 ....b 5....11¾
35 Seg Belcher....130
100 Succor....3½@2¾
2405 Utah....6@6½
2800 ....b 30....6
380 Y Jacket....11¾@11¾
60 ....b 5....11¾@12
100 ....b 30....12

Afternoon Session.

240 Meadow Val....5½@5¾
85 Ray & Ely....14½
575 Eureka Con....13@13¼
60 Pioche....4½
800 Wash & Creole....3@3¼
55 Am Flag....2@2¼
1810 Belmont....9@9½
50 Newark....¾
14 Eldo S....¾
50 War Eagle....3½
50 S Cord....8½
11 St Patrick....1½@1¾
60 Charter M....2
1620 Rye Patch....5¾@6
100 G Chariot....41@42
275 War Eagle....3¾
150 Empire....25c
20 S Cord....¾
430 S Hill....7¾@8
452 Eclipse....12
1435 Challenge....10½@11
665 Dayton....5¾@5¾
160 Rhode Island....4@4¼
175 Dardanelles....17½@18
1290 N Y....1¼@1¾
250 Occidental....3¾
1015 Senator....1¾
845 Am Flat....8@8½
250 Tyler....35
1915 Union....32½@34
2315 Woodville....2½@2¾

Thursday, Dec. 3.

Morning Session.

230 Alpha....21¾@24
50 ....b 30....24
100 ....b 10....22½
2385 Belcher....58@56
150 ....b 30....57
2370 Best & Bel....24½@25
260 ....b 30....25½@25¾
1245 Bull Con....8½@8¾
120 Bullion....19
10 ....b 30....19¼
40 Bacon....6
950 C Point....85@70
50 ....b 5....80
88 ....b 30....72½@73
930 Chollar....68@70
20 ....b 10....70
30 ....b 30....71
470 Con G Hill....73¾@1¾
170 Confidence....36@37½
50 ....b 5....36½
1805 Con Vir....188@190
50 ....b 30....193¾@196
440 Caledonia....23¾@23
760 California....159@155
70 ....b 30....160
10 ....b 10....158
160 Daney....24
290 Empire M....14¾@14
10 ....b 30....14¾
1140 Gould & Curry....24@24¼
100 ....b 5....23
500 Globe....1¾@2
340 H & N....60¼@59
100 ....b 5....60
270 Imperial....15@16
300 Justice....48@47
1100 Julia....3¼@3¾
115 Knicker....6¾@6¾
1055 Kentuck....23@24½
850 Overman....70@71
50 ....b 10....71
265 Ophir....113@118
100 ....b 30....120
2385 S Nevada....13¾@15
50 ....b 30....15¼
135 Seg Belcher....140@138
1620 Succor....4½@7½
380 Savage....93@91
215 Utah....6@6¾
720 Y Jacket....130@135
50 ....b 30....137

Afternoon Session.

135 M Valley....5¾@5¾
376 R & Ely....19@18
660 Eur Con....14
300 W & Creole....2c
50 Am Flag....2¼
170 Belmont....9@9¼
470 Newark....60@62½
635 Rye Patch....5¾@6
80 M Belmont....1½
340 Eldorado....1¼@1¾
50 Ne Plus Mack....1¾
150 C Mill....5@5½
150 Magenta....2
50 War Eagle....3½
50 S Cord....8½
35 G Chariot....3½
200 Empire I....30c
715 S Hill....10¾@10¾
570 Eclipse....11½@11¾
90 Trench....1¾
325 Challenge....11@11¾
315 Dayton....5½@5¾
50 Rock Island....3¾
280 Dardanelles....18
1230 Senator....1¾
850 Am Flat....7¾@7¾
300 Pictou....50c
350 N Y....4¼
860 Occidental....4¼@5
1275 Woodville....2¾@2¾
400 S Cometock....2½
1025 Koesutb....3¾@3½
1015 Union....4½@46
900 Sutro....2½@2¾
700 Mint....25c
335 C P Ravine....1
2830 Andes....4¾@4¾
540 Leo....1@1¾
300 W Utah....1
100 S P Island....1

The ore body on the 1,500-ft. level of the Consolidated Virginia mine is now developed for almost the entire length of the mine, and at the only point where cross-cutting the ledge has been attempted, it is proven to be 170 feet in width of the richest possible character of ore. The mills are all running, and good returns will be made for the month.

Col. Fitch has commenced operations on a tunnel in the hills above Genoa, Douglas Co., O., that has been for years abandoned. A force of men have been engaged, and the work of prospecting the ledge is to be vigorously pushed.

The Rye Patch mining company is now shipping from $6,000 to $10,000 worth of bullion weekly. The water level has been reached in the mine, and a superior quality of ore has been struck at that depth.

The New Arctic Expedition.—It has been finally decided that Commander Alfred Markham, R. N., shall have chief command of the English Government expedition which starts next May for the Arctic regions.

The new macbinery for the Richmond Smelting Works, at Enreka, which was all manufactured at Marseilles, France, is now arriving at its destination, having been s very long time on its way.

The Auburn mill, at Reno, now charges $35 per ton for redncing silver ores, allowing in bullion eighty per cent. on ores—the assay value of which is $400 per ton or less—and eighty two per cent. on ores of a bigher grade.

Nevada passengers for Panamint go by the way of Independence, Inyo county. The fare from thence to Lone Pine is $30, and from the latter place to Panamint $25.

To settle a bet, a lump of lead from the streets of Virginia was assayed the other day and gave a return at the rate of $9.86 per ton.

The reports from Peavine district, Nevada, continue to be of a very encouraging character.

Ukiah, Mendocino county, California, is the last place heard from which wants a branch mint.

The foundry at Mill City, Humboldt county, is nearly ready for operation.

Calistoga shipped 157 flasks of quicksilver last week.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

AMADOR COUNTY.

ORIGINAL AMADOR.—*Ledger*, Nov. 28: The Original Amador, at Amador city, we are pleased to learn, improves as work progresses, and is now producing richer rock than was over before found in that mine. A few months ago the Original Amador was supposed to be worthless, but recent discoveries have shown it to be a very valuable mine, with every indication of its being as permanent and productive as any of the developed mines within the great quartz belt of the county. So much for perseverance.

AMADOR QUICKSILVER MINE.—We learn from Mr. George Folger, President of the company owning the above mine, that the ore in the 70-ft. level has increased very considerably in thickness, and that the mine is steadily improving as work progresses. The company have determined to put up reduction works, and with that view Mr. C. H. Turner has gone to San Francisco for necessary material. A large amount of ore is now upon the ground, and the mine proven to contain rich ore from the surface to the depth of 70 ft.; and how much deeper as yet unknown. Within a reasonable time, we shall have the gratification of reporting shipments of quicksilver from the Amador mine.

MINING.—The heavy storms which have prevailed during most of the present week, has materially interfered with placer mining throughout the county, and will during the continuance of the present rains, still further retard the opening up of numerous gravel claims along the line of the Amador canal. Our quartz mines, however, are not hindered by these weather changes, and all are producing their usual quantity of rock. The developed mines are meeting with their usual success, and are daily turning out their general average of gold.

CALAVERAS COUNTY.

SAN BRUNO.—Calaveras *Chronicle*, Nov. 28: The work of putting an engine into the tunnel in the San Bruno mine, at Mosquito, is nearly completed. Quite a large room is being stoped out for the accomodation of the machinery, 500 ft. from the mouth of the tunnel. The smoke from the furnace will escape through a stack extending to the level above. The work of stoping out a place to set the machinery in has been slow, owing to the extreme hardness of the rock. It is expected that the engine and hoisting works will be in position next week when sinking a shaft from the tunnel will be immediately commenced. Should the novel method of working the San Bruno prove successful, it will undoubtedly be adopted in other instances.

SANDERSON MINE.—The work of sinking the shaft in the Sanderson mine, near Railroad, goes on with undiminished vigor. It has already reached a depth of 420 ft. Levels are to be run and stoping commenced shortly. We learn that the ledge is looking first-rate, and that altogether the prospects of the mine are excellent.

WEST POINT DISTRICT.—Work at sinking the main shaft of the Mina Rica is progressing. Down 121 ft. Ore in bottom is of fair quality, and the fissure is widening, although already 5 ft. in width. The completion of the mill has been somewhat retarded by the inclement weather, but is hurried vigorously. The Yellow Jacket machinery and hoisting works have been removed to Miller & Co.'s mine, where it will be used for hoisting purposes. Mr. McNonghton, architect, is superintending the erection. A new superintendent has superceded A. Bateman of the Zacatero. The mine looks well. Rumor has it that the parties who bonded the Josephine have sent an agent here to begin work, forthwith. A new class of men are taking hold of some pretty fair mines; the change is conspicuously beneficial.

FRESNO COUNTY.

QUICKSILVER MINING.—Fresno *Expositor*, Nov. 25: The New Idria company has lately erected a new furnace, the invention of the superintendent of the mine, which is a great improvement on the ones formerly used in reducing the cinnabar ores. It not only does more work, but does it better and cheaper. By the aid of the new furnace the company is able to work ores remuneratively, which had previously been thrown aside as waste. One or two more furnaces of the same pattern will probably be built in the spring. The mines are looking well, and the supply of ore seems exhaustless. The Cerro Benito mine, near Panoche valley, is looking well, and some rich developments are being made. Some very fine ore is being extracted. The Little Panoche mine, in Little Panoche valley, is showing up well. Two tunnels are being run to tap the deposits at the lower levels. In a temporary furnace some 50 flasks of quicksilver were extracted during the summer. The promising appearance of the mines, coupled with late developments, have raised the value of shares in the mines to a round figure.

LAKE COUNTY.

SULPHUR BANKS.—Calistoga *Free Press*, Nov. 28: The Borax company's property, which was sold for about $60,000, is now worth a little over $1,000,000, and is situated 45 miles north of Calistoga. They have one Riotte & Lockhardt furnace, which is producing about 300 flasks of quicksilver per month, and are now constructing a Knox & Osborn furnace, a Walbridge furnace and a bench of retorts. When these are completed it is expected that the mine will produce 100 flasks of quicksilver per day. The new cut exposes excellent cinnabar, and the supply of ore seems almost inexhaustible. About 130 men are employed under the supervision of the popular Harry L. Lightner, who is every inch a superintendent.

MARIPOSA COUNTY.

REPORTED SALE.—Mariposa *Gazette*, Nov. 28: A private letter, from San Francisco to a gentleman in Mariposa, reports the sale of the celebrated Hite mine to a San Francisco company for the sum of $1,100,000—though a later rumor fixes the amount at an even million.

WASHINGTON MINE.—A personal visit to the Washington mine fully corroborates the favorable reports received from that locality during the last two months. Mr. George E. Webber, the superintendent, says they now employ 60 men and have an abundance of paying quartz in sight. They are taking out ore from the 500 and 600-ft. level, and it pays from $22 to $25 per ton in free gold. He estimates the sulphurets at 10 per cent. and they yield not less than $80 per ton by the chlorination process. He uses Schofield's concentratore for separating them from the sand and has discarded his old machines as vastly inferior to Schofield's. The new hoisting works are in perfect order, and every department moves like clock work.

NAPA COUNTY.

NEW DISTRICT.—Cor. Napa *Reporter*, Nov. 28: A new quicksilver district has been discovered a few miles east of Middletown, which is represented as being rich in cinnabar. A man named Smith, a resident of Pine Flat, took up a claim in the new district a few weeks since, and sold a few days ago his prospect to an Oakland company for $1,300. Lakeport is having her share of mining excitement.

ANCIENT MINE.—A Mr. Muir, a mining expert from the California bank, was in our place last week looking after the interests of the bank in this county. While here he explored a cave on Mr. Jackson's ranch three miles north of town. He followed it as long as his candle would allow him, and pronounces it an ancient mine. He is coming back again to give it a more thorough examination and exploration.

NEVADA COUNTY.

COE MINE.—Grass Valley *Union*, Dec. 1: The difficulties which have beset the Coe mine of this place, in the law courts of San Francisco, have all been satisfactorily settled, and the possession of the mining property has been given to the company. Mr. Treadwell, of San Francisco, came up last week and took possession for the company. We understand that the mine is to be pumped out very soon, and that the work of developing the mine will begin at an early day. The Coe has, most undoubtedly, good paying ore in its depths.

MANZANITA MINE. — *Transcript*, Nov. 28: Preparations for working at the Manzanita are all completed, and piping has been going on for several days. A thousand inches of water is used in two pipes. Fifteen white laborers are employed at the mine. There will be a blast of 200 kegs of powder set off this morning at 9 o'clock. Those desirous of seeing the effects can do so by being present at that time. The prospects of this mine never looked better than at the present time. It is reasonable to suppose that the net proceeds the coming year will be entirely satisfactory to the owners.

MAGENTA.—*Foothill Tidings*, Nov. 28: The shaft at this mine is down over 300 ft. and going for the 400-ft. level, when it is thought a fine permanent body of pay ore will be found. The ledge in the shaft is now two feet thick and looks well.

The crown wheel for the new pump works at the Idaho mine, arrived at Colfax from San Francisco several days ago, and Major Leech sent out a team of 18 animals to bring it in. The casting weighs between 10 and 11 tons, and as the roads are not the best, such a load drags heavily. A mile a day is considered pretty good time, but it's bound to come through.

CRATER.—Placer *Herald*, Nov. 28: Work on the Crater mine, we learn from Supt. Greenwell, is progressing finely. Drifting, stoping and sinking are being simultaneously pushed ahead. The St. Patrick mill is pounding steadily on Crater rock, and what is most encouraging of all, the mine is more than paying expenses, something, we believe, it has never done before.

The rains coming on so early in the season caught the miners in many places not wholly prepared. Since the first shower, though they have doubly exerted themselves, and are in most cases ready to begin operations. The indications are that the mining season will open early, and should the winter continue as favorable to the miners as it has commenced, we may count with certainty on an uncommonly prosperous season.

Scales Diggings has some of the richest mines in Sierra. Most prominent are those of the Boyce Bros., who employ a large crew of men a greater part of the year. They are now repairing the old and putting in a new flume. These gentlemen are securing a patent for their mines.

G. Goodell has sold his gravel claim, on Cañon Creek, below Craig's Flat, near the old Port Wine trail, to Ohinamen, for $400. Goodell talks of going to San Francisco.

The Oak Ranch Tunnel is in 1,050 feet, with water enough coming down to run a saw-mill. Track is being shedded for winter's work. Rock is soft; water washes all the dirt out, leaving the hard rock. Four men working in two shifts. If things are all fixed before a heavy storm, work will be continued all winter. Great results are expected from these diggings.

STANISLAUS COUNTY.

GRAYSON MINE.—Stanislaus *News*, Nov. 27: A friend from Grayson informs us that prospecting for quicksilver in the mountains back of that place is being pushed with a great deal of energy. Several companies are at work. Many are developing good indications which are improving daily as they go deeper on the leads. The Sommit Company have started a tunnel and are already in some 90 feet. They expect to reach the lead at a distance of 300 feet in depth from the surface. The Grayson Company is at work sinking shafts. They have reached a depth of 30 feet, and the indications are very encouraging. There are also several other claims that we expect will soon render favorable reports. Both of the claims mentioned have secured patents to their lands.

TUOLUMNE COUNTY.

THE "PATTERSON" LOOMS UP.—*Tuolumne Independent*, Nov. 28: Everything in the Patterson mine, at Tuttletown, is now in excellent condition. They are down with the shaft 230 feet, and are taking out very fine ore with plenty of gold in it visible to the naked eye. Nine men are working in the shaft, and about thirty men in all the mine. The mill is running at its full capacity, which is twenty stamps. The new hoisting works recently erected work to a charm, the same water used is running to the mill to crush, and from thence to the concentrating works. The miners not having cut across, the width of the vein in the shaft is not yet determined.

THE ALPHA GRAVEL MINING CO., T. M.—Have gone to work and retimbered their shaft throughout. In the 1,000-ft. drift they had an up-grade and were obliged to work to a great disadvantage, being compelled to take up from four to eight feet of bed-rock. At the end of the drift at the present time, the ledge has commenced to fall, and superintendent Collins is much elated over the prospect ahead. They commenced to wash gravel on Friday.

BLUE Gravel, Table mountain, are working in their upper slope and have plenty of gravel—their dump boxes are full and they are piling it up around the track. More men would work had they the water to wash the gravel. The reason of this is, the old water company are repairing their flume, and McLean's ditch is not in readiness, as the pipe is not in place, but is expected to be in a few days.

THE Golden Gate mining company shipped in the neighborhood of 7,500 pounds of sulphurets on Friday last to San Francisco.

TRINITY COUNTY.

AT WORK.—Trinity *Journal*, Nov. 28: Billy Waldorff informed us on Monday last, that the miners on Indian Creek had commenced sluicing with plenty of water at that time.

JUNCTION CITY.—Charley Kuper says the late rain made plenty of water for the miners in that section to commence work with, but that they were not ready for it. The high water carried off the foot-log at that place.

YUBA.

THE HANSONVILLE QUARTZ MILL.—Marysville *Appeal*, Nov. 19: About eighteen months ago E. W. Haskell commenced operations on the Hansonville ledge, located twenty-seven miles northeast of this city, by putting up a four-stamp mill and running it by water from the Gaskill ditch. The work has been steadily prosecuted, and the mine is now worked night and day, giving employment to thirteen men. The main shaft has been sunk about 100 feet, and drifts run north and south, where the ledge averages from four to six feet in width. The little mill has been crushing about two and a half tons per day, and the rock is understood to pay very well. This fact appears to be corroborated as Mr. Haskell is in town to procure shafts, cams, dies, tappet, etc., for doubling the capacity of his mill.

Nevada.

WASHOE DISTRICT.

CONSOLIDATED VIRGINIA.—Gold Hill *News*, Nov. 25: Daily yield 400 tons of ore. The ore breasts on the 1,300 and 1,400-ft. levels are yielding splendidly, and show no signs whatever of a diminuition of the yield. The north drifts on both of these levels are still running through rich ore, and there is hardly a doubt now but that the entire ore body from the 1,300 downward to the 1,500-ft. level extends into the California ground. The line of north winzes No. 3 from the 1,200, 1,300 and 1,400-ft. levels are all making excellent progress downward, all in rich ore. Opening up the ore body on the 1,500-ft. level is progressing finely, showing it to be more extensive and richer than the most sanguine believer in the immense value of the mine ever expected.

OPHIR.—Daily yield, 150 tons of ore. The ore stopes on both the 1,300 and 1,465-ft. levels are opening up splendidly, the ore being of even a richer quality than has heretofore been encountered. The mills are all steadily crushing ore from the mine, and the returns for the present month will greatly exceed those of last month.

IMPERIAL-EMPIRE.—Sinking the south winze from the 1,850-ft. level is making good progress, the bottom still in rich ore. The main east drift on the 2,000-ft. level to cut and prospect the ore vein at that point is in much more favorable formation, and may now cut the ore vein at any hour.

DAYTON.—Daily yield, 70 tons of ore. The ore breasts south of the turntable, on the third station level, are steadily improving, both in appearance and the character of the ore extracted. The ore body at this point appears to be gradually widening. The ore breasts on the second station level are yielding finely as usual.

CALIFORNIA.—The connection between the north drift on the 1,500-ft. level of the Virginia Cons. and the corresponding drift from the Ophir mine, is almost completed. As soon as finished this opening will give a complete ventilation of the mine to that depth, when crosscutting the 1,300, 1,400 and 1,500-ft. levels will be commenced.

GOULD & CURRY.—The pump shaft is repaired, and the pump again doing good execution, so that the entire 1,700-ft. level will soon be drained, when some good ore developments may be looked for.

ROCK ISLAND.—The southwest drift has passed through the foot lodge and is now in the clay wall which lies between it and the red ledge. Some bunches of fine ore were cut by this drift near its bottom, which indicates that at a greater depth a good body of ore will be disclosed. A drift will at once be started north from the main west drift to prospect the ledge in this level.

SIERRA NEVADA.—Daily yield, 60 tons of ore. Sinking the new shaft is making steady headway. There is a steady and favorable improvement in the ore developed by the east cross-cut in the old Sacramento ground. The ore body in the north drift from the old Sierra Nevada tunnel is proving a fine development.

GLOBE CONSOLIDATED.—The ore body in the face of the north drift, on the 400-foot level, is widening out and gradually improving in quality.

BELCHER.—Daily yield, 500 tons of ore. The ore breasts on the 1300 and 1400 foot levels are looking well and yielding the usual amount of fine ore. The new air shaft is down 50 feet, the bottom in fine working ground. The drift started west on the 850-foot level is in 58 feet, to a point directly under where the new air shaft is being sunk from the surface. An upraise will now commenced to meet the shaft, and both the sinking and raising will be driven with all the energy possible until the two are connected.

YELLOW JACKET.—Sinking the main incline below the 1,740-ft. level is making excellent headway. Sinking the north winze from the 1,540-ft. level to connect with the north drift on the 1,740-ft. level is being pushed ahead with all the energy possible. The indications of ore developments on this level are certainly much superior to that of either of the last two levels.

KNICKERBOCKER.—The cross-cut on the 700-ft. level is in 90 ft., cutting frequent seams of quartz of a very favorable ore-bearing character, with some water coming in and undoubted indications of soon reaching the main ledge.

SOUTH COMSTOCK.—The shaft down 37 ft. today. Rock hard but blasts well. A temporary house has been built over the shaft which will suffice until the shaft has attained a depth requiring the erection of steam hoisting works.

CHOLLAR-POTOSI.—Daily yield forty-five tons of ore, the assay value of which is $27 per ton. Cleaning out and repairing the main incline below the fifth station level is making much better progress. The bottom of the old works will soon be reached.

CALEDONIA.—Sinking the winze from the 900-ft. level to connect with the east drift from the 1,000-ft. station for air purposes is making rapid headway.

BULLION.—The south drift on the 800-ft. level from the old shaft, running to prospect the ore vein, in the Exchequer ground, is making fine progress.

UNION CONS.—The east cross-cut on the 1,300-ft. level has encountered some fine streaks of quartz during the week, and there is hardly a doubt that the paying body of ore will be yet developed on that level.

UTAH.—The north drift on the 400-ft. level has encountered some fine quartz with much more favorable indications of finding a paying body of ore. The main south drift on the 400-ft. level is also looking quite encouraging.

SUTRO.—The face of the main west drift is in soft working ground. Bunches and streaks of quartz are occasionally encountered, some of which are of a very promising character.

OVERMAN.—The ore developments on the 1,200-ft. level are looking more encouraging every day, and there is but little doubt that when another level is opened up a good paying mine will be developed.

BALTIMORE CONS.—The body of quartz found in the cross-cut on the 750-ft. station is steadily improving in appearance, and there is but little doubt some good ore developments will soon be made.

LEO.—Main tunnel is making fair progress ahead and the ore vein in its face is widening and carrying a better quality of quartz again.

AMERICAN FLAT.—Some fine streaks and spots of ore have been encountered in the main southwest drift on the 750-ft. level, and when the main drift, which has been stopped, is continued, there is every prospect of the opening up of a paying body of ore.

SUCCOR.—The material in the face of the main west drift from the 550-ft. station, is getting much softer and admits of much better progress.

MINT.—Sinking the main shaft is making steady progress. There is no water to interfere with the progress of the work.

The New Power.

One of the most noticeable features of the times is the uprising of the professors. The men who are at the head of colleges and universities ere no longer content with their pupils and their class-rooms. They are emerging in many places from their studies and laboratories, and are enlightening the world upon things which it ought to know. Max. Miller is a world teacher rather than a professor at Oxford. When Tyndall speaks it is from en intellectual Olympus. Not only Belfast but civilization is his audience. Huxley's speculations radiate from his lectnre room to the uttermost ends of the earth. Professor Sumner, of Yale, in a single smell publication, has thrown more light upon American finance than can be found in the multitudinous volumes of Congressional debates. Professor Seelve, of Amherst, hes just been elected to Congress from the Tenth District of Massachusetts, without the slightest effort on his part. He owes his popularity end elevation to an eddress on finance, delivered some time ago, which led his constituents to believe that in the retiring and scarcely known professor they had the law giver of whom they were in searcb. Professor Bonamy Price, of Oxford, is now on a visit to this country. Wherever he goes large crowds of the most intellectnal people flock to heer him on currency and political economy. His last appearance was before the Board of Trade of Chicago. More attention is now generally peid to what Goldwin Smith or J. E. Carnes has to say on a certain class of subjeots than to the most eloqnent politicians. John Stuart Mill exercises a wider influence on humanity than any contemporary statesman, not even excepting Bismarck.

The reeson of all this is plain enough. The professor of to-day hes always something to say that will be of benefit to the world. His labors are no longer directed to the study and contemplation of the antique. He knows more than the history of Greece and Rome. He is skilled in other matters heside the dead lenguages. He has risen above syntex and prosody, and considers there is more in the world needing study than a logic, which, by its subtlety, supersedes the very thing which it wes intended to illustrate. If we were to seek any figure that should at once exhibit the change which has taken plece in him, we should say that he no longer turns his hack upon life, peering into the dead past, but devotes all his energies to the phenomena that are transpiring around him. There are professors who can tell the world more about banking and currency than all the benkers in Christendom. There is no merchant—no matter how long he may have been engaged in commerce—who cannot learn something about prices and exchange from them. We do not know bnt that the lawyer, who, because of his training as a public speaker, has been monopolizing a good deal of the statemenship of all countries, could hear from them, even in his own special walk, something that it wonld be well for him to lay to heert.

The oharacteristic of the thought of the times is that there is nothing too small or insignificant for examination. We have large treatiees on the respiration of plants. Great men are not ahove devoting a large part of their lives to the study of bees and ants. Among the investigations of modern scientists even the beefsteak and the best method of cooking it has a place. The ege is one of inquiry into the familiar things which surrondd us. An explanation of what a man does when he walks, and the machinery which he brings into play, is considered to he of more importance than the geography of the Anahasis of Xenophon. What happens when a grain of wheat is put in the ground—a mystery yet not entirely solved—is a more attractive study than tbe strategy of Hannibal or the absurdities of Commodus. If there be any branch of the past that is being deeply considered it is the remote past. Tho explorations of modern times run rather to Assyrian inscriptions and buried Troys than to the period of Horace and Virgil. We know more about the Rig-Veda than we do of the Berkeleyan philosophy. But the two fields of study—the twilight of things and the present are really closely connected, in consequence of the similarity of the means employed. Schliemann recognizes the pick as the precursor of the pen. The old method wonld have been to critically examine Herodotus—to compare texts and force meanings. The modern method commences with a trench.

Hence it is that the professor is no longer a mere book-worm, who glides through dark corridors, and differs from the musty tomes of the library only in power of locomotion. He is, on the contrary, the most accomplished man of the times. In his retreat he has discovered the meaning of things familiar to everybody, but for that reason imperfectly understood. When he lectures, as a consequence crowds flock to hear him. When he speaks, it is in accents that are carried around the world. He is bonnd, from his accomplishments, to force bis way into the active concerns of life. There will be more heard of the professors in the future than in the past. They are of no profession, though skilled in all.—*Bulletin.*

During October 8,000 tons of coal were unloaded on the Tnckee division of the California Pacific Railroad. The company is probably bringing in a winter supply.

San Bernardino county, California, compriees an area of over 23,000 square miles, and is the largest county in the Union.

Grass Valley Mining Prospects.

There seems to be a good feeling in this community, says the Grass Valley *Union*, about the very near future of the mining industry of the district. While it is trne that the winter has set in at an unnsually early day, and while comparatively few mines are now at active work, yet great hopefulness remains with all our people bere. The owners of "locations" are not disposed to sell out, but are actively engaged in making arrangements to do ectnal work. High prices ere asked for untouched ledges, which show that owners have confidence in their value. In some cases we are disposed to think the prices asked for some mining properties are put too high—so high as to be a bar to early dsvelopments of mines. Still the miners here are those who bnild up this part of the country. Some good farms are here, and meny good orchards and vineyards exist in the foothills, but mining, at last is the bedrock, or foundation, of the prosperity of this section. We are glad to say that the mining busiuess is comiug to the front. Massachusetts Hill and the claims situated thereahouts will soon be worked. Owners of claims there are agreeing about boundaries and about dividing lines, and they are so harmonious that hopes of a consolidation of all the interests can be reasonebly entertained. If the consolidation of the Massachusetts Hill claims takes place, one of the bsst mining properties ever seen on this coast will immediately come into the market. At Deadman's Flat the mines are attracting notice, because they pay their own way and divide a surplus among their owners. The Pittsburg and the Gilbert show well—they do more than a mere showing, they pay. New York Hill continues to give out rich rock from the stopes. A crushing is now going on of rock from that mine, end it will be splendid. The Empire, of Ophir hill, shows well in all its lsvels and openirg. There is a general feeling all around Grass Valley that a good time is coming, in the way of mining, and that it will come very soon.

Quartz Mines in Montana.

There are many persons in Montana who have no faith in the permanency of the quartz lodes. Why this impression prevails we do not know. As well might the same individuals proclaim thet there was no bottom to the ocean, or that some of our mountain peaks touched the sky. The actnal developments npon the quartz mines in this territory look, to one who has had experience in mining, like child's play. Some have gone so far as to sink to a depth of one or two hundred feet upon their lodes, hut instauces of this kind are rare. The majority of the lodes loceted in this territory do not show a developed vein ten feet from the surface. As well might an intelligent Pennsylvanieu expect a hen, by scratching in his garden, to strike an oil stratum or a flowing well, as for a quartz miner to expect to know anything about his lode, until he has seen it to a depth of four or five hundred feet. Soms of tho most promising lodes we ever saw (we have seen hundreds) failed at a loss depth than one hundred feet. The developments made so far in this territory, as a general rule, amount to nothing. There are not more than twenty lodes in Montana that bave excavetions on them to a depth of a hundred feet. The owners of qusrtz lodes should sink npon them until the primitive formation is found, and then they would at least have something upon which to base a calculation for future operations. The belief is almost universal that our mines are the best in the world, but this belief is based solely npon what may bs justly termed surface indications. The development of a single lode to the depth of 800 or 1,000 feet would go further towards determining the future of this territory than all other things combined.—*Helena Independent.*

Hanns vs. Brains.—Nothing is perhaps becoming more evident than the fact that rude labor, requiring only a certain amount of practice end dexterity, is now generally bettter paid than that which involves more or less of education, brainwork and skill. In many places the clerk is not earning half the income of the carpenter. In short, all kinds of manual labor, both skilled and unskilled, are at a premium; while all that is sedentary end involves chiefly, if not exclusively, the work of the brain, has become a drug in the market. Day laborers grumble when receiving only $2 for eight hours work, while clerks can be had by the hundred for $8 or $10 a week, with hours of almost any length. All tbe professions are orowded. The candidates for sedentary work increase at a far more rapid rate than the demand for them, and hence is coming round the strange anomaly that education, instead of fitting the young for earning higher wages and getting on better in the world, is actually becoming a bar to their progress, and condemning them to a life-long course of pinching and unremunerative struggle. The fact is undonbted, whatever may he its cause, and however society may seek to apply a remedy. —*Chicago Inter-Ocean.*

The California Acclimatizing Society reports an increased demand for the Eastern speckled trout for stocking private waters on tbis coast. The society during the present season has sent Esst for 100,000 eggs. It has introduced into the State salmon-trout from the St. Lawrence river and the great lakee east of the Rocky mountains; and other important additions to our stock of fish are contemplated.

Low Freights and Their Meaning.

The application of steampower to ships and to land vehicles has up to the present failed to realize entirely the expectations that have been formed of it. Even in Europe railroads are only now becoming common, and the ocean steamships are, as compared with sailing vessels, few and far between, and the increase in speed, both of vessels and vehicles, has not at all been followed by a corresponding decrease in cost of transportation. In numerous instances quite the contrary has been the fact. It is this which still fiills the clipper ships of the world with cargoes, which makes the commercial marine of Great Britain and the United States still composed of the same kind of craft that have floated on the ocean since the beginning. Through this the merchant in San Francisco has to wait from four to six months for goods from New York that he ought to have had in a fortnight, and the California Wheat shipper has to send his produce in clipper ships that take from two to three months longer than would steamers.

There may he reasons for high steamer and rail freights, but we confess we cannot appreciate them. If the use of steam fails to reduce the cost as well as the length of time in transportation, then it fails in a great measure to fulfill the expectations formed of it. But we cannot see why double the charge should be made by steam for one-half the time by sail, or as sometimes three and four times the charge. No—cheap freights ought to he secured by the use of steam, the general public feel it even if they cannot tell the reason why, consequently one of the great popular demands of the day is that for cheap transportation.

The commercial world, the American portion of it particularly, and that of San Francisco especially, needs cheap transportation. Want of it hurts every interest of the State, financial, commercial, and industrial. This is a subject that we have often alluded to before, and we mean to discuss it frequently in future, at least till the evil complained of is removed. The financial interests of the State suffer by it, in that it lessens the amount of capital by just so much as is paid away over what ought to be a fair rate. The average rate paid for freight on Wheat to England since California first began to export Wheat may he given at £4 or $19.46 3-5 per ton; Wheat can be carried at £2.10 or $12.16 3-5 per ton with profit. It is what is paid now. The difference between them, $7.30 on 60,000,000 centals, the whole amount exported since California first became a Wheat exporting State, amounts to (counting short too) $21,900,000. Not only would the State be so much richer by this amount, but it would have helped to reduce the rates of interest, and thus would have given an impetus to its industrial interests of the State which nothing else could do. It would have made the producer so much richer, and thereby would have rendered trade hrisker, and the State more prosperous. This is just what cheap Wheat freights in the future would also do.

It is not alone, however, cheap Wheat freights that we want; we want cheap Lumber freights, cheap Wool freights, cheap Wine freights etc., cheap freights by land and sea, by clipper, rail and steamship. Cheap freights mean cheap money cheap, Foreign goods and the best possible price for home products.

Cheap transportation for California looks forward to the building up of a great State, with great cities, a great people and great commerce; a State of which its inhabitants will, in the future, he as proud as the Frenchman is of France or the German is of Deutchland. It means that the San Francisco of the future shall be—not a second Venice, Athens, Paris, London, Rome or New York—but far mightier than they, and as much ahead of them as the civilization and enlightenment of the present is ahead of that of the past. Dear transportation means to go back to the era when the red Indian roamed, wild and undisputed, the lord of the continent.

And to all efforts towards breakiug down the monopoly in the carrying trade, we say, Amen, whether it be that of the merchant or farmer; whether it bc in the direction of the railroad or of the steamship or clipper ship; whether it be on Wheat to England or on Case Goods, Merchandise or manufactures to New York or Colorado. —*Journal of Commerce.*

El Dorado District.—We are pleased to learn, says the *Silver State*, that eastern capital is being invested in mining property in El Dorado District. The district ie situeted on the western slope of the Hnmboldt range, about six miles from the railroad, midway between the Humboldt House and Rye Patch. Angus Morrison and Fred Lambing have worked faithfully in the district for several years, and by untiring energy have succeeded in developing a few of the most promising mines snfficiently to attract the attention of capitalists. A Mr. Waldron ie now in the district, examining tbe mines, and is so well pleased with their appearance that he has made arrangements with the owners for their further development, with the view of ultimately purchasing them right ont. The district hes many advantages. It is contiguous to the railroad, and a fine stream of water, large enough for mill purposes, flows through its center. There is also considerable wood in tbe mountains, and a good natural road for a considerable distance up the cañon. Some of the ledges are quite large and well defined, and it is generelly believed that the Rye Patch lode has been found in the district.

Two seats in the San Francisco stock board have recently been sold, one for $15,000 and the other for $17,000.

The Screw Propeller.

Who first discovered the screw propeller is almost universally disputed; Americans, English, French, Germans and Italians all put in a claim, and thet not for an individual of each nation, but in some countries more than one of their sons—or rather their descendants—dispute the honor of being its author. An impartial student will probably come to the conclusion that experiments to discover the means of applying the screw as a motive power to ships were at different periods spontaneously, independently, and sometimes simultaneously made in various places by inquiring minds, who were perfect strangers to each other and to each other's discoveries and appliances. So far back as 1726 David Bushnell, a native of England's American colonies, made experiments by means of a screw to propel a submarine torpedo. Evidently his essays were not successful, or those infernal machines would have been heard of sooner. In 1836, John Smith, an Englishman, formed a company and built the first sea-going screw steamer, appropriately named the Archimedes, from which date the success of the screw propeller was an accomplished fact. Between 1726 and 1836 many inventors took the matter up, but it was not until 1832 that one of the experimentalists, Frederic Sauvage, hit upon the idea of applying steam to the screw as a motive power. Up to that period it had been sought to drive the screw by a capsten manned by men, or other cumbrous and non-practical mesns. In France, Frederic Sanvage is considered to have the largest share of merit in practicelly applying a machine which is the production of many minds, and which even now is being continually improved. The town of Boulogne-sur-Mer, where Frederic Sauvage was born on the 20th of September, 1786, has lately gone to considerable expense in awarding him posthumous honors, which recently culminated in the uncovering of a monument to his memory. The monument over his grave is a square pediment in three portions, made of grey marble, of the same kind as the Napoleon column is built, and obtained from the Marquise quarries. It rises to the hight of 14 feet, and on the top a bronze heroio-sized bust of Frederic Sauvage is placed. On either side of the monument is an inscription setting forth the date of his birth, death—19th July, 1857—the translation of his remains, and a list of his inventions. On the front are the two words "Frederic Sauvege," and a bronze relief showing a vessel with a screw propeller, a pantograph—*procede Collas* —a physonotype, a horizontal mill for sawing marble, and a soufflet hydraulique for raising water, all of which were invented or perfected by F. Sauvage, who, in addition, invented the conformateur, an instrument for measuring the head, the physionométre, and an automatic boat. The bronze bnst and basrelief were modelled by Mr. John Hopkins, an Anglo-Boulonnais, and were cest by Messrs. Thiebaud et Fils, of Paris. Frederic Sauvage's life was similar to those of many other inventors, in that he spent his days and fortune in perfecting inventions which brought him no profit. Having lost his own money, he borrowed from others, and, being unable to repay, was thrown into a debtor's prison, which he afterwards exchangcd for a madhouse, and where he died on the 19th of July, 1857. The monument was designed by M. de Bayser, town architect of Boulogne.—*London Times.*

The Kearsage Quicksilver Mine.

Last Satnrday, says the Lake county *Bee*, we visited the Kearsage quicksilver mine, which is situated about six miles west of Middletown, and fonnd it to be one of the richest mines in the district. The number one tnnnel opens from a face of sixty feet, rnns northeasterly and cnts a ledge running northwesterly, and southeasterly, sixteen feet in width. A shaft is sunk thirty feet from the winze. Another tunnel opens 280 feet on the face of the cleft. The same character of rock is found in these two tnnnels. The third and largest tunnel rnns from the back of the ledge, and is in 690 feet. At 50 feet from the opsning of the first tunnel a rich deposit of ore, eighteen feet in width, has been struck. The ledge struck in the back (third) tunnel is abont the same width, but shows different rock. The compeny bave a bench of three retorts—the largest in the State—now at work, each of which reduces 6,200 pounds daily. They intend immediately to erect several furnaces. There are four claims 600 by 1,500 feet, including the company's property. There are two qualitics of rock in the Kearsage mine—one, hard cinnabar rock and the other cinnahar intermixed with globules of native quicksilver, both being remarkably rich.

A substantial bnilding for the superintendent is now being finished and a number of cottages for the workmen are already built. John O. Hanscom is president of the company, and James McHaffie, secretery. E. T. Armstrong, of Vallejo, and Supervisor J. M. Davis, of Lake county, are part owners of the mine. C. T. Cntler is the superintendent—one of the best on the coast. He has, at present, abont 50 men at work. Tbe company will presently increase their force of men and we confidently predict that, ere long the Kearsege will be one of the leeding quicksilver mines in the State.

The tunnel which has been driven into the North Bloomfield mine, Nevada county, is completed. It is nine thousand feet in lengtb. The flume will be completed in a few daye, and the work of washing will then commence.

Good Health.

Insects as Agents in Propagating Disease.—The article published in another part of this number on the fertilization of flowers by insects suggests some considerations relative to the part which insects perform in the propagation as well as the prevention of disease. It is well known that putrefying organic matter attracts flies and other insects to seek it as a nidus for their eggs, where their larvæ find an abundant supply of food as soon as they are hatched. The ulcerations and eruptions which characterize many infectious diseases attract flies, and it is reasonable to suppose that, after alighting upon an infectious ulcer or pustule, they often carry away with them small quantities of virus, which may infect healthy persons upon whom the insects may subsequently alight. The disease known popularly as carbuncle has been attributed to the action of certain insects supposed to carry with them virus generated in certain diseases to which bovine animals are liable. It seems very possible that small-pox may be communicated frequently in this manner. To what extent insects act as carriers of pollen from flower to flower, does not seem to have been investigated as the importance of the subject demands. That they act also as scavengers, devouring substances the decay of which would pollute the air with unhealthy gases, and perhaps miasm, cannot be doubted; and the old notion that a scarcity of flies denotes an unhealthy season, and *vice versa*, may have a scientific foundation.—*Ex.*

Diphtheria and Croup.—An idea prevails among physicians that diptheria and croup are both diseases that can be prevented by proper attention to hygiene, and can be cured by proper treatment at the beginning of the attack. As to what the hygienic rules and the medical treatment, should be, however, there are differences of opinion. The New York *Times* of the 17th instant publishes a long article with statistics showing that in the last week of October the deaths by diptheria were 12 per cent. of the total mortality in New York city; 14 in Patterson, New Jersey; 8 in Brooklyn; 3 each in Baltimore and Philadelphia, 2 in Boston; 1 in Washington and less than 1 in Chicago, while there were none in Cleveland, Memphis and Nashville. An examination of the cities by districts shows that diptheria is most fatal in places where the ground is swampy, drainage bad, pools of stagnant water numerous, and the dwellings filthy. The epidemic of diptheria was followed by another of small-pox, which was most prevalent in the districts where the other disease had done the least harm. Is there any lesson in these facts for San Francisco?

Decaying Leaves.—The *Sanitary Record*, of London, calls attention to the mischief which fallen leaves are capable of producing under certain circumstances, and especially on heavy lands: "The ground that is strewn with leaves becomes a nursery of morbid influences. The delightful odor that fallen leaves diffuse in woods suggests their harmlessness; but on the roads and walks where the leaves are hourly crushed, and the dropping rain makes a paste of them, they are, without doubt, pestiferous nuisances, which should be removed as quickly as possible by parochial authorities and private proprietors."

Application for Burns.—M. Lebigot, in the London *Lancet*, recommends the following mixture as having been very successful: Cape sloee, four ounces; water ten ounces; alcohol (90°), three ounces. The ingredients are to be melted together in a china plate over a slow fire, allowed to cool, and then filtered; after which three more ounces of alcohol are to be added. It is then ready for use. A tablespoonful of the liquid mixed with a teaspoonful of acetate of lead and twenty tablespoonfuls of water constitutes an excellent remedy. It is to be applied morning and evening on the burnt parts.

Death from Lightning Painless.—Owing to the velocity with which the electric current moves, it is certain that a person struck by lightning has no premonition of the blow which he receives. When we see the zigzag of the flash, we see only the effect produced by the current which has already passed away. Tyndall says: "The nervous system requires a certain interval of time to become conscious of pain. The time of an electric discharge is but a small fraction of this interval; hence, as no sentient apparatus, the nervous system is destroyed before consciousness can set in."

Remedy for Dysentery.—The following simple remedy, says the *Druggists' Circular*, (good authority) has been known to cure the most obstinate and malignant forms of dysentery when all the ordinary methods were ineffectual: Take hot water, one-fourth of a pint; vinegar, half a pint; mix; then continue to add common salt as long as it will be dissolved, stirring and irritating it freely and frequently. Give for an adult one tablespoonful every hour until the bloody discharges cease, or until it acts freely on the bowels.

To Prevent "Day Dreaming."—Study mathematics; engage in solving problems; bring your mind down to matters of fact; read works on natural history, on the natural sciences; give up romance, novels, etc.; try your hand at mechanism; invent and use machinery; finish what you begin and you will cultivate application and prevent the mind from wandering.

Renewing the Body.—When science discovered that the human body underwent an entire change during a period of seven years, it was thought very remarkable, but Dr. Lyon Playfair read a paper a few days ago before the British Social Science Congress, wherein he declared that all the particles of the body change in a space of time even less than a year. The same eminent authority wisely declares that the substance of all our sanitary science, accumulated by the ages, might be summed up in the pregnant advice of the prophet: "Wash and be clean." This learned physician says that for a thousand years after the civilization of the Egyptians, the Jews, the Greeks and the Romans had faded, there was not a man or a woman in Europe that ever took a bath. To this fact he attributes, in a large measure, the wondrous epidemics of the middle ages, which cut off one-fourth of the population of Europe—the spotted plague, the black death, the sweating sickness, and the terrible mental epidemics which followed in their train—the dancing mania, and the mewing mania, the biting mania and witchcraft.

Sugar for Scrofula.—The *Druggists' Circular* says that children of a weak and scrofulous habit should be allowed all the white sugar they desire. It improves digestion and strengthens the blood.

Useful Information.

How the Sun is Studied Scientifically.

When we telescopically examine that brilliant surface which we see daily with the naked eye (the photosphere), to study such of its phenomena as are here described, we do not need the spectroscope, but some means of protecting the eye from the blinding light and heat, and this should not involve the use of any colored shades. If we look into an unsilvered glass, as, for instance, into the panes of a shop-window from the street, we observe that it acts as a mirror, throwing back a feeble reflection of ourselves, or other objects without; most of the rays of which have gone altogether through the glass, while a comparative few are returned to form the image. It may occur to us, then, instead of looking directly at the solar image formed by our telescope, to let it fall on a piece of plain glass, placed diagonally, through which about nineteen parts in twenty of the light will pass and be thrown away, the remaining twentieth being reflected, and forming an exact though enfeebled image.

When this has been done, if the reflected image be still too bright, we may reflect it again, this time only a twentieth of the first twentieth reaching the eye, and so on to any degree; but it is strikingly illustrative of the intensity of the solar splendor, that, when by three such reflections the sunlight has been enfeebled 8,000 times, we yet find it intolerably bright. Instead of more mirrors it is better now to arrange that the third mirror may rotate, so as to *polarize* the light. When this is done the image of the sun appears distinctly, (if the optician has done his work well), colorless, and of any brightness desired.

The instrument thus described in general terms is known as the polarizing eye-piece. All danger and discomfort in studying the sun disappear with its use, and we may look at its unclouded face as though the eye had been strengthened to bear its light; in fact, many hours of scrutiny of the solar disk with this instrument wearies the eye less than a few minutes' telescopic examination of the moon does without it.—*Popular Science Monthly.*

Waste Nothing.—The Chinese, more than any other nation, have reduced the saving of fertilizers to a science. It is well known that they scrupulously save, disinfect, and put to valuable use every particle of offal. In no other way could their land be so enriched as to support its teeming inhabitants. Liebeg traced the primal fall of Rome to the building of her great sewers, which conducted to the Tiber fertilizing material which should have been applied to her soil. It was the lack of breadstuffs, consequent upon the poverty of arable lands, which drove the Romans to foreign conquest, and ended in the overthrow of their own liberty. Our people are wasting every day substances, which, if properly utilized, would save them many a dollar and much tribulation.

A remarkable and very beautiful shade of blue is noticeable upon many of the ancient ornaments found in the tombs of Egypt. Analysis some time since proved the color to be formed by a combination of soda, sand and lime, with certain proportions of copper, from which substances the Egyptians managed to produce three different products—first, a peculiar kind of red, green and blue glass; second a brilliant enamel; and lastly, the color to which reference is above made, and which was used for painting. By synthetical experiments, M. Peligot has succeeded in reproducing this peculiar shade of blue, by heating together 73 parts of silica with 16 of oxide of copper, eight of lime, and three of soda. The temperature should not exceed 800 deg. Fah., as, in such case, a valueless black product is the result.

Wood, saturated with paraffine, it is said, can be used in sulphuric acid works in place of lead-lined casks.

Colored Inks.

The following recipes have been well tested and are commended by good authorities as preferable to the solutions of aniline dyes which are now so extensively used as colored inks:—

Green. Two parts acetate of copper, one part carbonate of potash, and eight parts water. Boil till half is evaporated, and filter.

Blue. Three parts Prussian blue, one part oxalic acid and 30 parts water. When dissolved, add one part of gum-arabic.

Yellow. One part fine orpiment, well rubbed up with four parts thick gum-water.

Red. With the aid of a gentle heat, dissolve four grains of carmine in one ounce of aqua ammonia, and add six grains of gum-arabic.

Gold. Rub gold leaf, such as is used by bookbinders, with honey, till it forms a uniform mixture. When the honey has been washed out with water, the gold powder will settle at the bottom, and must be mixed with gum-water in sufficient quantity.

Silver. Silver-leaf treated in precisely the same manner gives a silver ink. Both these inks may, when dry, be polished with ivory.

Black. Three ounces crushed gall-nuts, two ounces crystallized sulphate of iron, two ounces gum-arabic, and twenty-four ounces water.

White. Fine French zinc-white, or white-lead, rubbed up with gum-water to the proper consistency.

Mode of Ascertaining the Various Kinds of Materials in Mixed Fabrics.—A German industrial journal gives, after M. Vupp, the following treatment for fabrics containing silk and wool, with vegetable fibers. All vegetable fibers resist caustic alkaline solutions, even when boiling, and are dissolved by sulphuric, nitric, hydrochloric acids, even when diluted, with heat. Vegetable fibers when burnt do not give forth any alkalis, especially when hot; the sulphur which it contains combines with the alkali, and the solution becomes black when acetate of lead is added to it. In burning, wool produces the same smell as horn. Silk is dissolved both in the acids and the caustic alkalis, and produces an odor similar to that of wool; but it contains no sulphur, and, consequently, its solution in alkalis is not blackened by acetate of lead. In order to distinguish these materials in a tissue, it is treated first with concentrated hydrochloric acid, cold; the residue is then washed in a filter, and if necessary bleached, by means of water containing chlorine, and then washed again in pure water and boiled with caustic soda, which dissolves the wool, leaving the vegetable fiber intact. The wool is distinguished from silk by adding acetate of lead to the liquid, as already mentioned.

Steam-Power in Europe and America.—Some statistics compiled by the Prussian statistical bureau seem to show that while our American free-traders are lamenting over the decay of American commerce, our country is really one of the foremost nations in the world in the use of steam. In stationary engines the comparison stands thus: United States, 40,191 engines, 1,215,711 horse-power; England, 40,000 engines, 936,405 horse-power; France, 27,041 engines, 325,507 horse-power. We also lead in locomotive engines, viz: United States, 14,223 engines; Great Britain, 10,933; France, 4,933. Total steam engines, both stationary and locomotive, 3,800,000 horse-power in the United States, and 3,300,000 in Great Britain. It is only in ocean steamers that we are behind; viz: Great Britain, 3,061 steamers, 2,624,431 tonnage; United States, 403 steamers, 483,040 tonnage; Germany, 225 steamers, 171,039 tonnage. Before 1880 the account will stand very different. But in the meantime, on land we are indisputably supreme in steam power, being 500,000 horses ahead of England.

Mechanical Treatment of Metal.—It sometimes happens that by centering, etc., the interior diameter of a tire becomes so much too large that it will not fit the wheel. This defect may be corrected according to a German plan, by heating the tire red-hot, and holding it in that condition half immersed in cold water until cold, then heating again red-hot, and immersing the other half the same way. In the first operation the unimmersed hot portion must contract with the portion rapidly cooled, with a corresponding condensation of material, and consequent permanent diminution of diameter, and, in the second operation, a similar effect is produced on the other half. This resort is not confined to tires alone, an instance being recorded where a ring of Bessemer steel, to be used as a flange ring, had been entirely misshaped by an inexperienced workman, and was drawn into shape by heating fifteen times, and cooling different portions.

To Soften Hard Putty.—The following from a correspondent in Falls City, Pa., under date of July 25, 1874, is worth making a note of: "In your number for July you give a method of softening hardened putty by an application of caustic potassa. A plan I have used with great success is to apply a hot iron to the putty; the kitchen poker, bent at the end, answers as well as anything else. The iron should be heated to a cherry red, and applied a sufficient time to scorch the putty, after which the putty can be taken out, leaving the sash perfectly clean. With a reasonable amount of care the sash need not be scorched."

Domestic Economy.

How Often May We Eat?

It has been demonstrated that, at certain intervals, when food is received into the stomach, gastric juice is secreted to digest it, and that no more gastric juice is secreted than is required for the digestion of the proper quantity of food.

If a person eat twice or thrice a day, at regular periods, the gastric juice is secreted by the stomach to digest the food it has received. If, while the food is being digested, more food is introduced into the stomach, digestion (in regard to the food already in the stomach) is arrested. For instance: a person takes in the morning a piece of bread and several potatoes; now, it will take about three hours for the stomach to digest that food. Suppose the person, about an hour after eating this food, takes a piece of bread and an apple or two, what would happen? The digestion that was going on in the stomach would immediately stop, and not be resumed until the food that was received last was brought into the condition of the first. Suppose he took food every hour, what would be the consequence? The stomach would become prematurely worn out, and could do nothing perfectly, working all the time without rest. But if the person possessed a good constitution, and a large amount of vital power, he would not feel, at first, this drain upon his system, but sooner or later he would have to pay the penalty of outraged nature. For instance: a person may have a large capital in bank; he can live upon the interest very well, but he draws upon his capital. He does not feel this drain at first, because he has so large a bank account; but if he keeps on, he will become, sooner or later, bankrupt. Some persons have an enormous amount of vitality—good constitutions. It is said of these persons nothing hurts them—they can eat and drink with impunity. This is a fatal mistake. See how many years of life they are cutting off by such foolishness. If such persons live to the age of seventy or eighty, they might have reached the age of one hundred or more years, by better dietetic habits.—*Science of Health.*

Lemon Syrup.—Lemons are recommended as very wholesome and useful in certain states of the system. People often crave an acid of some kind, particularly in the warm days of spring and summer. When lemons are cheap they should be made into syrup for future use. Press out the juice of the lemon and remove the seeds, which give a bitter taste; separate the pulp from the peel, and boil the former, in the proportion of a dozen pulps to a pint of water, to extract the acid. Ten minutes boiling is sufficient; strain the water into the juice; add a pound of white sugar to a pint of the juice; boil the whole ten minutes and bottle it. One or two tablespoonsful of this lemon syrup in a tumbler of water will make a cooling, healthful beverage.—*Germantown Telegraph.*

Patron's Fruit Cake.—"Mrs. A. M. D.," of Colusa, sends us the following receipt which she thinks housekeepers, whether Patrons or not, will find worth the trial: "The day before you make the cake, stew two cups of dried apples till soft, chop fine and simmer in two cups of molasses from one to two hours. Next morning add one cup of sour milk, two small teaspoonfuls of soda, one cup of sugar, one nutmeg grated, one teaspoonful each of cloves and cinnamon, butter the size of an egg, and flour enough to make as stiff as gingerbread; raisins improve it. Bake with a steady fire. Time improves it and icing will keep it from drying and getting hard.

Keeping Meals Waiting.—Little things often interfere with our comfort very much, and one small annoyance is for men to delay coming to dinner when called. Sometimes they have an hour or more of work which they will do before quitting, and then they go to the house to find the dinner cold, and the cook discouraged. Nothing is more disheartening to a tired woman than a table full of dirty dishes, ornamenting the table an hour and a-half later in the day than usual. Punctuality is a virtue that men should learn if they are in the habit of being uncertain about coming to meals. Any woman worthy the name of housekeeper will be regular with her meals, if it lies within her to have them so.

Rye and Indian Loaf.—Scald three pints of very coarse corn meal (as coarse as that ground for horse feed) with three pints boiling water. Add one gill of molasses and three pints of rye meal (rye graham); mix all together very thoroughly, and make into loaves three or four inches thick. Set on the stove where it will simmer up and not burn, and let it stand until it rises enough to crack all over the surface. Then put into a moderate oven and bake three hours, or bake two hours and steam two hours, or put into a pretty good oven, with a declining fire, at night, and have it ready for breakfast the next morning. Serve warm or cold; better warm.

Apple Tartlets.—Peel six large pudding apples, boil to a pulp, mix with sugar, cloves and lemon-peel, to the taste; let this mixture stand till cold, then mix it with two ounces of dried currants. Make a light puff paste, take a large flat baking tin, and pour the mixture in. Cover with the pastry, and bake half an hour in a very hot oven.

MINING AND SCIENTIFIC PRESS

W. B. EWER.....SENIOR EDITOR.

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San Francisco:
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ST. LOUIS AGENCY.—George P. Rowell, of George P. Rowell & Co., advertising agente, New York City, and Nelson Chesman, late editor of George P. Rowell & Co.'s American Newspaper Directory, have formed a co-partnership nuder the name of Rowell & Chesman, for the purpose of conducting the general business of a newspaper advertising agency in St. Louis. They are hereby authorized to act as agents for this paper, for the reason that we believe them to he honorable and reliable men.

THE Masonville Reduction Works, at Masonville, Colorado, have been leased by a Philadelphia company, and are to bs put in shape and will commeuce running shortly. The works cost considerable, but the company owning them have boon embarrassed so that no work has been done for some months. The works are first-claes in every particular, having a battery of ten stamps, six pans, with a Dodge crusher, and a Stewart furnace. It is designed to erect another furnace, to work by the Hunt & Donglass process, for gold and copper.

IT seems that there are no miners in the Black Hills after all, for General Sheridan reports as much to the Secretary of War. It is possible the report may have originated from the recent discovery of gold forty miles north of Laramie City, on the Union Pacific Railroad, where many miners have gone. This place is at least 200 miles southwest of the Black Hills.

THE Denver (Col.), mint did the following bnsiness in November: Gold bullion received, 4,969 ouncee; value, $84,616. Silver bullion, 7,014 onnces; valne, $10,731. This is a heavy increaee over the corresponding month of last year.

A GOLD bar which weighed 402½ onncos, aud valued at $8,000, wae the result of sixteen days run of the Virtue mill in Baker county, Oregon.

Gravel Mining at Gold Run.

The ahundance of rain falling so early this fall hss had the donble effect of partly filling the ditches and of spurring the miners to their best efforts, to complete their preparations for the winter campaign. Most of them are uow ready, and some of the claims belonging to the Gold Rnn Ditch and Mining company have already started up, namely: "Bay State No. 2," "Gold Rnn," "Pine Top," and "North Star." These claims are and always have been good psying. The Cedar creek compary are also running some of their claims, one at Gold Run, the "Gem," and one or more at Dutch Flat. The mining season may therefore be said to almost have commonced in earneat in these localities though there are many claims that will start np when the ditches get full, ae for instance, the "Goarling Ravine company," the "Miami," belonging to Messrs. J. & R. Haskins and other claims.

The Gold Run Ditch and Miniug Company are also laying their pipes to the old Indiaua Hill claims, wbich will be opeued immediately upon the completion of their shaft and tunnel. This tunuel has heen driven very energetically and is undonbtedly the quickest as it is oue of the hest pieces of work of the kind in the Stste. The main tunnel is 10x12 feet and is intonded to be 2,200 feet long, when it will tap the old 49.54 shaft, which is sunk on tbe channel of the Blue Lead to a depth of about 200 feet in fiue hydraulic gravel; 450 feet from the mouth of the tunnel thoir hrauch for the Indiana Hill claims etarts in; this branch is 8x8 feet, and is now iu over 1,000 feet. It will be run 200 feet longer when their shaft or incline will he raised. Tbey expect to he ready to wash in February. This tunuel was commenced in July 1873; and that it hae heeu run that size and distance through very hard rock in about 16 months (actual working time perhaps not more than 14 month) is certainly very creditable to the mauager. The work has all been done with the Burleigh drill.

That this company will meet with the success tbe magnitude of their work and outlay deserves is certainly the wish of every one, and is almost assured, for they will open near the center of tbe channel of the Blue Lead with a hank of hydraulic ground from 150 to 200 feet deep, and richer thau anytbing worked in Gold Run before; besides the hedrock and strata of cemont lying upon it has beeu proven very rich.

The adjoiniug claim, the Indiana Hill Bluo Gravel Mining company, or as it is ofteuer called the Cement Mill company, is exclusively a drifting claim or claims, as the company has several, They work a breast about 7 feet high and 100 feet wide, employiug ahout 25 men. They crush the gravel using an eight stamp mill, and about 75 inches of water. The mill crushes about 45 carloads in 24 hours, each carload weigbing about 1,600 pounds. Tuis company hae been to work upon the channel of the lead for a good many years, and as a sample of its character wo give the result of their last three years' work, obtained from a reliable source. In 1874 with a nine months' run, they cruehed 10,017 carloads, which yielded $30,811 50, an average of $3 and a fraction; in 1873, with a seven months' run, 6,600 carloads, yielding $24,000, average nearly $4; in 1872, with a four and a half monthe' run, 3,300 carloads, which yielded $19,410, average $5 and a fraction. The cost of production and mining is about $2 per carload. This company is now working a full force of hands and will make the first clean-up for the eeason in a few days.

BENICIA ARTESIAN WELL.—The boring commenced some two or three years ago at the Benicia Military Post, for artesian water, is now down nearly 850 feet, and the engineer in charge, Mr. Banuell, is of the opinion that flowing water will not he found at less than 1,300 feet deep. The cost of tbe well if carried to that depth will not be less than $50,000.

THE SOCIETY OF ENGINEERS of California, held a meeting on Tuesday evening last. W. W. Hanscom in the Chair. Wm. A. Phillips read a paper on "The Properties of Steam," after which somo discussion ensued on the subject. The next meeting will be on the first Tuesday in January, when Col. Lewis will read a second paper "On the Calculation of Earthwork."

FIRST BAR.—The first bar of bullion from the mill of the Prussian Company, Jefferson Canon, was brought in on the Belmont etage last evening. It weighs 92 pounds; is valued at $1,784.40, and is 900 fiue.—*Reese River Reveille*, Nov. 25.

THE hoisting works of the Owene and Helvetia mines, at Julian, San Diego county, will soon be in full operation, when we shall expect to hear of more bullion from that camp.

THE first shipment of base bullion from the Marottee furnace, Sylvania district, Nevada, wae brought into Columbus on the 20th ult. The assay value was $874.80 per ton.

THE lawe of Reese River mining district are to be revised so as to conform to the mining laws of the United States.

Concentrating Ores.

It is said that should the concentrator now being put up in Austin by the Manhattan company prove successful in reducing their ores, the yield of bullion will be immense, ae they have unlimited quantities of ore which assays $100 per ton, but which cannot now be worksd. There is no reason why, if their system fails, some other could not be adopted for concentrating which would prove successful. In Europe tbey pay much more attention to this matter than we do here, and with great profit. They concentrate their ores right at the reduction works heforo working them, and save money that way; while here we ship ores great distances, with heavy freight charges and then work the whole lot without taking the trouble to get rid of worthless gangue. We pay freight on five or ten tons which could he concentrated into one at a cost of not more than the freight would be on two or three tons.

This matter of concentration has been badly neglected on the Pacific Coast. Attempts have heen made in several localities by inexperienced persons to do it, and when they failed, others said it was of no benefit. Concentrating is a process not to he learnt in a day or a week and because a fow have failed to make a success of it, is no reason others should not try it. This question is the most important one before the Pacifio Coast miners. We have found out by sad experience that we are unable to treat certain classes of ores at a profit, yet we know that in other countries oree just as refractory and not half so rich are worked with success. Then we ship this refractory ore away just as it comes from the mine, pay big freights, etc., and evon after that the foreign smelters make it pay.

Now down at Pauamint they are beginuing to sbip ore to England and it costs them $55 per ton. If they went to work and concentrated thie ore say five tons into one, they would make a great deal more money. For five tone of ore the total freight would he $275. Suppose they concentrated this fivo tons into one before shipping; they would then only have to pay $55 and have $220 left to pay for the concentrating. Allow then $20 per ton—a large margin—for coet of concentrating, and they would still save $120 on every five tons. They onght to concentrate their ores for less than $10 per ton, which would douhle the saving given ahove. This is not by any means an isolated case, but a common one. Many districts on this coast are failures for this very reason. They pay high charges to companies for carrying a lot of worthless gangue a long distance, when for half the money thoy could get rid of it. The day will come, however, when the benefits and profits of cuncentrating will be more freely recognized among us.

Panamint.

The Panamint minos still continue to attract considerable attention. Miuers aro leaving for the "excitement" from almost all of the older districts. From acconnte seen in some of our exchanges some of these parties have been having a rough time of it on their travels, from bad weather and roads. At the mines all is bustle and excitement. The Panamint *News* has been issned and from its first number we take the following item: "During the week Panamint has had almost all kinde of weather. Snow fell to the depth of about one inch on Saturday night last, but it has all disappeared now. The fine weather now enjoyed ie remarkable at this season of the year. The town of Panamint now consists of twenty-six frame and board buildings, all covered and occupied, hesides a large number of stockades and tents. Within the next month, if lumher can be had, at least one hundred huildings will be erected.

It is probable that everything worth taking anywhere near the mines has been already located, though new discoveriee will probably be made in the same range of mountaine hy prospectors who take a wide range of country. It is hardly worth while to advise people to wait till spring before goiug to the uew camp, as every one has his owu opinion iu this matter and no doubt hundreds are now on their way thithor, aud hundreds more will go.

The whole range of country within a radiue of a hundred miles or so of Panamint will, no douht, be thoroughly prospected next summer, as many miuers will go down there and he disappointed. The large companies, of course, can only employ a certain number of men and when the quota is filled there will be nothing left for the surplus population to do, except prospect. Still we do not know of a much hetter joh for an old prospector than to get into a comparatively unknown mineral region where the weather is not severe. The hills dowu that way will probably be covered with them in the spring and if there is anything in the country it will have to come out. Then will be the chance for people with a little money to invest, to buy mines cheap. Ae there are no crushing mills or reduction worke the miners will have to sell unless they can etand it to ehip the ore to England as the big companies are doing. The railroad surveye from Los Angeles to Independence have been completed, and as the road runs near the Pauamint mines it will doubtless be pnehed through as soon as possible.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Prese American and Foreign Patent Agency, the following are worthy of mention:

EOO CARRIER.—Joseph Perkins, S. F. Cal. This invention consists of a frame constrncted of tule grass with compartments, each of which is capahle of containing an egg. The elasticity or yielding natnre of the tule grass provides an excellent cushion for protecting the eggs from breakage.

CLOD CRUSHER.—Wm. P. Anderson, Albany, Oregon. This consists of a harrow frame provided with teeth formed of wires, which are hent so as to form inclined teeth, standing iu a line with the direction of travel. Both ends of each wire are secured in one of the timbers of the frame. The dragging of these inclined wire teeth over the ground serves to break up the clod in a more effectual manner than is done by the pointed teeth.

ARTIFICIAL FLOWERS.—Mary Barnes, Truckee. Mrs. Barnes has patented an improvement which consists in the manufacture of artificial flowers out of yarns, worsteds, etc. These flowers, when manufactured out of different colored yarns, are very pretty, and beautiful effects of light and shade can be prodnced by her method.

MINING LANTERN.—Coolidge B. Brown, Placerville, Cal. Relates to a lantern or lamp which is especially adapted for use in hydraulic mines. It consists chiefly of a combination with the main lantern of a small lantern which is capable of adjustment for giving light in any direction in the rear of the machine. Mr. Brown describes numerous improvements in the construction of the large lamp, each ae providing ventilation without unusual draft, preventing too great heat inside the lamp, and the manner of feeding the oil to the burnere, the whole forming a complete mining lamp.

BALING PRESS.—C. P. Littlepage, Thomas J. Hubbard and W. A. Greenley, Big Pine, Inyo county, Cal. Consists in the use of a large hand or steering wheel provided with peculiarly shaped cams, which take up the rope or chain very rapidly at first, and run off into cones, tapering thence to the axle as the balo is finished. With these cams are employed certain blocke or pulleys which serve to draw up the follower, and at the same time to hold tho door or covee at the top, by the manner in which they arr counected.

UPRIGHT PIANO.—Christian Boerner, S. F. Cal. The improvement cousists in securing the irou frame to the wooden frame of the piano in such a manner that a larger sounding board can be made within a certain sized piano. It further consists in a novel method of securing the sound board within the piano so that it can be adjusted with relation to the strings aud bridges, and eecure in a greater degree, the "singing tone," so desirable in this inetrument. The wrest plank is also eecnred in a novel manner, to prevent it from tipping over or springing.

CARRIAGE SPRING.—John Smith, S. F. Cal. This relatee to certain improvements in the heads, which are formed at the ends of elliptio carriage springs, for the purpose of uniting the opposite leaves, with a firm, elastic joint, and it contemplates the manufacture of a head all in one piece of cast steel or malleable iron, so that it can be fitted and welded to the spring with but little difficnlty.

DOOR SPRING.—John Steed and Chas. Naeh, S. F., Cal. Relatce to certain improvements in that class of coiled springs which are employed to operate on doors for the purpose of keeping them closed, the doors being allowed to swing in either direction. It consists in the employment of two cylinders or drume, one of which is contained within the other, the inner one serving as a case for the spring which operates a door turning on pintlee at top and bottom. In combination with these devicee an adjustable stop is employed for the purpose of regulating the tension of the spring. By the the use of certain gigs the spring is made to operate equally well in either direction, while the outer case or drum can he filled with a lubricant, and the whole eealed np tight.

THE CALIFORNIA.—The Virginia *Enterprise* thinks it is not impossible that a body of ore three or four hundred feet in width may be found in the ground of the California mine. Should a body of ore of such great width be found it would not do to depend on timbers alone in working it ont; it would be necessary to fill in the ground with rock in order to snpport the great extent of roof. Theee things are already being thought of. If such developments as that are made, we think it probahle that they will have to resort to thesystem in vogne in Europe, of building heavy arches of masonry to withstand the pressure. That would not cost very much more than timbers at the pricee they are sold on the Comstock, eepecially as the arches would not have to be very close together.

Hydraulic Mining in California.*

No. 2.

Already chasms of a thousand feet vertical depth are successfully crossed by huge iron pipes to convey water to isolated points. The practical test has proven that air can never collect at the lowest point of the inverted siphon, the point where the greatest pressure of water results. Uncalled for as this remark may seem, it must be excused for the reason that actually men of good sense and some engineering capacity expressed fear that air would be carried down with the water to the lowest point of the pipe or siphon, and collect there finally to a great extent under the pressure of two immense columns of water, and might explode at any moment as in an over-charged air-gun. This question was decided like the dispute about "weight or no weight of the fish in water"—not by philosophy, but by practical experiment. After the great pipe of the Spring Valley Canal and Mining Company, of Cherokee, Butte county, was laid across West Branch—a depression of about 900 feet—great care was taken in filling it, and the air valves were carefully watched. These air-valves showed action on that side only from which the pipe was filled; when the column of water rose to the point of discharge not a single air-bubble could be perceived, and the water decanted gently and without a ripple. As the danger of accumulation of air was only feared from pipes conveying water under enormous pressure, the experiment cited above must necessarily dispel all false theories, and it must be acknowledged that the only question in the conveyance of water through pipes is that of sufficient strength of pipe to stand the pressure of the water, be the vertical hight 500 or 5,000 feet.

Thus the field for hydraulic operation is immensely enlarged; almost all gravel deposits are accessible, no matter at what elevation they are found, and the production of gold will keep pace with the development of other great industries of the country.

Legislation.

The Congress of the United States and the Legislature of California have done much by passing wise laws for the protection and encouragement of mining interests; and it is to be hoped that further protection and facilities will be granted where justice and good sense recommend them. How necessary more legislation to protect the great hydraulic mining interests will be must become evident when the unavoidable consequences of hydraulic mining are duly considered. The whole process of hydraulic mining tends to remove mountains of auriferous gravel deposits from their natural position and to transfer their bulks to the valleys below. Where watercourses, like the Yuba, Feather river, American river, and other large tributaries of the Sacramento river are the first recipients of the debris and tailings produced by hydraulic mining, the danger of a serious blockade of the flow of tailings is, to a great extent, removed by the floods, which generally occur every winter season, and culminate, as experience has shown, at least once in ten years, in an immense rush of waters.

These floods clear the rivers to a great extent, and wash the accumulation of tailings into the bay of San Francisco, and perhaps into the Pacific ocean. But where such water-courses are entirely inaccessible, and where only small streamlets (generally known in California under the name of "dry creeks," carrying great volumes of water during the rainy season, but altogether dry in summer and fall) are the natural outlets, or where even these streamlets are wanting and artificial outlets have to be made, serious questions about the deposit and accumulation of tailings arise and threaten to cripple one of the most important branches of that industry, to which California owes her rapid rise and wonderful prosperity.

Since the lands of the United States were thrown into market, farming locations have been made in closest proximity to the mines; in fact alongside of those "natural outlets" which had been used for many years prior as the recipients of tailings, an unfortunate rivalry has arisen between the mining and farming interests of the State; some of the most influential newspapers of the country unqualifiedly pleaded the cause of the agriculturists, and the miner was represented as a mere defacer and destroyer of the face of nature. When it is considered how immense is the area of agricultural land, and how limited, comparatively, the extent of the mineral land, it seems surprising that such antagonism should arise, or that all legitimate means are not used to remove the causes of irritation.

It is evident hydraulic mining necessarily creates an immense flow of debris or tailings, and, therefore, this modus of mining requires not only the introduction of great quantities of water, through long and costly ditches, or the boring of long tunnels, equally expensive, but also facilities for the deposition of the debris or tailings in whatever natural or artificial outlet and place of deposit is offered. If, therefore, this place of deposit for the tailings is denied, hydraulic mining is at an end. On the other hand, whenever the farmer receives his patent from the United States he is sole master of his quarter-section, and can and must protest against any trespass on his property. Should his property cover the only outlet to the richest mining region in California, and even should this outlet have been used for twenty years as the recipient of the tailings, the farmer's rights would not yield to any priority, and the only way to dispossess him of his farm would be to buy him out at his own price.

It might not deserve the name of hardship if the miner were called upon, in a few isolated cases, to secure the legitimate pursuit of working his mines by paying enormous prices for land thus necessary to him; but when whole townships would have to be acquired in this way, and when farming locations were made more for speculative than for agricultural purposes, such proceedings would become the most offensive tyranny.

The proximity of these lands to some of the great gravel channels of the country has enriched them more or less with fine gold, in such a way that the question whether they are truly mineral or agricultural may arise, and at the same time impoverish them by thick layers of volcanic debris, sand, and other unfertile materials. Common sense declares that such lands, as a whole, are not fit for agriculture. Where exceptions occur let them have their full weight; but even then it must be borne in mind that certain portions of the lowlands flanking the great gravel-streams of California are as necessary to hydraulic mining operations as water or deep pasces themselves.

The General Land Office has withdrawn some of the lands in question from the market, an act of justice which deserves the highest praise; but, nevertheless, these lands may be thrown open to entry again, and then the question will arise.

The miner pleads that the lands are necessary to him as a place of deposit for his tailings; that without them work in his mines is altogether stopped; that millions of dollars have been spent in improvements, and that these improvements will be almost a total loss in case these lands are deeded away by the United States Government; that the right of way for canals and ditches, granted by the United States Government, must necessarily include the right of in and out; that the water coming in is generally pure; that the water going out is surcharged with tailings, and must necessarily commit damage of some kind unless discharged into a stream large enough to carry all tailings along; that the Government has granted this right of way over its own land; that the outlets for tailings were used under this authority long before the United States parted with the property, and that therefore the right of way ought not to be alienated from the miner, and all damages legitimately and necessarily originating from it ought not to fall to his responsibility; and that a new disposal by the United States of the lands necessary as an outlet to the miners would be an act of injustice.

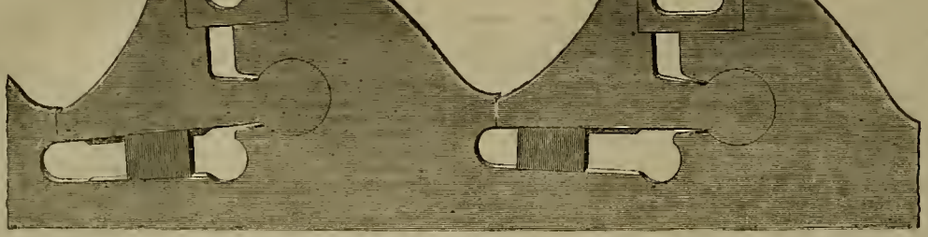
Could not these lands, worthless for agriculture but indispensable for mining, be altogether withdrawn from the market, leaving them open for all mining operations of the vicinity, so that no individual interest could enter upon them? Should a settler go upon these lands he might do so at his own peril, reaping for the time the benefit of their use, without being entitled to damages whenever the tailings overwhelmed him.

Congress might appoint a commission of competent men to investigate and report on the lands in question, and the farmer would no longer run the risk of settling in good faith on lands which would only yield trouble and lawsuits to him; nor the miner fear to see his valuable improvements made worthless, or the proceeds of his mine swallowed up by enormous payments for damages.

The question about the disposition or placing of tailings assumes such importance in view of the increasing hydraulic-mining interest, that the writer has considered it his duty to point to the future with a warning finger. The three great principal requisites of successful hydraulic mining are, first and foremost, a gold bearing gravel deposit; second, and not less important than the preceding one are the facilities for outlet and deposition of tailings; third, an abundant permanent supply of water for mining and purposes.

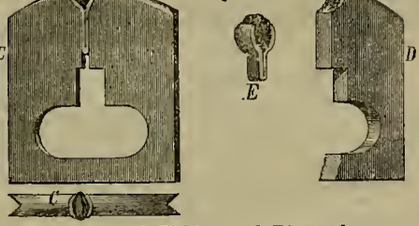
*Condensed from an article by Charles Waldeyer, in the last Annual Report of the U. S. Commissioners of Mining Statistics.

Fig. 2



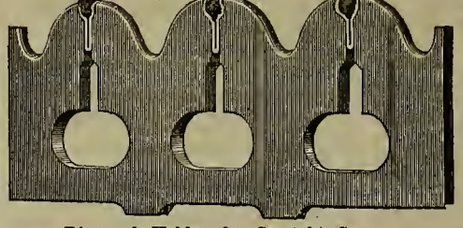
Diamond Holder as inserted in Circular Saws.

Fig 3

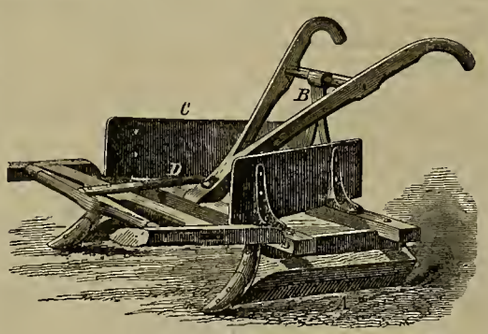


Diamond Holder and Diamond.

Fig. 4



Diamond Holder for Straight Saws.



Whitford's Potato Coverer.

MINING DECISION.—In the case of the Mono mine in Utah, the Commissioner of the General Land Office has just rendered a decision in which he cuts down the application to 1,400 feet, but suspends further proceedings in the case until the adverse claims of the Magnolia and Shoo Fly mines are settled in the Courts, and rejects the adverse claims of W. A. Rocks. The following points were decided in this case: First, where a party who commenced suit after the date of application for a patent, and afterward found an adverse claim which is irregular in other respects, the application for a patent must be suspended until the matter is decided in the Courts; second, a party who has only an equitable interest in a mine cannot be considered as an adverse claimant.

THE OPHIR MINE shows improvement at almost every point where work is being done, with the strongest possible indications of still richer developments on the 1,700-ft. level when cross-cutting in that portion of the mine shall have been commenced. The *News* thinks there is but little doubt that the rich body of ore extending downward from the 1,300 to the 1,465-ft. level is simply a continuation of the great ore bonanza of the Virginia Consolidated, which extends through the California into the Ophir, and perhaps through the Ophir into the Union Cons.

The Latest London Purchase.

The Manta Mine near Lincoln, Placer county, California, is one of the very few American mines which have lately been placed on the English market. The Company owning the property is known as the Manta Mining Company, (Limited), London. There is a five-stamp mill on the mine and five more stamps are being added by the English owners. They are also putting in a pump, hoisting works, etc. There is a shaft on the mine 240 feet deep, and three levels have been run. The ledge is a gold-bearing one about two feet wide. We are told that the ore is very similar in appearance to that of the Idaho and Eureka mines in Grass Valley, in both the characteristics of the vein stuff and the mode of occurrence, but not having seen it are unable to speak of our own knowledge. The vein at the bottom of the shaft is 4¼ feet wide, although it only shows 11 inches at the surface. The rock is said to be very uniform in its pay value, and is expected to work about $40 per ton.

This mine was placed in the English market for the sum of £50,000, and if it is worth anything at all ought to pay a decent dividend on the comparatively small capital stock. It is to be hoped that the mine will be made to pay, for our English friends have been bitten so badly of late that they deserve some recompense. California is in better repute there than most of the Pacific States and Territories, and if a few small mines were successful, it would lead the English public to invest largely here. The only trouble is that they are apt to pay too much for their mines. The Manta is considered a modest mine when placed at $250,000, but there are many properties here with as wide ledges and higher grade ore which the owners would sell for $25.000 or $50,000 to capitalists if they could. It is to be hoped that our English friends have made a good bargain, but whether they have or not we do not know, as we have no knowledge of the mine.

Whitford's Potato Coverer.

The implement represented by the annexed engraving is designed to be used chiefly as a furrower and coverer for potatoes, but it is also well adapted for hilling and ridging for Sweet potatoes and other root crops. Our illustration represents it as arranged for cutting the furrows. The furrow guides, *A*, having a steel share on their forward ends, form two parallel furrows, the bottoms of which are right angles. It is claimed that a man can drop the seed much faster in this furrow, as the potatoes will not "jump," and must fall into line.

After the furrows are made and the potatoes dropped, the implement is turned over, bringing the plates, *C*, down. This is quickly done, by first removing the handles and detaching the thills. The handles are made reversible by means of the tie-brace, *B*, which is hinged to one transverse piece of the frame, the upper end of which enters a socket on the handles and is secured therein by a set screw. The front portion of the handles is attached to the other transverse bar by a bolt. After the handles and thills are readjusted the machine is drawn by the horse so as to bring each furrow midway between the ridging plates, the soil is gathered between the latter at their front ends, and delivered at their contracted extremities, thus forming a neat ridge. The plates and guides are adjustible to any desired width of ridge or space between the rows. When it is desired to change the direction, as at the end of furrows, it is only necessary to lift the handles slightly, when the tongue, *D*, will enter a recess formed at the front end of the handles, and, bearing against it, will enable the horse to assist in lifting the machine clear of the ground, so that it can be turned without difficulty. In this cheap and simple machine the inventor—who we are informed is a practical farmer, has united three useful implements—two plows and a ridger. And when it is remembered that, with rare exceptions, our farmers raise potatoes by the old slow hand processes of a hundred years ago, it will be seen that this invention will supply a long felt want.

This implement was patented August 4th, 1874, by Le Roy Whitford of Harmony, Chautauqua county, New York. L. B. Cox & Co., 197 Water street, New York, are to manufacture the potato coverer.

ANOTHER snow-plow, after the style of the famous "No. 1," is being constructed at the railroad shops in Sacramento, and will be completed in about two weeks.

THE Silver City *Times* says the mines in that vicinity never presented a better appearance than at the present time.

"THERE are now only four miners working on French and McCullough creeks, B. C., who make about $5 per day each.

What Shall We do with our Cotton?

That California, during the few seasons in which experiments in cotton-growing have been conducted here, should effectually prove that she can snccessfully compete with any cotton-growing country, both in the quality and cheapness of this material, is a matter which can scarcely be considered "without our special wonder." Another matter somewhat surprising, is the fact that one of the pioneer cotton growers of the State, Col. John L. Strong, who has probably contributed more than any other man to the successful production of the raw material, has now taken the front in advocating the establishing of cotton manufactories in California, to convert the prodnct into all the fabrics for which it is available. The San Francisco *Call*, of November 15, contains an exhanstive article on this subject, written by Col. Strong, of which we propose to give a brief synopsis.

Elaborate and convincing statements are given, showing what cotton manufacturing has done for England and the United States. He says: "It is only 73 years since the British export trade in cotton goods was covered by the small sum of $15,000,000; and in 1871, 71 years after, the products of British looms from raw cotton, reached the almost fabulous sum of $493,476,880. In 1787, the first cotton factory was built in the United States; and in 1869, 72 years later, Hon. David A. Wells, Special Commissioner of the Revenue, reported the value of goods produced $184,000,000.

It is stated that the cost of the raw material consumed in England during the calendar year 1871 was $197,556,120, and that the increased value imparted by manufacture was $265,617,790, or about 130 per cent. Mr. Wells states the value of raw material consumed by American mills in 1869 at $112,500,000, and the increased value imparted by manufacture $71,500,000. It is proper to remark that the results of the year 1871 were predicated upon cotton at a cost of 16¼ cents to the British manufacturer, a consequence of the war between Prussia and France, while, in the case of American manufacturers in 1869, the results were predicated upon cotton at a cost of 25 cents per pound.

Similar and even greater benefits, it is claimed, may be secured to California by converting cotton into manufactured articles. After presenting some carefully prepared tables exhibiting the profits derived by Great Britain from her cotton manufactories, the writer brings the matter a little nearer home, as follows:

An equally impressive illustration of the value of manufacturing industry, as a contributor to prosperity and powers of communities, is found in the progress of cotton manufacture in the New England States. Without entering into any elaborate consideration of that progress, we may understand its results from the following table compiled from a report to the Legislature of Massachusetts upon the condition of her factory operatives.

Table showing capital, annual average dividends and market value of the stock in the principal cotton factories, from 1862 to 1869.

Name of Mills.	Average Dividends.	Capital.	Value of Stock. Mkt. val.	Par val.
Chicopee	26½ per cent.	$4,200,000	$ 325	$ 100
Merrimac	15⅝ " "	2,500,000	1,700	1,000
Middlesex	22½ " "	750,000	100	100
Naumkeag	19⅝ " "	1,500,000	167	100
Pacific	21⅛ " "	2,500,000	2,200	1,000
Salisbury	22½ " "	2,000,000	360	100

Mr. Strong is not alone, by any means, in the persistent, far-seeing effort to work up this material in the places where it is grown. The true friends of the cotton growing States of the south are using their best efforts to establishing cotton factories at home. The following extract from an article written by ex-Governor Patton of Alabama, and published in *The South*, April, 1873, is used by Mr. Strong to fortify his position.

"The city of Lowell, Massachusetts, was founded in 1822. It now contains cotton mills with an aggregate capital of $13,600,000. They are operated by 13,500 employes, mostly women, girls and boys. These establishments have 448,180 spindles, and 12,160 looms. They consume about 65,000 bales of cotton annually. This cotton, at $80 per bale, is worth $5,200,000, and by the labor of the 13,500 operatives its value is fully trebled; that is, when it leaves their hands it is worth at least $15,000,000. Now, let it be observed that this raw cotton, worth but $5,200,000, required for its production something like 22,000 laborers' strong hands. This statement will serve to show the great disparity in the value of labor employed in raising cotton and manufacturing it into yarns and cloths."

Mr. Gillman, of Texas, is also quoted, who, in the course of a long and able article urging the erection of cotton factories in that State, speaks as follows:

"There are general expenses incident to manufacturing cotton which bear much heavier upon small than upon large capital engaged in it; hence, it is more profitable to operate with from $200,000 to $1,000,000; and for the comparison to be made, I will suppose an investment of $200,000 at some point in Texas, near the railroad, and assume that as good a mill can be put in operation for that sum, as in Lowell at the present time.

"We have in our favor a mild climate, admitting of cheaper buildings, and such abundance of territory that many land-holders will donate one thousand acres to any company that would locate on their lands, and we have against us the freight and charges on such machinery as would of necessity come from abroad. Mechanical and operative labor is as cheap to day in Texas as in the North, and all the building materials requisite for a cotton mill are as cheap here as there, and a large portion of the machinery can be made here, of better quality and as cheap as there; therefore, it is safe to assume that a mill of the same capacity can be put into operation for about the same cost here as there.

"A first-class, fire-proof, brick and iron building, with all the machinery, cottages for operatives, house for agent, store-house, saw and planing mill for preparing lumber, brick, etc., can be completed of the capacity for working up ten bales, or 5,000 pounds of lint cotton per day, from the seed, and working the seed into crude oil ready for market, for $200,000 currency.

"In operating such a mill with seed cotton, the labor of ginning and lapping ready for the cards would be no more than opening, beating and lapping from the bale, as now practised. Therefore, our Texas mill would gain the usual toll of one-tenth for ginning in the purchase of seed cotton.

Acknowledging that our mill, working 3,000 bales annually into cotton fabrics, makes a profit of ten per cent on the $200,000 capital, we have	$20,000
Ten per cent. or 300 bales, is made by ginning, which, at $50 per bale is	15,000
Bagging and rope, freight, insurance, commissions, press charges, loss of weight and damage, wharfage, brokerages, and weighing, as before stated, $25.50 per bale, 3,000 bales	76,500
Net product of oil and oil cake per bale, $32.75 on 3,000 bales	98,500
Net profit of Texas mill in one year on the investment of $200,000	$209,750

"The Lowell mill, of the same cost and capacity—less $100,000 for the oil machinery, and making the same profit on manufacturing the same amount of cotton into the same quality of fabrics and getting the same price for them—makes $20,000 only on the investment of $190,000. And why? Simply because they have to pay: First, for ginning the cotton, one-tenth, and the charges of $25.50 per bale in the advanced price of cotton; and second, they lose entirely the profit from the oil and oil cake of $32.75 per bale.

"Mills in the South, now operating with small investments and purchasing their cotton in the bale, have but little, if any, advantage over foreign mills operating with large investments, whose reduced general expenses are about equivalent to the small portion of charges saved by the Southern mills purchasing cotton in the bale.

"It would be very gratifying to see our own people gather up this wealth in which they are literally wallowing; but, if from any cause or combination of causes, they cannot do it, foreigner's capital most certainly will, sooner or later, for the reason that the local advantages of the cotton-growing region are incapable of transmission to other points."

We will close the review of this able article with a few brief extracts, which bring the matter still nearer home to the producers, manufacturers, and capitalists of California:

"The question comes home to California, just entering upon her career as a producing state, whether, possessing all necessary material within her limits, she will not utilize it in building up that permanent prosperity which characterizes the localities we have been reviewing.

As a manufacturing state she must enter into competition with the established industries of both old England and New England, and her hopes of success must be based upon such economic production of raw material, combined with abundant motive power, and cheap food for operative labor, as will counterbalance the advantages afforded by the long experience and overwhelming capital of her competitors. That she possesses all of these advantages in limitless abundance it is our purpose to show."

"The capitalist of California is content to realize 1½ per cent per month upon his investment, and here is a promise of five. May we not appeal to these gentlemen to relieve us of this vassalage to Europe and New England, which, as producers and importers of staple crops, we must endure forever? Stop, we beseech you, this drain of our life blood away from us; which, in time, will exhaust our vitality and leave us only decay and ruin. To you, gentlemen, it offers no inviting prospect after our destruction. The conditions upon which a continuance of your harvest must rest is our prosperity, not our annihilation. Build factories for us, and let us convert our own products, that we may no longer be subject to the dual action of supply and demand for raw material and manufactured goods, and consequently to the dictatorship of a single market as to price. Free us, through this conversion of raw products, from all depressing influences exerted upon trade, except such as arise from a plethora of manufactured goods. In affording us this relief, you open to us, without restriction, the markets of the world."

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Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventions also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

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THE SCIENTIFIC PRESS.—This valuable journal entered upon the seventeenth year of its publication on the 4th of July. The steady advance in character, that every reader has noticed in the paper, renders it unnecessary to make any splurge of improvement, and the publishers simply content themselves with the announcement that they will continue to make their paper as interesting as possible. That it is interesting to a large class of readers, the wide circulation and extensive influence of the PRESS, is sufficient evidence.—*Placer Argus.*

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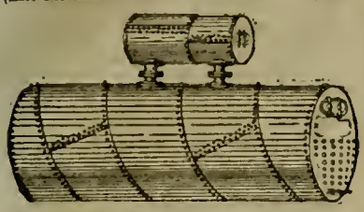

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24v17-qy

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24v22-3m JOSEPH MOORE, Superintendent.

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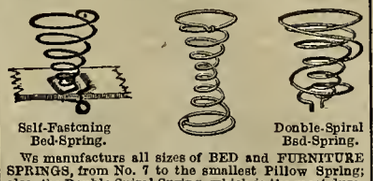

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We manufacture all sizes of BED and FURNITURE SPRINGS, from No. 7 to the smallest Pillow Spring; also, the Double Spiral Spring, which is the most durable Bed Spring in use. It is adapted to upholstered or skeleton beds. We have the sole right in this State to make the celebrated Obermann Self-Fastening Bed Spring. Any man can make his own spring bed with them. They are particularly adapted to Farmers' and Miners' use. Send for Circulars and Price List to

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MINING PLATES

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Old Plated Ware Re-Plated

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This compound of the vegetable alteratives, Sarsaparilla, Dock, Stillingia and Mandrake with the Iodides of Potassium and Iron makes a most effectual cure of a series of complaints which are very prevalent and afflicting. It purifies the blood, purges out the lurking humors in the system, that undermines health and settles into troublesome disorders. Eruptions of the skin are the appearance on the surface of humors that should be expelled from the blood. Internal derangements are the determination of these same humors to some internal organ, or organs, whose action they derange, and whose substances they diseass and destroy. AYER'S SARSAPARILLA expels these humors from the blood. When they are gone, the disorders they produce disappear, such as Ulcerations of the Liver, Stomach, Kidneys, Lungs, Eruptions and Eruptive Diseases of the Skin, St. Anthony's Fire, Rose or Erysipelas, Pimples, Pustules, Blotches, Boils, Tumors, Tetter and Salt Rheum, Scald Head, Ringworm, Ulcers and Sores, Rheumatism, Neuralgia, Pain in the Bones, Side and Head, Female Weakness, Sterility, Leucorrhœa arising from internal ulceration and uterine disease, Dropsy, Dyspepsia, Emaciation and General Debility. With their departure health returns.

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SAN FRANCISCO. jy11-ss

General News Items.

POSTAL CHANGES ON THE PACIFIC COAST.—The following postal changes have been ordered for the Pacific Coast: Postmasters appointed—George Hogeman, at Bell'a Station, Santa Clara county, California; Lewis H. Wiseman, at Kirkville, Sntter county, California; Henry Wsebington, at La Porte, Plumas county, Caliiornia; Byron D. Beckworth, at Lodi, San Joaqnin county, California: Jobn W. Middleton, at Hamilton's Fort, Iron county, Utah. Office discontinned—Lake Mente, Polk conty, Oregon.

STEAMER LOST—SIXTY PERSONS DROWNED.—The steamer La Peata, from Gravesend, for Rio Grande del Sud, foundered off Ushant on the 29th of November, and sixty persons were drowned. Fourteen persons were rescned by the Gareloch, of Glassgow, from a boat in which they had been floating twenty-fonr honrs. The ateamer was engaged in repairing an ocean telegraph. Her loss is attributed to having on board a heavy grappling apparatus and 250 miles of telegraph cable.

ASSESSOR'S OFFICE.—Serions irregnlsrities have been discovered in the Assessor's office in this city. Assessments against favored persons have been marked down, by whom it is not yet known. In a few cases, in one volume, these cases were fonnd. One by which $27,000 was made to read $7,000, another by which $7,200 was made to read $1,200, and a third by which an assessment of $50,000 was changed to $30,000. There are 39 volumes in all, which will be carefully exsmined.

MELANCHOLY SUICIDE.—On the 28th nlt., Captain Thnrston, a resident of Galt, and once a member of the Legislature from San Joaqnin county committed suicide by shooting himself with a pistol. Captain Thnrston had been suffering for many years from a cancerous tumor on the head, which seems at last to have become nnbearable, and to have been the inciting canse of his snccessful attempt at self-destrnction.

INDUCEMENT TO HONESTY.—Jones and Sharon, the senatorial team from Nevada, bave the trifling income of $2,000,000 a year apiece. What object could a salary grab be to these meu? If they abould happen to forget to draw their annnal salary they could probably get home if tbey did not hold a "full hand" of passes.—*Chicago Tribune.*

IMMENSE LAND SLIDE.—A great land slide occnrred on the eastern side of Mount Tamalpais, soon after the late storm. Tbe slide extended from the highest peak to the canon below. Tbe slide appears to be over 100 feet wide, and carried trees and rocks before it witb impetnous force. A smaller slide occnrred on Monday last on Telegraph hill in this city.

A TROUBLESOME BEAR, one which hss been committing many depredations in tbe region of Clear Lake, Sonoms conuty, was recentlr killed by George Goodman. He was known by his peculiar track, caused by a wonnd in one of his feet. He weighed 900 pounds. A reward of $100 had been offered for its hide.

THE RENTON COAL CO. are now delivering coal to its snbscribers in San Francisco and Oakland at $8 per ton, and to other customers at greatly redneed rates from those of other dealers. Their coal, which is a good article, still improves with the developements on the veins.

AMERICAN CARDINALS.—It is reported that at the next Papal Council to be held at the Vatican, two American Bishops will be raised to Cardinals. These, if so appointed, will be the first American citizens who have ever been elevated to that dignity.

THE LICK SALE has attracted much attention in the Atlantic Statee on account of the magnitnde of the total purchase money and tbe generons zeal of Mr. Lick for the public welfare. The New York *Tribune* says it waS the most remarkable auction sale recorded in history.

SEVEN STORIES.—The seventh story of the Palace Hotel has been completed and tbe mammoth building is now being roofed in. Work is progreseing upon the structure nigbt and day—some 200 gae lights being reqnired for tbe night work.

RAILROAD ACCIDENT. — Lewis H. Graves, freight conductor, fell from the train while in motion, on Monday last, about two milee west of Stockton. He fell between the cars and was instantly killed.

RUBBER SPONGE is a novel and useful article introduced in the East, samples of wbich have found their way to California. From appearance it combinee the qnalities of lightness and elasticity witb durability.

DEATH OF MAYOR HAVEMEYER.—Mayor Havemyer, of New York, died suddenly of apoplexy at his office in the City Hall on Monday. He had over-exerted himself in walking, which brought on the attack.

"THE Hawaiian Kingdom" is tbe official title of His Majesty Kalakaua'e dominions. The words "Sandwich Islande" are not used at Honolulu. The name of the king, spelled—Kalakaua, is prononnced Kalla-kah-oo-a.

THE Spaniards have captnred, in Cuban watere, a small vessel flying tbe British flag Much interst is manifested to learn the particulars, and to see how the English, Government will receive the report of the act.

THE LOMPOO LAND SALE.—The resnlt of the sales at Lompoc may be snmmed up thns: The stockholders paid $500,000 for the property and sold $700,000 worth of it at auction. An offer of $350,000 for the balance was refused. The stockholders have evidently made a big thing; whether the late purchasers will do well remains to be seen. The snccess of this enterprise, as well as that Anaheim, Riverside, etc., ahows the feasibility of emigrant colony schemes in this State. We would suggest, however, tbat the emigrants rather than speculative middlemen should be allowed to reap at least a portion of the benefits to be derived from the increased valnes of tbe land.

POISONED GEESE.—A lot of wild geese were lately killed on the San Joaquin river and given to hogs to eat. The next morning the hogs were found dead. It is thonght that the geese were poisoned from feeding in the fields where fsrmers have nsed phosphorus or strychnine to poison sqnirrels, and the hogs were thus also poisoned. A warning which should be heeded by tbe consumers of wild geese in this city and elsewhere.

DEBRIS FROM THE MOUNTAINS.—A gentleman, who had the opportnnity of observing, says tbat the amonnt of sand of last week which came down tbe American river when it rose on Tuesday was almost beyond belief. It came along in vast waves, with a lond, rushing noise, almost like that of a train of cars, and for some time there was appsrently more sand than water moving.

GRAPES PLENTIFUL.—So plentiful and cheap have grapes become in the vicinity of Stockton that the owners of excellent vineyards propose to root out the roots and vines together, and devote tbe land to other crops. Better convert the poor vines into better, by grafting—say into raisin grapes.

LEVEEING NEAR STOCKTON.—J. M. Fisher, superintendent of the Tide Land Reclamation Company, No. 162, has seventy-eight Chinamen at work leveeing on the Calaveras slough, near Stockton. The levee costs bim 13 cents a cnbic yard.

A NEW TRADE.—The Starr mills at Vallejb have taken large orders for flonr from Central America. The first consignment of 3,000 barrels will go down by steamer shortly, and otbers will follow at intervals.

THE Sacramento river rose, nnder tbe influence of the late storm, to 19 ft. 4 in. above low water mark, on Wednesday of last week. Since then it das been gradually decliniug.

COAL MINE ACCIDENT.—Tweuty-fonr persons were killed by the lste explosion in tbe Warren Vale Coal Mine, Yorkshire, England. Ten men were rescued more or less injnred.

LARGE MARRIAGE FEE.—The marriage fee paid to Archbishop Alemany on the occasion of the Newlands-Sharon msrriage was a check for $5,000.

THE P. O. departmeut has run behind, tbe past fiscal year, about eight million dollars, on a total expenditure of about thirty two millions.

SUPERVISING ARCHITECT, John McArthnr, Jr., of Philadelphia, has been tendered the position to be vacated by Snpervising Architect Mullett.

BURIED IN A SNOW-STORM. — Ten travelers were recently bnried in a terrible snow-storm on the Alps. All perished.

CONGRESS meets on Monday next. The President's message will be looked for with unusnal interest.

STRIKE TERMINATED.—The great 'longsboremen's strike in New York has terminated. The strikere finally snccumbed.

BURIED IN A SNOW SLIDE.—Five men were buried in a snow elide at Alta, on tbe 25tb nlt. They were dng out badly injured.

WELCOME TO THE KING.—San Francisco bas nearly exhausted iteelf during tbe past week in doing bonors to King Kalakaua.

THE deaths in San Francisco last week were 38 males and 42 females.

A RUPTURE in the French Cabinet is considered immiuent.

THE Erie Canal is to close for the season to-day.

STRAWBERRIES are atill to be had in thie market.

ALL tbe mills on Crown Point ore are running up to their full working capacity, and there ie no prospect of any diminution of the yield for tbe preeent month. The ore breaste on 1,300, 1,200 and 1,000-ft. levels still continue to afford a steady yield of rich ores.

THE Virginia and Truckee railroad now handles 1,100 tons of oie a day.

NEVER GIVE UP.—If all the cases in which *Hale's Honey of Horehound and Tar* has cured inveterate and apparently fatal coughs, could be made known, every consumptive in the land would take heart and commence, in hope, a course of this most wonderful preparation. Physicians who have exhausted their list of pulmonics, without benefit, recommend it as a last resort, and even in the worst extremity its effects are astonishing. But it should he the first resort, not the last. It is impossible for any disease tending to consumption to retain its hold, if met in the early stagee with this powerful vegetable remedy.

Pike's Tooth-Ache Drops—Cure in one minute.

PATENTS & INVENTIONS.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS FOR THE MINING AND SCIENTIFIO PRESS, DEWEY & CO., PUBLISHERS AND U. S. AND FOREIGN PATENT AGENTS.]

By Special Dispatch, Dated Washington, D. C., Dec. 1st, 1874.

FOR WEEK ENDING NOV. 17TH, 1874.*

MACHINE FOR MAKING BOTTLE COVERS.—Earl K. Cooley, S. F., Cal.

QUARTZ MILL.—Samnel H. Cowles, Sacramento, Csl.

EXPLOSIVE COMPOUND.—Joseph W. Millard, S. F., Cal.

TRADEMARK.

FOR DAIRY SALT.—The Union Pacific Salt Co.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwiee) at the lowest rates. All patent business for Pacific coast inventors tranacted with perfect security and in the shortest time poseible.

Wanted—More Woolen Mills.

Twenty-seven tbousand bales of Wool stored away in city warehouses, with no prospect of being sold for some months to come, is the reverse of pleasant for our Wool Growers and Commission Merchants. Before the end of the year there will be over thirty thousand. This Wool cannot be sold. It is not on account of its bad quality or dearness, for it is cheap enough in all conscience; but we depend entirely on the Eastern markets, and Wool is not much sought for there just now. Retrenchment and short time are the order of the day among the Woolen Manufacturers of tbe East, and during the Winter they can be only expected to buy from hand to mouth. This is a sore setback to our Wool Growers, and is generally injurious, for it represents a sum of at least a million and a quarter of dollars kept out of circulution.

What has happened once may happen again, and we doubt how often we may have in this way to suffer from the effects of panics, not at all of our own creation. The only way to obviate the possibility of such a thing happening over and over again is to encourage the manufacture of Woolen Goods in California and on the Pacific Coast, to add to the capacity of our present Woolen Mills and to establish new ones. There is plenty of room for them. The Pacific Coast is a large consumer of fabrics either wholly or partially made of Wool. The value of those imported cannot be less than twelve millions of dollars. The value of Woolens and mixed Cotton and Woolen Goods now manufactured on the Coast is three millions of dollars, while the amount of Wool consumed is three million pounds. Did we manufacture all our Woolen Goods, and those in which Cotton and Wool mixed are used, we would consume here twelve million pounds more of Wool, a matter that would be of the highest interest to our Wool Growers, altogether apart from any industrial considerations. Did we need so much for home consumption the present year, our warebouses would not be filled up with (for the present) unsaleable Wool.

In the manufacture of Woolen Goods there is everything in favor of California and Oregon. Labor is cheap and water-power abundant, while tbe factories can purchase tbe needed supplies at their very doors. And there is no need to restrict production to the extent called for by local requirements. California Blankets have ere now made quite a reputation for themselves in many localities of the East; carloads of them have at times been shipped over the Railroad, and the Government laid in supplies in this way from articles we manufacture at our city mills. With greater experience and skill even a better account could be given. With skillful workmen imported from France we could make fine Cloths, not only for the Pacific Coast of the United States, but we could find markets in British Columbia, the Sandwich Islands, Mexico, Central and South America, China, Japan, and even Australia.

Tbe manufacture or Woolen Goods should be one of our specialties, for we have the raw material, taking rank as among the best in the world, abundance of labor, abundance of water-power, and an almost virgin market. As it is, the industry is rapidly growing; but it is needful that it grow faster. Tbe number of Sheep and the number of pounds of Wool are increasing rapidly year by year. If it continues to increase at its present rate it would reach 120,000,000 pounds in 1880. The only sure market for Wool, Wbeat or Wine is at home, and we hope to see in a few years California and Oregon in a position themselves to manufacture all the Wool produced on this Coast.—*Journal of Commerce.*

THE steady continnation of the ore body in the eonth winze from the 1,850-ft. level of the Imperial-Empire mine, taken along with the fact tbat it is known to be gradually spreading and widening as well as becoming richer as it is developed downward, hardly leaves a doubt but that a rich mine will be developed on the 2,000-ft. level.

THE mineral lands upon Puget Sound, W. T., are attracting the attention of capitaliets, and within a very ehort time 1,100 acres of coal land in King county has been disposed of at the rate of $10 per acre.

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METALS.

WEDNESDAY M., Dec. 2, 1874.

American Pig Iron, ₱ ton	—	@	46 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig, ₱ ton	—	@	46 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ lb	—	@	3½
Refined Bar, good assortment, ₱ lb	—	@	4
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	—	@	09
Horse Shoes, per Keg	7 50	@	8 00
Nail Rod	9½	@	—
Norway Iron	8	@	—
Rolled Iron	6	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Brazier's	31	@	32
Copper Tin'd	45	@	—
O. Nail's Pat	50	@	—
Sheathing, ₱ lb	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	13 00	@	15 00
Plates, I C Charcoal	13 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ lb	32½	@	33
STEEL.—English Cast, ₱ lb	20	@	25
Anderson & Woods' American Cast	—	@	16½
Drill	—	@	16½
Flat Bar	18	@	2
Plough Steel	8 50	@	10 00
ZINC	—	@	11
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	4 25	@	8 00
QUICKSILVER, per lb	—	@	1 55

GENERAL MERCHANDISE.

WEDNESDAY M., Dec. 2, 1874.

BAGS.			
Bag, Stand Wht	—	@	13
Detrick's Machine	—	@	—
Sewed, 22x36 E	12	@	12½
do 22x36, do E W	—	@	13½
do 20x40, do A	—	@	13½
Flour Sacks, ½s	9½	@	11½
" ¼s	6	@	7
Stand. Gunnies			
double seam	13	@	14
single seam	13¼	@	14
" Wool Sacks	60	@	67½
Barley Bags 24x38	13	@	14
do 23x40	—	@	14½
do 24x40	—	@	15
do 23x36	—	@	16
Oat Bags, 24x40	16	@	18½
do 28x36	—	@	17
Hessian 10-in gds	9½	@	9¾
do 45	10½	@	11
do 60	—	@	16
CANNED GOODS.			
Asst'd Pie Fruits			
in 2½ ₱ cans	2 50	@	2 75
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	—	@	3 50
Sardines, qr box	1 80	@	—
do ht boxes	3 20	@	—
COAL—Jobbing.			
Australian, ₱ ton	10 50	@	12 50
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11 —
Cumberl'd, cks	—	@	18 00
do bulk	16 00	@	17 50
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 50
West Hartley	—	@	14 00
Scotch	10 00	@	11 00
Scranton	—	@	13 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ bk	75	@	—
Coke, ₱ bbl	—	@	6 00
COFFEE.			
Sandwich Island	—	@	22
Central Amsric'n	20	@	22
Costa Rica per lb	23		24
Guatemala	20	@	22
Java	—	@	26½
Manilla	19	@	20
Ground in os	—	@	27
Chicory	9	@	10
FISH.			
Pac. Dry Cod, new	5	@	6
oases	6	@	7¼
do boneless	11	@	12
Eastern Cod	8	@	8½
Salmon in hbls	9 00	@	9 50
do ½ bbls	4 50	@	5 50
do 2½ lb cans	2 80	@	2 80
do 2 lb cans	2 65	@	2 75
do 1 lb cans	1 75	@	—
Do Col. R. ½s	—	@	—
Pick. Cod, hbls	22 00	@	—
do ½ bbls	11 00	@	—
Box. Smk'd Her'g	40	@	50
Mack'l, No. 1, ½bbls	9 00	@	11 00
" Extra	—	@	12 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½bs	—	@	13 00
Pic'd Herr'g, bx	3 00	@	3 50
NAILS.			
Assorted size, ₱ lb	5 37½	@	7 50
OILS.			
Pacific Glue Co.			
N sat F't No. 1	—	@	90
Pore	—	@	—
Castor Oil, No. 1	—	@	1 25
do do No. 2	—	@	1 12½
Oceanic	1 47½	@	1 50
Olive Flagniol	—	@	—
do Possel	—	@	—
Palm ₱ lb	9	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in cs	77½	@	82½
Sperm, crude	—	@	1 40
do bleached	1 90	@	2 25
Coast Whales	45	@	—
Polar, refined	50	@	52½
Lard	1 15	@	1 30
Coal, refined Pst	37½	@	—
Oleophine	21	@	24
Devoe's Brill's	25	@	28
Long Island	21	@	24
Eureka	—	@	—
Oevoe's Petro'm	21	@	24
Sarrel kerosene	21	@	24
Olive	4 20	@	9 25
Downer Kerose'e	—	@	37
Gas Light Oil	—	@	26
PAINTS.			
Atlan. W. Lead	6	@	10
Whiting	—	@	2
Putty	4	@	5½
Obalk	—	@	2½
Paris White	2¾	@	—
Ochre	2	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ₱ lb	6½	@	6¾
do 2, do	5¾	@	6
Japan	6	@	7
Siam Cleaned	7	@	—
Patna	6	@	6½
Hawaiian	7¾	@	8
Carolina	10	@	10½
SALT.			
Bal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	24 00
do coarse	16 00	@	—
SOAP.			
Castile ₱ lb	10	@	11
Local brands	5	@	8
SPICES.			
Cloves	50	@	55
Cassia	26	@	27
Citron	33	@	35
Nutmegs	1 20	@	1 30
Whole Pepper	21	@	23
Pimento	—	@	15½
Gr'nd Allsp'rdz	—	@	12½
do Cassia do	—	@	30
do Cloves do	—	@	1 50
do Mustard do	—	@	1 20
do Ginger do	—	@	1 00
do Pepper do	—	@	1 00
do Mace do	—	@	2 00
SUGAR, ETC.			
Cal. Cobe per lb	11	@	—
Partz' Pro. Onhe			
bbl or 100 lb hxs	—	@	11¾
do in 50 lb hxs	—	@	12
do in 25 lb hxs	—	@	12¼
Circle A crushed	—	@	11¾
Powdered	—	@	11
Granulated	—	@	11½
Dry granulated	—	@	11¾
Golden C	—	@	10¾
Hawaiian	8	@	10½
California Beet	10¾	@	11½
Cal. Syrup in ble	67½	@	67½
do in ½ bls	—	@	70
do in kegs	—	@	75
Hawaiian Molasses	25	@	30
TEA.			
Oolong, Canton, ₱ lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	1 00
Gunpo'der, Cant	30	@	42½
do Pingsuey	50	@	90
do Moyune	65	@	1 25
Yung Hy., Canton	28	@	40
do Pingsuey	40	@	70
do Moynne	65	@	85
Japan, ½ chests;			
bulk	30	@	75
Japan, lacquered			
bxs, 4½ and 5 lbs	45	@	67
Japan do, 3 lb hxs	45	@	90
do pl bxs, 4½ lb	55	@	65
do ½ lb paper	30	@	55
TOBACCO—Jobbing.			
Bright Navys	50	@	60
Oark do	50	@	55
Oyank Twist	70	@	72½
12 inch do	60	@	70
Light Pressed	70	@	80
Hard do	50	@	60
Conn. Wrap'r	35	@	40
Penn. Wrapper	20	@	45
Ohio do	15	@	20
Virgi'a Smok'g	45	@	75
Fine ot cbs'g, gr	80	@	25
Fine cut chew-			
ing, bu'ts, ₱ lb	.75	@	90
Banner fine cut	9 00	@	9 25
Eureka Cala	—	@	9 00
TURPENTINE.			
Eastern	55	@	60

LEATHER.

WEDNESDAY M., Dec. 2, 1874.

City Tanned Leather, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@29
Country Leather, ₱ lb			24@28
Stockton Leather, ₱ lb			25@29
Jodot, 8 Kil., per doz			$50 00@ 54 00
Jodot, 11 to 19 Kil., per doz			68 00@ 90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz			55 00@ 72 00
Cornelian, 12 to 16 Ko			57 00@ 67 00
Cornelian Females, 12 to 13			63 00@ 67 00
Cornelian Females, 14 to 16 Kil			71 00@ 76 50
Simon Ulimo Females, 12 to 13, Kil			60 00@ 64 00
Simon Ulimo Females, 14 to 15, Kil			70 00@ 72 00
Simon Ulimo Females, 16 to 17, Kil			73 00@ 75 00
Simon, 18 Kil., ₱ doz			61 00@ 63 00
Simon, 20 Kil. ₱ doz			65 00@ 67 00
Simon, 24 Kil. ₱ doz			72 00@ 74 00
Robert Calf, 7 and 9 Kil			35 00@ 40 00
French Kips, ₱ lb			1 00@ 1 15
California Kip, ₱ doz			40 00@ 60 00
French Sheep, all colors, ₱ doz			9 00@ 15 00
Eastern Calf for Backs, ₱ lb			1 00@ 1 25
Sheep Roans for Topping, all colors, ₱ doz			9 00@ 13 00
Sheep Roans for Linings, ₱ doz			5 50@ 10 50
California Russett Sheep Linings			1 75@ 4 50
Best Jodot Calf Boot Legs, ₱ pair			5 00@ 5 25
Good French Calf Boot Legs, ₱ pair			4 00@ 4 75
French Calf Boot Legs, ₱ pair			4 00@ —
Harness Leather, ₱ lb			30@ 37½
Fair Bridle Leather, ₱ doz			48 00@ 72 00
Skirting Leather, ₱ lb			33@ 37½
Welt Leather, ₱ doz			30 00@ 50 00
Buff Leather, ₱ foot			17@ 2
Wax Side Leather, ₱ foot			—@—
Eastern Wax Leather			—@—

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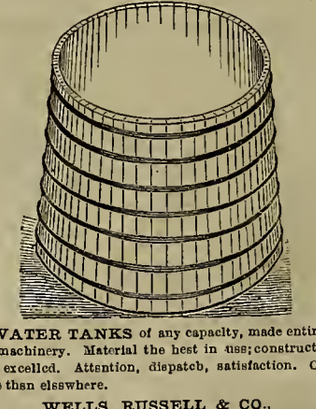

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Notice is hereby given, that at a meeting of the Board of Directors, held on this twenty-fifth (25th) day of November, 1874, an assessment (No. 1) of fifty (50) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, room 16, 408 California street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on Wednesday the thirtieth (30th) day of December 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 15th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. TRIPP, Secretary

Office, Room 16, 408 California street, San Francisco, Cal.

Electric Minining Company—Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 24th day of November, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States Gold coin, to the Secretary, at the office of the Company, in San Francisco.

Any stock upon which this assessment shall remain unpaid on the fourth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday the 25th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINCARD, Secretary.

Office—Room 13, No. 318 California street, San Francisco, Cal.

Mansfield Gold Mining Company—In

accordance with a resolution adopted at a meeting of the Board of Directors of the Mansfield Gold Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, to be held at the office of said company, in San Francisco, No. 321 California street, room 1, on Monday, the 21st day of December, 1874, at 1 o'clock P. M., to take into consideration and act upon the proposition to increase the capital stock of said company from nine hundred and ninety thousand dollars, divided into thirty-three thousand shares, of the par value of thirty dollars each, to one million, nine hundred and eighty thousand dollars, divided into sixty-six thousand shares, of the par value of thirty dollars each. Also for the transaction of any other business that may properly come before the meeting.

R. COULSON, President.
J. HISHFELD,
J. E. HILL,
F. W. VOLL,
J. L. SMITH
} Directors.

San Francisco, Nov. 20, 1874. no28-4t

Land Purchaser's Association— Office

No. 331 Montgomery street, room 7, San Francisco, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment, (installment No. 42) levied on the 28th day of October, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John A Callison	20	1	$10 00
Thomas H Day	21	2	20 00
P A Eakins	210	3	30 00
D S Hutchinson	65	1	10 00
M A Hutchinson	105	1	10 00
Otis Jackson	180	2	20 00
W E Mayhew	206	3	30 00
Mrs N McCarty	147	1	10 00

And in accordance with law, and an order of the Board of Directors, made on the 28th day of October, 1874, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the Secretary, 331 Montgomery street, room 7, San Francisco, California, on Thursday, the 24th day of December, 1874, at the hour of 12 o'clock, M. of said day, to payseid delinquant assessement thereon, together with costs of advertising and expenses of the sale.

C. S. WRIGHT, Secretary.

Orleans Mining Company—Location of

principal place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 16th day of October, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Charles Platt	9	59	$59 00
Silas C. Hay	10	59	59 00
William G. Grant	11	119	119 00

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of October, 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction, at the office of the company, room 8, No. 315 California street, San Francisco, California, on Tuesday, the 15th day of December, 1874, at the hour of one o'clock P. M., of such day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. F. NESMITH, Secretary.

Office—Room 8, No. 315 California street, San Francisco, Cal. no28-2t

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Julian Mining District, San Diego County, Cal.

Notice is hereby given, that at a meeting of the Directors held on the second day of November, 1874, an assessment (No. 3) of one dollar per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company, room No. 4, Hayward's Building, No. 419 California street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the seventh day of December, 1874, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 28th day of December, 1874, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

CHAS. FOOTE, Secretary. FRANK SWIFT, Secretary.

Office, Room No. 4, Hayward's Building, No. 419 California street, San Francisco, California. no7-5t

Virginia Consolidated Mining Company.

In accordance with a resolution adopted at a meeting of the Board of Directors of the Virginia Consolidated Mining Company held this day, a special meeting of the Stockholders of said Company is hereby called, the same to to be held at the office of the Company in San Francisco, No. 318 California street, Room 13, on Monday the 21st day of December, 1874, at 2 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said company from three million dollars, divided into thirty thousand shares of the par value of one hundred dollars each, (the present capital stock,) to six million dollars, divided into sixty thousand shares of the par value of one hundred dollars each. Also, for the transaction of any other business that may properly come before the meeting. By order of the Board of Directors.

EUG. CHENOT,
ROBT. P. CHASE,
A. F. BENARD.
} Directors.

SAN FRANCISCO, November 12, 1874. 12v29-4t

Machinery.

BALL'S SWEEPING DREDGE,

A NEW AND VALUABLE

CALIFORNIA INVENTION,

Has been very lately well proven by performing a job of dredging at the mouth of San Antonio Creek, at Oakland, Cal.

There is hnt this one machine that has ever had these improvements employed. It is an old machine, formerly hnilt for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cnhic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported hy leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now helonging to the Central Pacific Railroad Company). Having resolved not to sell any rights unless upon a *basis* of actual work performed hy a machine hnilt by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine hy actual work:

I will ehter into an agreement with any responsible party to hnild and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cnbic yards per minute. But it shall he further agreed that in case (at a fair trial to he made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minnte, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thns dredged per minute, and for additional fractions of a cubic yard thns dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to nse the same in a limited territory, for $20,000 on the same plan as above stated, hut will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to he made in U. S. gold coin on delivery of machine, as may be indicated hy agreement.

Address; JOHN A. BALL,
9v28-tf Oakland.

Tools, Hardware, Etc.

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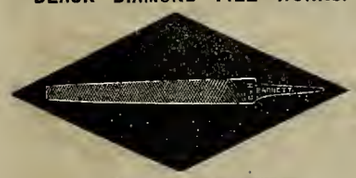

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Sold hy all the principal hardware stores on the Pacific Coast. 18v25.1y

Webster's Patent Combined Wrench

This tool can be need as a Pipe Cutter Ordinary Wrench, (by removing the tools,) also as a pair of Tongs for screwing up Pipe, Iron Rods, etc., combining three tools in one, at one-third the expense of the tools to do the same work. They are made of the best material, in the best manner.

12 inch,	complete	with	tools,	takes ⅛ to ¾	pipe, $48 per doz.
15 "	"	"	"	⅛ to 1½	" 60 "
18 "	"	"	"	⅛ to 2	" 72 "
21 "	"	"	"	⅛ to 2½	" 84 "

Liberal discount to the trade. Address

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Sole Agents for the Pacific Coast. San Francisco, Cal

Brittan, Holbrook & Co., Importers of Stoves and Metals. Tinware' Goods, Tools and Machines; 111 and 11 California St., 17 and 19 Davie St., San Francisco, and 179 J St., Sacramento. mr.-1v

San Francisco Cordage Company.

Established 1856.

We have just added a large amount of new machinery o the latset and most improved kind, and are again prepared to fill orders for Rope of any special lengths and sizes. Constantly on hand a large stock of Manila Rope, all eizes: Tarred Manila Rope; Hay Rope; Whale Line, etc., etc.

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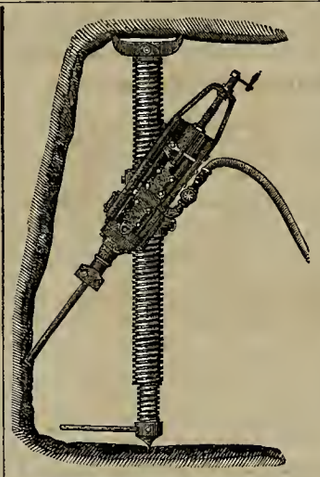
New Inventions!

Of real merit, if hronght plainly before the public when fresh, are most likely to become profitable to the patentee. For this reason, patentees (of worthy devices) should have the best of Engravings Made, and published in the PRESS. Superior Engravings Made, at reasonable rates, hy artists in this office. hp-tf



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PNEUMATIC DRILLING MACHINES,

AIR COMPRESSORS AND OTHER MACHINERY.

Also, Farmers' Dynamic Electric Machine and Hill's Exploders for Blasting, Putnam Machine Company's Tools, Wright's Steam Pumps and Haskin's Engines.

Address

PARKE & LACY,

21v28-3m-hd 108½ Leidesdorff St., S. F.

DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

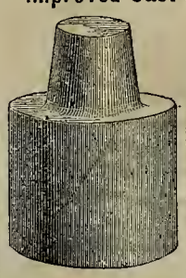
NUMBERS.	0	1	2	2½	3	3¼	4	4¼	5	6	7	8
Diameter of Steam Cylinder, in inches.	4	5	6	6	6	7	8	10	12	14	16	18
Diameter of Pump Cylinder, in inches.	2	2½	3	3¼	3½	3½	4	6	7	9	10½	12
Stroke of Piston, in inches.	6	6	6	6	6	7	8	8	8	10	12	15
Capacity per double Stroke, in gallons.	⅓	¾	¾	¾	1	1 1–6	1 ⅔	2 ⅔	4	5	7	9
Capacity at ordinary Speed, per minute.	10	15	25	35	45	60	80	120	180	270	325	400
Maximum Capacity.	25	40	80	130	150	225	350	500	675	900	1200	
Boilers in horse power they will supply.	½	¾	¾	1	1½	1½	2	3	4	6	8	10
Size of Steam Pipe, in inches.	¾	¾	¾	1	1¼	1¼	1½	2	2½	3	3½	4
Size of Exhaust Pipe, in inches.	¾	¾	1	1¼	1½	1½	2	2½	3	4	4½	5
Size of Suction Pipe, in inches.	1	1¼	1½	1½	2	2	2½	3	3	4	5	6
Size of Discharge Pipe, in inches.	¾	¾	¾	1	1	1¼	1½	2	2	3	3½	4
Weight of Pump, in pounds.	180	235	400	610	810	1,100	1,500	2,500	3,375	4,800		
Length over all, in feet and inches.	3–4	3–4	2–10	3–0	3–11	4–8	5–0	6–10	7–7	8–6		
Height over all, in feet and inches.	2–0	2–0	2–0	2–0	3–1	4–3	4–3	4–7	5–7	6–8		
Width over all, in feet and inches.	1–4	1–4	1–4	1–4	1–4	1–6	1–10	2–1	2–9	3–5		
PRICE.	$	$	$	$	$	$	$	$	$	$	$	$

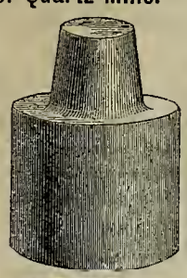
The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons*. Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS, { No. 4, 24-in. Stroke, $ / No. 5, 24-in. " " / No. 6, 30-in. Stroke, $ / No. 7, 30-in. Stroke, $ / No. 8, 36-in. " "

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

Improved Cast and Forged Steel Shoes and Dies for Quartz Mills.





[PATENTED MAY 26TH, 1874.]

Price Reduced to 16 Cents Per Pound.

SAN FRANCISCO, November 10th, 1874.

To Supts. of Quartz Mills and Mining Men generally:

We take pleasure in stating that owing to the rapid increase in our orders, our Pittsburg Manufacturers have been compelled to add largely to their works—a new gas furnace and heavier trip hammer—and are thus enahled to reduce the cost of steel and at the seme time produce SHOES AND DIES superior to any yet manufactured. We have consequently reduced the price to 16 cents per pound and solicit a trial order, guaranteeing that yon will find them at least 10 per cent. cheaper than the best iron. There are no STEEL SHOES AND DIES made excepting under our patent and sold at this office, or hy our authorized agents, though certain Eastern manufacturers advertise STEEL SHOES AND DIES which are only cast iron hardened hy the addition of a composition. They will not out-wear two sets of common iron, though called steel. They are very hrittle and are not capahle of heing tempered, flying from under the hammer like cast iron. Our STEEL SHOES AND DIES are in use in many of the largest mills on the Pacific Coast, and all who have tried them pronounce them cheaper and far superior to iron in every respect, even at the old price of 20 cents per pound. Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam hy absence of iron dust and chippings, and a saving of 75 per cent. in freight. It takes 60 days to fill orders from the manufactory East. Price 16 cents per pound shipped at San Francisco. Terms liberal.

Address all orders, with dimensions, to

1v29-3m CAST STEEL SHOE & DIE CO., Room 1, Academy Building, S. F

BRITISH MINES.

The undersigned, as correspondent for the London "Mining Journal," will he glad to receive communications from parties engaged in foreign mining operations on this coast.

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Illustrated and described.

Inventors, model makers and ameature mechanics and students, will find the work valnable far heyond its cost. Published by DEWEY & Co., Patent Agents and publishers of the Mining and Scientific Press.

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NONPAREIL OIL.

140 Degrees Fire Test, for Family Use.

OWNERS OF MILLS AND MANUFACTORIES, your attention is particularly called to this heautiful and safe ILLUMINATING OIL. Its nse is nrgently recommended hy the New York Fire Commissioners and Insurance Companies. For sale to the trade in lots to snit.

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Buy Real Estate while at Low Rates.

NINE WATER-FRONT LOTS, CHEAP,

On Gift Map 4,

Forming ahout half of a hlock fronting on the broad ship channel of Islais Creek; will he sold so low as to make it an inducement to the buyer. Inquire for the owner at this office. bptf

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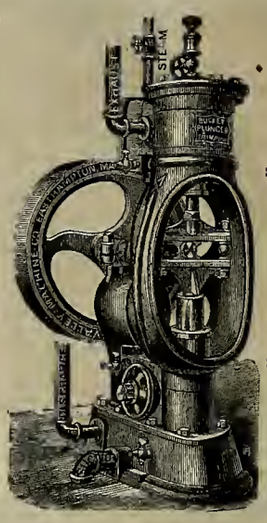

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Steam Pump

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ALWAYS RELIABLE

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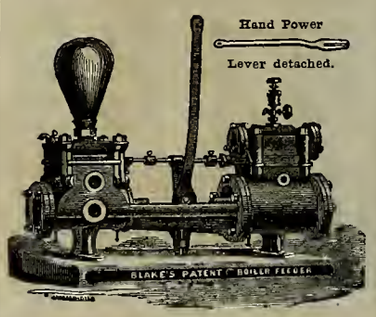
BLAKE'S STEAM PUMP,

FOR EVERY POSSIBLE DUTY.



For Miners, Boiler Feeding, Fire and all other purposee.

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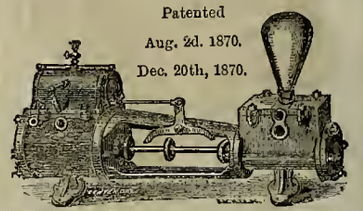
18v29-3m SAN FRANCISCO

THE SELDEN DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durahility to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

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STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

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SIZE, 40 BY 56 INCHES; SCALE, 8 MILES TO AN INCH.

Handsomely engraved on stone, colored in counties and mounted on cloth, showing the Counties, Towns, Rivers, Lakes, Railroads, Mines and Mining Districts throughout tha Territory, and all GOVERNMENT SURVEYS made to date. Price, mounted, $8; Pocket form, $5.

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Showing the bonndaries of the principal mining districts, some 30 in number, adjacent to Salt Lake City. Price, pocket form, $2.50.

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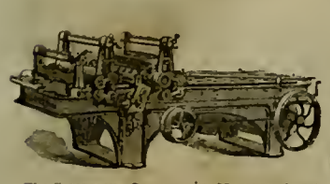
Froiseth's New Map of Little Cottonwood Mining District and Vicinity.

Showing the location of some 400 mines and tunnel sites, together with the mines surveyed for U. S. Patent. Price $3. For sale and mailed to any part of the globe, on receipt of price, hy A. L. BANCROFT & CO., A. ROMAN & CO., and LECOUNT BROS. & MANSUR, San Francisco. 10v25-tf

California Planers and Matchers, and Wood Working Machinery of all Kinds,

For Sale at TREADWELL & Co.'s Machinery Depot, San Francisco.



The California Planer and Matcher is got. ten up from new patterns specially for this Coast. It has Cast Steel Slotted Cylinder Head, running in patent self oiling boxes; Matcher Spindles also of the best cast steel. The Gears are all protected with iron covers. Will plane 24 in. wide and 6 in. thick, and tongue and groove 14 in. wide. Will make rustic and stick gutters, or heavy mouldings, etc., and is the best Job Machine ever built.

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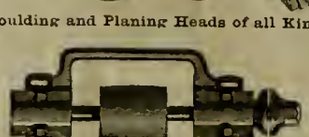

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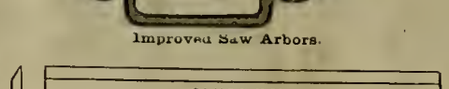

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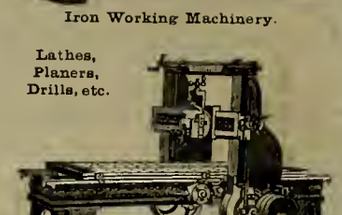

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COOK, RYMES & CO.'S Celebrated Hoisting Engines have been too long in use on the Pacific Coast to require any special recommendation from us. We refer with confidence to any one of the hundreds now in use. We simply state that they still sustain their old reputation, the manufacturers not having followed the now too common practice of reducing the quality of material and workmanship for the sake of competing with cheaper engines. For details of sizes send for price list. We desire to call particular attention to our new

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Which have just been introduced on this Coast. The plans and specifications are the combined efforts of our most successful mining engineers, and the result is the most complete

DOUBLE-DRUM HOISTING ENGINE

Ever built. Their advantages will be seen at a glance by any one familiar with the necessities of a mine. One of these engines may be seen at work in the Belcher mine, and one in the Ophir, on the Comstock lode, to both of which we refer. ☞We have all sizes of these engines constantly on hand. For sale only at

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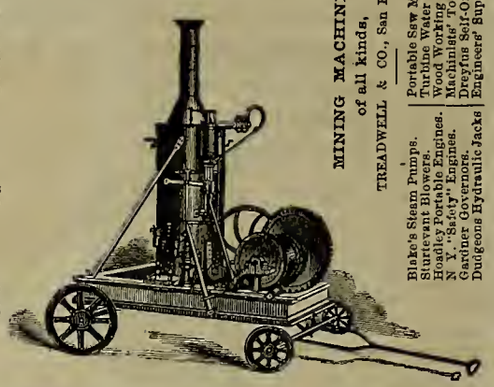

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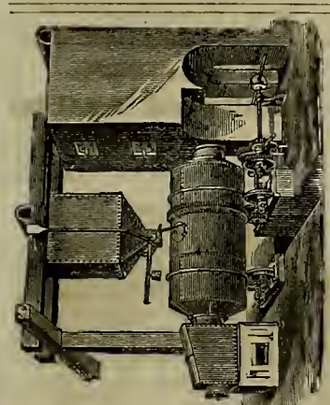

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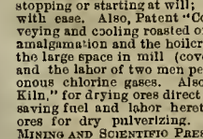
For Roasting, Desulphurizing, Chloridizing and Oxidizing Ores, etc. For the reduction of Gold, Silver, Lead and other ores, saving a largor percentage, at less cost, than any other invention now in use. Chloridizing Silver ore more thoroughly, in less time, with less fuel, salt and labor; also roasting Lead ore preparatory to smelting, better and cheaper than any other invention. The Furnace is so constructed that one man, of ordinary ability, tends five or more furnaces; controls them with ease; adding heat or air; stopping or starting at will; charging and discharging with ease. Also, Patent "Conveying Cooler," for conveying and cooling roasted ores, heating the water for amalgamation and the boilers at the same time. Saving the large space in mill (covered with brick or iron), and the labor of two men per day, exposed to the poisonous chlorine gases. Also, Patent Air Blast "Dry Kiln," for drying ores direct from the mine or breaker, saving fuel and labor heretofore necessary in drying ores for dry pulverizing. For description refer to Mining and Scientific Press, No. 18, October 31, 1874. For particulars address

TEATS & BREED,
No. 12 West Eighth Street, Cincinnati, Ohio

Circulars, &c., will be furnished, if required.
18v29-3m



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Water Wheel.

The best in the Market, and sold at less price than any other first-class Wheel. Send for a Pamphlet and be convinced.

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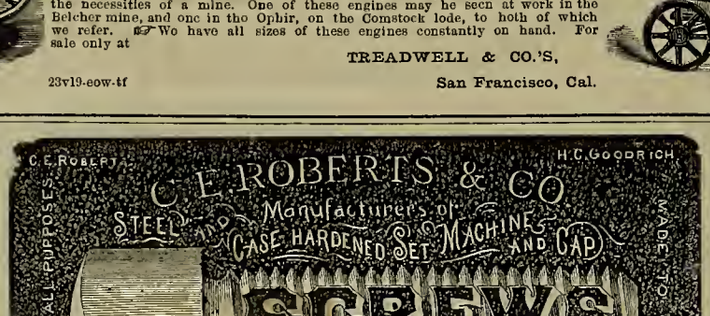
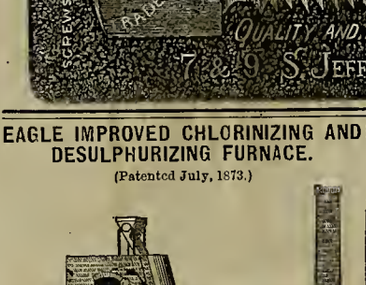


EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)



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The undersigned, owners of LESCHOT'S PATENT for DIAMOND-POINTED DRILLS, now brought to the highest state of perfection, are prepared to fill orders for the IMPROVED PROSPECTING and TUNNELING DRILLS, with or without power, at short notice, and at reduced prices. Abundant testimony furnished of the great economy and successful working of numerous machines in operation in the quartz and gravel mines on this coast. Circulars forwarded, and full information given upon application.

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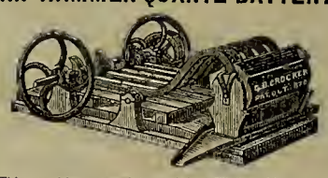
18v27-3m 240 Montgomery St., S. F

CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron frame, five steel arms with stamps weighing 17 lbs. each, which strike 250 blows per minue, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

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THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines and Agricultural Lands in Mining Districts of the U. S., printed in circular sheet, for sale at this office. Sample copies, 25 cts

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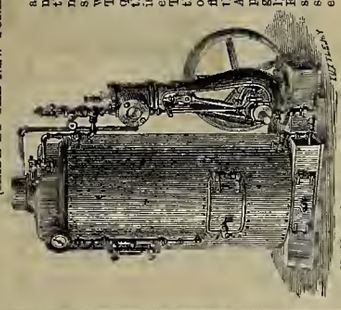
(IMPROVED)
Upright Safety Engines and Boilers.
(MADE BY THE NEW YORK SAFETY STEAM-POWER COMPANY.)

We would call particular attention to the graceful design and simple construction of this Engine and Boiler, which is not only pleasing to the eye, but is also, that which secures the greatest strength and rigidity with a given amount of material. The Boilers, which are of the Upright Tubular style, with internal fire box, are of the best material and workmanship, and are all tested to 150 pounds per inch. The heating surface and area of grate are in excess of the quantities usually allowed for the same power, and it is therefore unnecessary to purchase a greater rated power than is actually required, while in cases of emergency these boilers can be depended on for more than their rated power. The Engine is not fastened to or upon the boiler, and is therefore not affected by expansion, nor are the bearings or pillow blocks attached to the boiler, thus avoiding the heating of the latter, and securing perfect steadiness under the high speed which is necessary for economy of fuel. All parts are easily accessible—a great advantage. Is complete in itself as a Portable Engine and Boiler, or the Engine can be detached from the Boiler and run independently, if required. Its main points are simplicity, Safety and Economy. For printing offices, laundries, tanneries, ranches small repair or machine shops, or for hoisting, wherever a small and safe power is required, they are peculiarly adapted. Over 500 are already in use.



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TREADWELL & CO., Sole Agents, S. F.

THE "HOADLEY" PORTABLE STEAM ENGINE.

From 3 to 40 Horse Power.

ALL SIZES
Hoadley's PORTABLE Engines
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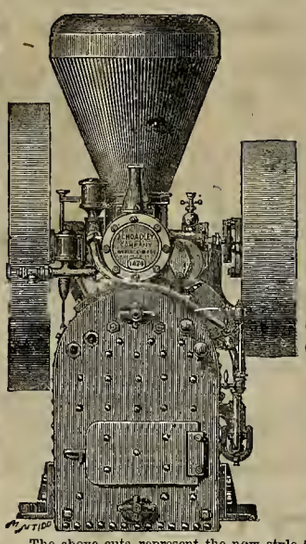

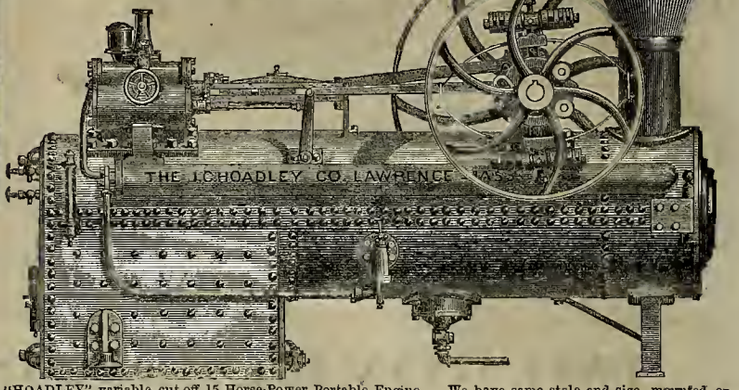

The above cuts represent the new style "HOADLEY" variable cut-off 15 Horse-Power Portable Engine. We have same style and size mounted on wheels as a Threshing Engine for the Russell End-shake Separator. We have all sizes from 3 to 40 horse-power on hand. The HOADLEY ENGINES need no recommendation from us. We have sold them in California for 20 years, and every year has added to their improvements. The last great improvement is the Cut-off Governor, thus giving them all the economy and increased power of the most thorough built stationary engine.

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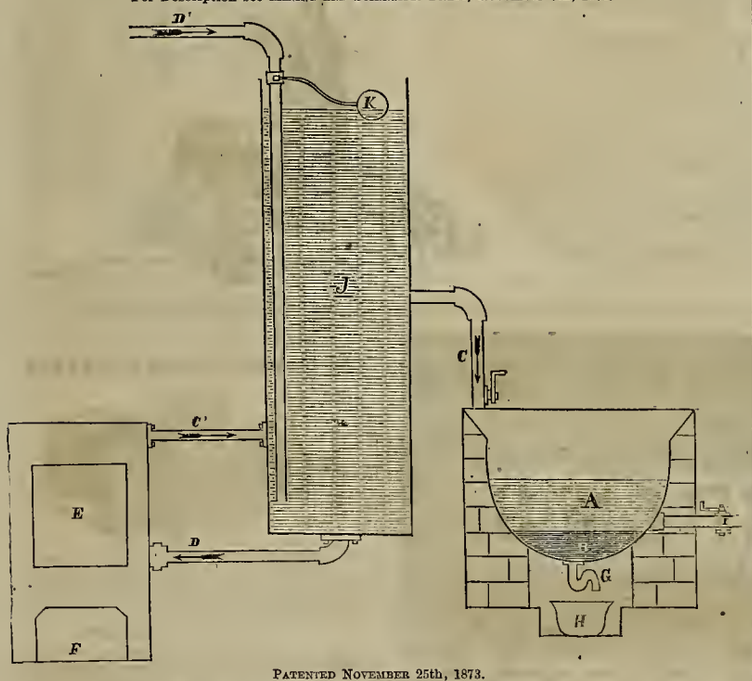
TREADWELL & CO., San Francisco.

Randol and Wright's Quicksilver Purifying Apparatus.

For Description see MINING AND SCIENTIFIC PRESS, November 7th, 1874.



PATENTED NOVEMBER 25th, 1873.

RANDOL AND FIEDLER'S QUICKSILVER CONDENSERS,
MADE OF WOOD AND GLASS.

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[Covered by Letters Patent of July 2d, 1872, and recent applications.]

Containing a sizing apparatus, (revolving screen) delivering two or four sizes of ore to two or four rows of sieves, each row independent of the other, and each having 5 sieves, each row concentrating according to specific gravity the special size automatically fed unto it, resulting in the simultaneous continual delivery of separated materials, working 2d and 3d-class ores into 1st-class ores of perfect cleanness. It thoroughly separates native gold or copper from quartz or any other lode matter,—galena and silver sulphurets from pyrites, baryta and quartz; and pyrites from quartz.

Added to a battery of stamps these machines constitute a full system of ore concentration, sufficient in most cases for the requirements of western mines, with a capacity of 15 or 20 tons per 24 hours.

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MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, DECEMBER 12, 1874.

VOLUME XXIX Number 24.

Hydraulic Mining in California.*

No. 3.

The Deep Gravel Deposits of California.

These deposits occur in basins, channels, or river beds, differing in depth, width, and length like the living streams, ponds, or lakes of the present day. The deposits themselves, consisting of gravel, drift, or shingle, sand, and clay, differ in size of boulders and compactness of the different stratifications, as well as in their composite parts. They consist of the detritus of all classes of rock known in California, and have received evidently their gold from the quartz, which appears either in bowlders and pebbles, or in sand, throughout these immense deposits. The great and noted channels containing these deposits run from north to south, and are indicated by gravel-ridges and table-lands, the latter very often covered with lava, basalt, or other volcanic matter, such as ashes and scoria. Figure 1 shows the bed-rock, rim-rock, pipe-clay and gravel of one of these deposits.

Springs inside of the rim-rock are sure indications of a deep channel or basin. The rim-rocks, or in other words the shores, or banks of the ancient stream, must once upon a time have been high enough to confine the gravel-deposits within their limits. For instance, a gravel-deposit appearing to-day in the shape of a table-mountain, must have represented, in a former age, the shape of Fig. 2, and gained its present appearance only through the agency of water, which destroyed those portions of the rim-rock and gravel deposit lying outside the dotted lines marked in the figure. The cause which partly destroyed the rim rock or shore of the channel, and left high plateaus or table-mountains as isolated landmarks of the ancient gravel-stream, has undoubtedly, to a great extent, obliterated every surface in relation to the existence of such a gravel-deposit; or even destroyed the last vestige of gravel deposit and channel, by creating gorges for modern rivers, which cross the ancient gravel streams nearly at right angles, and many hundred feet lower. As an instance, the table-mountain in Plumas county, known as Walker's Plains, and the table-mountain near Cherokee, in Butte county, both of the same formation as to gravel deposit etc., may be cited. These two table mountains were once evidently parts of the same great gravel stream, but are at present separated by a distance of about thirty miles, and by gorges of more than a thousand feet in depth, forming now the beds for the West Branch and North Fork, both tributaries of the Feather river. The practical miner has known for a long time that these deep gravel streams may be discovered by following the presumptive course of the ancient river, though all outward indications have disappeared; and, to sanction the view of the practical miner, and, at the same time, to show how beneficial is the application of science, it may be added that only recently valuable deep-gravel deposits were developed, indicated by the geological survey of Professor Whitney, though hidden under mountains of apparently valueless detrital matter

Adaptability for Hydraulic Operations.

Almost all gravel deposits are fit for hydraulic operations, provided they are gold-bearing and will admit of those improvements which are essential to this class of mining, to wit, sufficient outlet, a place of deposit for tailings, and abundance of water. After gaining the certainty that these requisites can be obtained, the miner may go to work to open his mine, confident of success. If already other mines are worked in apparently the same gravel deposit, he may be pretty sure to find the same stratifications of gravel, cement, clay, sand, etc., and he must then judge for himself whether it will be advisable for him to drive at once a tunnel, or to ascertain first, by shaft or incline, the depth of the basin or channel.

Should the nature of the ground admit the sinking of a shaft or incline, it would be advisable to do so, even after the tunnel is completed, water introduced and everything ready for hydraulic operations, the opening of the mine will have to be done either by shaft or incline. It is, however, very often, and particularly in those deep gravel deposits which

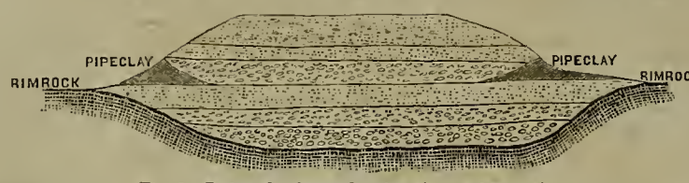

Fig. 1. Bed-rock, rim-rock, pipe-clay and gravel.

were never submitted to drainage, a costly and difficult job to sink a shaft or incline, by reason of the quicksand and loose gravel. The miner must therefore consult the extent of his means before he ventures upon hazardous operations.

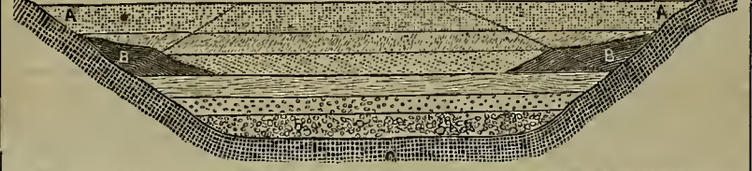

Fig. 2. A A, old rim-rock; B B, pipe-clay; C, bed-rock, or bottom of channel.

The character of these ancient deposits, generally speaking, is the same. Though they may differ in the hardness and compactness of the gravel, or may have been disturbed by local influences, still there is a prototype, the description of which may fairly apply to all. The oldest gravel-deposit found in these ancient channels is that drift deposit known under the name of the "blue lead."

The Blue Lead.

This deposit is always found deepest in the channel and nearest to the bedrock. It is composed of bowlders of serpentine rock, talcose slate, and, in fact, all other rocks belonging to the slate family; besides this, of quartz in bowlders, gravel and sand, with an admixture of clay, the presence of the latter being always considered a favorable sign of richness. The whole mass is of a color varying from bluish green to indigo blue. The quartz, though originally of pure white, is tinged blue, and neither washing nor exposure will discolor it. Very often a deposit of huge boulders, rather rough and angular and intermixed with only a little gravel, is found near the rim-rock—a mass resembling very much a moraine, and of no value for mining purposes. This deposit, however, will slope down toward the center or depth of the channel or basin, and the regular blue lead will appear on the top of this "moraine," sometimes only a few inches in thickness, but gaining steadily in size in the same ratio as the "moraine" diminishes, till finally the bedrock is reached by the blue lead, which may have gained a thickness of 40 feet or more.

This blue lead is found in deposits rising from a few inches to over a hundred feet in thickness, and is generally considered the richest and most reliable gold-bearing deposit in the country. Though tightly packed, it can be easily removed by the pick, and affords, therefore, under proper circumstances, an excellent material for hydraulic operations.

*Condensed from an article by Charles Waldeyer, in the last Annual Report of the U. S. Commissioners of Mining Statistics.

Stump Sawing Machine.

J. A Elston, of Elston Station, Cole county, Mo., has recently patented a machine which is designed for cutting off tree stumps, so that all kinds of farm machinery will readily pass over without obstruction. It consits of a strong saw, sprung in arc shaped and pivoted to a swinging frame—*A*, which is applied by a central sleeve to a smooth shaft sustained in a supporting frame. The saw frame is provided with handles at each end, so that one or two men may operate it. A cord attached to its center passes over the pulley *B*, on the supporting frame, and carries a weight, which produces the forward advancing and feeding into the stump. The supporting frame consists simply of inclined legs pivoted to and secured by nuts on the ends of the horizontal shaft, the elevation of the shaft above the ground and the consequent raising or lowering of the saw is provided for by spreading the legs and fastening them in the required position by arc shaped guides *C*, and set screws, the lower ends of the legs are pivoted to base runners, *D*, to admit of a steadier seating on the ground. Suitable handles on the machine serve to carry the machine from stump to stump. The mode of arranging and operating the machine is clearly shown in the engraving.

The machine is cheaply made and the inventor informs us that its usefulness has been practically demonstrated, doing the work with rapidity and ease, leaves the stump in concave shape, so as to retain moisture and facilitate its rotting.

ELSTON'S STUMP SAWING MACHINE.

CRYOLITE.—John B. Winters is said to have discovered a field of cryolite, 60 miles northeast of Reno, Nevada. Cryolite is a substance of white or yellowish gray color, occurring in masses of a foliated structure. It is a double fluoride of aluminum and sodium, and there are large deposits of it in Greenland. It is employed as a raw material in the manufacture of aluminate of soda, which is available instead of caustic soda in the purification of fatty matters. It is also used in making a porcelain like white glass and various valuable chemical products are obtained from it.

MICROSCOPICAL SOCIETY REUNION.—The quarterly reunion of the San Francisco Microscopical Society transpired on Friday evening last, and was attended with gratifying results. The affair was informal and the ladies and gentlemen present reaped both pleasure and profit from the exhibitions and incidental discussions. Among the guests of the society was W. H. Walmsley, of Queen & Co., Philadelphia, who exhibited some fine specimens through an excellent microscope. Mr. Walmsley pronounces the rooms of the society the finest in the United States, and he assures the society that they have reason to feel proud of their progress and position.

A. DUNCAN, of Duncan's Mill, Sonoma county, is having a steam propeller built, expressly adapted for the lumber trade. Her length will be 100 feet, 25½ feet beam. Her engines will be 100 horse power, and her carrying capacity 150,000 feet of lumber. She will make four trips a month to San Francisco. The steamer will run exclusively to Duncan's mill, and will be the first of the kind on the coast.

THE Placer *Herald* says there are rich copper lodes in that county, only needing developing to make somebody rich.

AT the railroad shops in Sacramento they have lately been making some street cars for this city.

THE St. John mine, Solano county, shipped eighty flasks of quicksilver on Thursday.

PROSPECTORS are hunting for cinnebar in the vicinity of Jacksonville, Oregon.

THE new Belcher air shaft is going down pretty fast. The new shaft will be in excellent ground, and in every respect will be as good and substantial as the shaft which was destroyed by fire a few weeks since.

THE Sutro tunnel was advanced 270 feet in November.

Bringing Water to the Mine—Heavy Hydraulic Mining Operations.

The work of bringing water to the mines on Dutch hill, Plumas county, is nearly completed. The *Plumas National* gives a detailed description of the undertaking, from which we extract as follows:

A party of gentlemen, composed chiefly of Sacramento capitalists, having purchased the mines near the North Fork of Feather river, and lying about six miles south of the Big Meadows in this county, known as the Dutch Hill, Barker's Hill, Cummings' Hill, and Owl Hill mines, incorporated under the name of the North Fork Mining company, with a capital of half a million, consisting of 20,000 shares at $25 per share, for the purpose of working the same. These mines had long been known as among the richest in Plumas county, but situated as they were on an isolated point, at a great altitude, it was deemed impracticable, and by some *impossible*, to bring water upon the ground; but this company, knowing that the quality of their ground would justify an immense outlay, had surveys made, and upon those surveys have constructed ditches and laid a line of pipe, and in ten days from the present writing will see at least 2,000 inches of water upon their claims.

The water privilege of the North Fork Mining Co. is all the waters of Rice's creek, flowing through Rice Creek Meadows. This water was purchased by the company from Henry C. Wilson, Esq., of Tehama, who held the meadows under a swamp land patent issued by the State of California. Rice creek heads under the south side of Lassen's Butte, and is continuously fed from melting snows, and is the extreme westerly branch of the North Fork of the Feather river. It contains at its very lowest stage about 3,000 inches of water (miners' measurement) thus affording a never failing supply.

Surveys demonstrated only one practicable route for the water, viz: crossing the ridge into Tehama county, thence carrying the ditch on the south side of the point or ridge dividing Butte creek from the Big Meadows. This could only be done by means of a tunnel 1,150 feet long, starting sufficiently low to tap all the waters of Rice Creek Meadows. The contract for building this tunnel was let to Angus McIntyre, of Indian valley, for $8 per foot, the work to be completed by the first of December. To finish this work within the time specified, it was necessary to sink two shafts on the same line, and between each end of the tunnel, thus affording a chance for six gangs of men to work at the same time, one set of men at each end and two sets in each shaft, working in opposite directions: and even with this force it required the best management on the part of the contractor to break ground 1,159 feet within the prescribed time. The tunnel is now completed and the work in it reflects great credit upon Mr. McIntyre and his assistants. This tunnel is six and a half feet in hight, 5 feet wide, and has a grade from one end to the other of 40 inches. It is capable of carrying all the waters of Rice creek, in ordinary seasons.

The water, after passing through this tunnel will descend about 100 feet, and empty into a lake in Tehama county known as Tule lake, the surface of which in an ordinary stage of water, covers an area of about 160 acres and is about ten feet deep in the deepest part. This lake the company proposes to use as a reservoir or feeder for their ditch. The water is conducted from Tule lake through a cut in solid lava 660 feet long, 7 feet wide, and 11 feet deep at the deepest point. Of the cost of this cut we are not informed, but being as it is in solid lava rock, can have amounted to no small sum. From this cut the water is conveyed in a flume built on a solid lava foundation, a distance of 924 feet, where it is taken up by the ditch which extends a distance of 15 miles to the head of the pipe. The first six miles of this section of the ditch is on the western slope of the divide ridge between the waters of the North Fork and West Branch of Feather river, the summit of which constitutes the county line between Plumas and Tehama, and which ceases to be a defined ridge at what is known as Deer Creek Pass, on the divide between Butte and Deer Creeks. At six miles the ditch crosses the ridge into Plumas county and follows the side hill to a point on the Stover mountain, overlooking the Big Meadows. With the exception of about two and a half miles at the head of this section ditch the line is in granite rock, which rendered blasting necessary on nearly the whole line. On this work one of DeVolson Wood's steam drills was used, which proved a decided improvement on hand work, doing the work of six men and sinking a hole in hard granite rock at the rate of 22 inches in six minutes. On this section of the ditch both white men and Chinamen were employed, the Chinamen digging and the white men blasting and trimming up the ditch.

The line of pipe connecting with the ditch is a few feet over eight miles in length, and heads at the Stover mountain, passing in an almost direct line to the mountain just north of the upper end of Butte valley. It has a pressure of one hundred and fifty feet, and at a distance of five miles from the head has a depression of 500 feet measured from a grade line. The pipe is made from the best Pennsylvania iron, and was manufactured in Pittsburg for this particular work, and over 600 tons have been used in its construction. The contract for making and laying the pipe was let by the company to E. C. Ross & Co. (Ross, Ragan & Barbour) of Marysville, who erected works on the line for its manufacture, and it is claimed by them that they had in their employ some of the best pipe makers in the State, and from a critical examination of their work we do not doubt the truth of their assertion.

The most indefatigable energy and perseverance has been displayed by the chief head on this work, in its prosecution to an early completion. The whole of the iron used in making the pipe was shipped from Pittsburg by cars to Omaha, thence by the Union Pacific and Central Pacific roads to Chico, thence freighted to Pipetown, where it was manufactured into pipe. As an instance of what can and what has been done in these days of fast freight and machinery, by energy and perseverance such as has been displayed by this enterprise, we are credibly informed that some of the material used in the manufacture of the pipe was taken from the mines in Pennsylvania, made by the Pittsburg foundaries into iron and rolled into sheets, transported across the continent to Chico, and thence hauled by freight teams to Pipetown a distance of 70 miles, manufactured into pipe and laid in the ground in its proper place, all within 60 days.

From the discharge of the North Fork Mining company's pipe a ditch is carried a distance of six miles on the face of the ridge sloping towards Butte valley, the contract for the building of which was let to Ah Shune, of Silver creek, in this county. This enterprising Mongolian has completed his work, and in such a manner as would reflect credit on a master workman of the more favored race. This ditch is six feet wide on the top, and has a uniform depth of three feet. At six miles from the discharge of the pipe the ridge dividing Clear creek from Butte valley is crossed by means of a tunnel, 835 feet in length, and 200 feet below the apex of the hill. This tunnel has been run under contract, by McIntyre & Young, and the work superintended by Mr. John Young, one of the parties to the contract. Hard bed-rock was encountered almost from the very commencement, necessitating blasting nearly the whole length of the tunnel. From the tunnel an old ditch, known as the Ohio creek ditch, is reached by a new ditch one and one-fourth miles in length. This was also built by Chinamen, and the old Ohio creek ditch, which runs to the Dutch hill mines has been enlarged to the capacity of the new ditch leading to it.

To complete the 25¼ miles of ditch and 8 miles of pipe, a large force of men has been employed during the whole summer. The management of the work on the pipe has been under the supervision of Mr. Ragan. That of the ditch has been solely under the control of Mr. Myron Wagner, who is also superintendent of the works at the mines, and too much cannot be said in the praise of this gentleman for the manner in which he has conducted the work.

Refractory Ores Worked Successfully.—Mines were discovered in Flint district, Idaho, says the *Silver State*, several years ago, which at the time created considerable excitement and attracted a great many prospectors and considerable capital. A quartz mill which, it is said, cost $140,000, was built in the district. After numerous trials, all of which proved unsuccessful, the mill was taken down and the machinery sold to different parties. A large lot of it, brought to this county by returning freight teams, found a market in Unionville. This led to the abandonment of the district. Since then another trial has been made, which bids fair to prove successful. The ores of Flint district, as its name implies, consist of hard flinty quartz, carrying a large percentage of base metal. They are very refractory, and cannot be worked by ordinary mill process, as has been proved by experience. Yesterday about four tons of this refractory ore were brought to the Humboldt reduction works to test the efficacy of the roasting process in reducing and amalgamating it. Lot No. 1, containing 1,851 pounds, was sampled, and it assayed $400 per ton. Lot No. 2, containing 6,078 pounds, assayed $350 per ton. No difficulty was experienced in the treatment of either, and the result surprises the owners, who did not expect to realize more than $150 per ton from either lot. As the experiment has proved successful, large quantities of ore from Flint will be brought to the Humboldt reduction works, and the district will again attract the attention of mining men, this time, it is hoped, to work the mines profitably and successfully. The ore is from the Rising Star mine, ten miles south of Silver City.

Roughing it at Panamint.—A letter containing the following items from Panamint was recently received by a gentleman at Reno, Nev.: "There are more men broke here than at Reno. There are about 800 men here, and it is very cold; no lodgings. It is hard to stay here this winter, but I cannot think of returning to Reno at present, as I think by remaining I will succeed. We are obliged to pay $1 for meals, and poor at that. The mines are all located."

The Virtue mine, Oregon, turned out $8,000 recently, from 16 days' run, with 15 stamps.

The Mineral Wealth of California and Nevada.

Notwithstanding the incessant "blowing," which has been kept up by the Pacific coast press during the past quarter of a century, it is safe to assert that no more than one in a thousand of our Atlantic-side friends has formed even an approximate conception of the illimitable mineral wealth of California and Nevada. Independent of the incalculable wealth which yet remains unearthed in the incomparable gold and silver mines of the two States, there are vast and innumerable deposits of other useful minerals, which, without the presence of gold and silver, are capable of enriching an empire. Among the useful minerals which exist in limitless profusion and in gigantic veins and masses in various portions of Northern California and in Middle and Western Nevada, we may mention the great iron mine of Plumas county, California, which Clarence King declared to be one of the heaviest deposits of rich iron ore in the world. Much of this ore is strongly magnetic, and experts assert that it will yield iron fully equal to the best Swedish metal. Not far from the great iron belt of Plumas there exists an enormous mass of black oxide of manganese, which will yield from fifty to eighty per cent. of oxygen. Close at hand there is a large hill, which contains a thick stratum of crystalized quartz, admirably adapted to the manufacture of fine glass, and we shall expect that at some time in the near future, these deposits of oxygen and pure silex will be utilized in the manufacture of plate glass. In Roop county, Nevada, there is a body of land, probably four or five miles in circumference, which is actually covered over with a solid sheet of sulphate of soda. This soda deposit lies immediately under the surface soil. It varies in thickness from eight inches to two feet, and when first exposed to the light is as clear and pure as a sheet of ice. A company of enterprising gentlemen have secured this valuable soda-bed, and propose to utilize it in the manufacture of carbonate of soda. In various portions of both States are to be found extensive veins of steatite, which is the best known substance for the manufacture of fire-bricks. In view of the fact that large quantities of fire-bricks are being annually shipped to this country from Europe, and that the bricks sell for enormous prices when delivered, it is simply amazing that our steatite beds are not profitably utilized. In addition to the useful minerals already mentioned, we have copper enough to supply the world. We have native sulphur enough to supply tophet for ages. We have zinc mines, emery mines, asbestos mines, lead mines, antimony mines, cobalt mines, baryta mines, borax mines, and heavy beds of lignite and bituminous coal. Our marsh lands in many localities are richly impregnated with the alkaline salts, and sometimes contain extensive beds of pure chloride of sodium. Thus it may be readily seen that, notwithstanding the miraculous richness of our mines of silver and gold, California and Nevada can boast of containing a greater variety of the useful metals than can be found in any other equal area of the earth's surface.—*Virginia City Enterprise, Nov.* 25.

A Little Giant Railroad.

The business now being done by the Virginia and Truckee railroad is absolutely immense. The average daily shipment of ore over the road is 1,100 tons. Besides which there is constantly a great rush of merchandise and other freights of every description. Thus the freights received here and at Gold Hill alone, during the twenty-four hours ending yesterday at noon, were as follows: Wood, 29 car-loads; lumber, 21; merchandise, nine; ties, three; machinery, one; fruit, one; coal, two; potatoes, one; steel rails, seven; iron, two. Total, 76 car-loads. But for the excellent management and "eternal vigilance" of H. M. Yerington, general superintendent of the road, its business would soon fall into almost inextricable confusion. The road is doing several kinds of business at one and the same time. It has first to perform the work for which it was specially constructed, namely, to carry supplies of ore from the mines to all the mills at Silver City and on the Carson river, and bring to the mines their supplies of timbers, wood and lumber; but, in the meantime, it must bring all manner of machinery for the mines and mills, haul all of the stone coal used on the Comstock range, bring all the goods of every kind required by our business men, transport live stock for our butchers, and fish, fruit, vegetables, and all kinds of perishable articles for our family markets; carry passengers and the mails with all the regularity and punctuality of the biggest railroad in the Union, and besides doing all this, must be able to furnish excursion trains as often as required, and often at very short notice. All this is done, however, and what seems to the mere looker-on confusion of the wildest kind, all is system of the most perfect and admirable description. All of the whistling and snorting, puffing and blowing, backing and filling, and charging to and fro on side tracks, means business, and in the whole there is design.—*Virginia Enterprise.*

The silver bullion shipments of Professor N. P. Hill, agent for the Boston & Colorado Smelting company, during the week ending November 14th, 1874, consist of 15 bars of which the aggregate coin value is $20,219.74, or a little over $28,300 currency value.

New Discoveries in Inyo County.

We have the pleasure to record, says the Inyo *Independent*, what from all accounts is likely to prove the most valuable and important mining discovery ever made in the county. Indeed Judge Hanson of this place, one of the lucky ones, (and whose judgment is to be relied upon, since he is well acquainted with almost every mine in the county,) thinks the prospect the most flattering ever seen on this coast. It is a discovery made about two weeks since by William and Robert Brown, brothers, in Coso district, about ten miles northeast of the old Coso camp or town. It consists of huge veins or deposits of carbonate lead ore, rich in silver, and of the very best smelting class, as has been demonstrated by actual trial. In amount, so far as surface indications can prove the fact, the ore is simply inexhaustible. The Judge insists upon it that he is not in the least excited, and yet at the same time feels perfectly assured that in less than twelve months from date this new camp will eclipse in the amount of rich bullion it will turn out every other smelting district in this or any other State; and, from what he says of it, we think it extremely probable. The ore, by several assays made at Cerro Gordo and Swansea, yields on the average over seventy ounces in silver and over fifty per cent. lead. The two principal veins are over twenty feet wide, of solid ore. The formation is soft limestone and porphyry, nearly as soft as the ore itself, owing to which fact the country rock has worn away as fast at the ledges or vein matter leaving the latter exposed, when otherwise the more rapid oxidation of the lead contained would have caused the ores in the lapse of years to sink out of sight. Geologically the conditions could not be more favorable, both for permanency and ease of working; tangibly the ore in unlimited quantity is there, plain to be seen, and however extravagant the Judge's opinion may appear to be, we fully believe from his account and our faith in his truthfulness, that his anticipations will, sooner or later, be fully realized, and that this discovery is, in point of fact, the most valuable one yet made in this county. But taking things as they are, material for active work is being sent out as rapidly as possible, the district has been duly organized, its boundaries defined, a set of laws adopted, numerous locations have been made and recorded, and now all who choose can go and see for themselves, and find mines for themselves. It is not at all probable the claims have been taken, for as yet it does not appear that over a dozen persons have ever been in this camp, notwithstanding it forms a portion of the old, by name, well known Coso district. Specimens of the ore can be seen at this office. We cannot at this issue attempt a minute description or account of the ledges or district, but shall do so soon. The district is less than thirty miles south of Cerro Gordo, and full as easy of access, being only six miles east of the Panamint road. Plenty of wood and water is found within available distances, and altogether the new Coso is very favorably located, and on its own merits is going to be *the* camp of all.

Chrome Iron.

One thing is demonstrated beyond question, that there are immense deposits of chrome iron in Sonoma county. It is now being shipped East, and we are informed nets only $1.50 a ton. At the manufactory it is worth from $40 to $60 a ton. Here is a margin for profit. Chromium is extracted from chrome iron stone, named from its tendency to impart useful and beautiful colors. Chromium compounds are used in photography in printing and in dyeing. The brilliant green color used on legal tender notes is a chromic oxide. The same pigment is used in staining glass and painting porcelain. The base of all its combinations is the common yellow chrome of commerce. One of its combinations, a chromic chloride, is said to possess virtue as a remedy for cancer. Witter springs in Lake county may owe its peculiar virtue in cancer to this ingredient in its waters, as it is surrounded by deposits of chrome iron.

Chromium steel is made by combining five per cent. of chromium with cast iron. On account of its excessive hardness it is used in the construction of safes. It has also great tensile strength and is extensively used in the construction of suspension bridges.

We have vast deposits of this valuable metal in Sonoma and the day must come when it will be utilized and made a source of profit and revenue. In the United States the only chrome iron mines worked are in Maryland near Baltimore.—*Sonoma Democrat.*

New Mines.—W. R. Mitchell, an old resident of Paradise valley, says the *Silver State*, discovered a few weeks ago some float quartz on the east side of the West Paradise range, between Provo and Woodman. He had a sample of the float assayed, and found that it contained $13 in silver and $6 in gold. Last week he went to tracing the float, and succeeded in finding a large-sized ledge, or rather a series of ledges a few feet apart. He showed us a specimen of ore taken from one of them which he thinks will assay $100 per ton in silver. It has long been believed that the West Paradise range contained valuable mines, as some stock herders found ore west of Willow Point Station several years ago, which was represented as being very rich in silver. Probably Mr. Mitchell's discovery will induce others to prospect the range, and lead to important mining discoveries in that vicinity.

SCIENTIFIC PROGRESS.

Spectroscopic Revelation and Its Practical Uses.

The spectroscope has enabled chemistry to overleap the barrier which the great philosopher Comte prononnced insurmountable—that of determining the chemical characteristics of heavenly bodies. Comte asserted that we could never learn anything of the planetary contos beyond what related to their geometrical and mechanical properties—the nature of their movements and the forces by which their movements were produced. But the province of chemistry, through the aid of the spectroscope, can be carried even to the farthest space in the heavens, from which the faintest ray of light can reach us.

The light of hundreds of stars has been analyzed and nebulæ, scarcely visible, have had the quality of their radiations revealed by its aid. The light, in some cases proves that the constitution of these stars is like that of our sun. Aldebaran sends us records of hydrogen, magnesium and calcium, which abound in solar light, but also those of metals which are rare or absent, such as tellurium, antimony and mercury.

Nebulæ, 20,000 times less brilliant than a candle at a distance of 13,000 feet, still give a spectrum; for their light, although feeble, is very simple in its construction, and the spectrum which it gives consists only of two or three bright bands, one of hydrogen the other of nitrogen. These nebulæ, which give a spectrum of bright lines, are there in an "abyss" between them and resolvable nebulæ, which, like ordinary stars, give a spectrum with dark lines.

What an effort of the human mind! To discover the constitution of stars of which the distances are unknown; of nebulæ, which are not worlds; to establish a classification of all the stars, and still more to guess their ages. Ah, tell me, is not this a triumph for Science! Yes, we have classed them according to their ages. Stars colored, stars yellow, stars white; the white are the hottest and the youngest; their spectrum is composed of a few lines only, and these lines are dark. Hydrogen predominates. Traces of magnesium are also met with, of iron, and perhaps iodium; and if it is true that Sirius was a red star in the time of the ancients, it owed, perhaps, its tint to the greater abundance of hydrogen at that epoch. Our sun, Aldebaran Arcturus, is among the yellow stars. The colored stars are not so hot and are older. In consequence of their age; they emit more vivid light. In them there is little or no hydrogen. Metallic lines abound, but one also finds channeled spaces, like the lines of compounds. The temperature being lower these latter can exist whether they consist of atoms joined to others of the same kind, or whether they contain groups of heterogeneous atoms.

As to matter it is everywhere the same, and the hydrogen of water we meet with in our sun, in Sirius, and in the nebulæ, everywhere it moves, everywhere it vibrates; and these movements which appear to us inseparable from atoms, are also the origin of all physical and chemical force.

The same wonderful instrument has also been carefully and practically applied to some of the commonest mechanical operations of the day—the refining of the precious metals, and the manufacture and puddling of iron. The use of the spectroscope in determining the changes which are passing in a mass of molten metal, whether in the puddling furnace or in the smelter's crucible, is pronounced one of the most beautiful and reliable expedients in metallurgy, although its full value has not yet been worked out.

Mr. A. McMartin recently stated, at the American Institute of Mining Engineers, that one never tires of watching the brilliant changes in the spectrum as they occur from moment to moment, when it is brought to bear upon molten metal. The specific causes of these changes have been the subject of much dispute and unsatisfactory investigation. But all are agreed that carbon has something to do with them, whether as such, or in gaseous form in such nitrogenous compounds as cyanogen. Whatever be their cause, these changes do take place—and that so regularly, that an experienced eye can place full dependence upon them as indicators of the state of preparation of the metal bath. The spectrum at first appears without lines; but as soon as the spark period begins to give place to its successor, and the clear frame to extend out of the mouth of the converter, the bright orange-yellow sodium line quickly makes its appearance, and remains clearly visible till the blast is turned off. After the sodium line appear the red lines, which represent calcium and lithium; and then a beautiful series of perfectly graded green lines in the green, and pale blue lines in the blue section of the spectrum, manifest themselves, one after another, each in its series, until, at the climax of the operation, when the greatest heat is attained, the spectrum rivals that of chloride of copper in beauty and brilliancy. A very experienced eye can also sometimes see a beautiful violet line in the violet section at this point.

But the characteristic lines of the Bessemer spectrum are the beautiful band-like graduated series, in the blue and especially in the green section. In the inverse order to that in which they arose to their climax, these lines gradually diminish in brilliancy, and at last vanish. But some of the green lines still remain, after the blue series has entirely vanished; and at this point nothing must be allowed to distract the conductor of the operation from closely watching the spectrum; for the only index, though a perfect one, of the exact end of the operation, is the degree of brilliancy of certain green lines, which remain when the charge has arrived at the point of desired decarburisation. For different mixtures of pig iron a difference in the appearance of the indicating green lines is noticeable at this point; and to secure with the same mixture a desired slight difference in the grade of steel produced in two different blows, proper allowance must be made on one or the other side, of a certain degree of brilliancy of the green lines.

The use of the spectrum as an aid to the refining process for gold and silver is now being closely and practically studied at the British mint. The utmost confidence is felt that it will soon be made practical not only for qualitative but also for quantitive analysis.

A NEW ASTEROID DISCOVERED BY PROF WATSON IN CHINA.—The Japan *Gazette* of Nov. 3d furnishes the following interesting item: Prof. James C. Watson, of the Michigan University, America, who has charge of the American Transit of Venus party, located at Pekiug, has had the honor of adding another asteroid to the list already discovered. This makes a total of about 140, and is the seventeenth of these miniature planets which Professor Watson has discovered. But two observers—Peters, of America, and Luther, of Germany—have more credited to them. These planets all take their names from mythology, and as this is a Chinese production Chinese mythology will yield its name. Among the many divinities there is one Neva, whose duty it is to attend to the skies, and mend them, if, by chance, a rent occurs, and whose name would not be inappropriate. The planet was first seen at 8:30 o'clock on the evening of the 10th of October, and is of the eleventh magnitude. Its right ascension on the 10th was 0h. 58m. 01.68s.; its declination, 10° 42′ 52″; on the 16th, 0h. 52m. 46.46s., and 10° 26′ 15″.

NEW METHOD FOR THE COMMERCIAL PREPARATION OF OXYGEN.—Mr. J. A. Wanklyn, of London, observing that copper oxide gave up easily its oxygen to barium oxide to produce barium peroxide, proposes to utilize this property in connection with the fact that metallic copper when highly heated, becomes oxidized to copper oxide, for the economical preparation of oxygen from atmospheric air. The barium oxide is mixed with at least half its weight of copper oxide, placed in an iron retort and heated to redness, a jet of steam being blown in. The barium peroxide at first formed gives up its oxygen, and becomes oxide again. Atmospheric air is then blown into the retort, (the steam being stopped) which again, through the mediation of the copper oxide, oxidizes the baryta to peroxide. This is then decomposed by steam, as before. Instead of baryta, caustic lime or manganic oxide may be used, or a mixture of the latter with lime or baryta.

NOVEL ENGINE ATTACHMENT.—The Corliss pumping engine, for the Providence water works, is a marvel of automatic self-regulation. The problem of dispensing with a second reservoir or stand-pipe for high service, the Corliss company has solved, by the construction of a unique "table engine," capable of pumping 5,000,000 gallons of water per diem, or more if needed. This is to say that, if every outlet from the supply pipes distributed over the high service of the city were closed so entirely that no water whatever escaped, the pumping apparatus remains perfectly at rest, but the instant any appreciable outflow occurs, the machinery, with no human eye intervening, proceeds to supply the waste. It has been known to be over five and a half minutes in making a single revolution, moving regularly all this time, however, and capable of increasing the rate almost immediately to more than 30 revolutions a minute—and all that of its own accord.

ACTION OF AMMONIA ON SUGAR.—On employing absolutely dry sugar, and subsmitting it to the action of a current of ammoniacal gas, dried over a long column of quick-lime, the sugar becomes at first opalescent, and takes the waxy consistence described by Raspail, but in the course of twelve hours, says Laborde, it liquefies, and flows on the surface of the tube in which it is contained; 100 parts of sugar absorb 7.83 of ammonia. On exposure to the air, the sugar loses the ammonia which it had absorbed. At the end of three months the sugar retains only about 0.37 per cent., and has still a very pungent flavor. Glucose similarly treated liquefies very rapidly, becoming colored, and forming a crystalline product.

A NEW EXPLOSIVE.—A series of highly interesting and successful experiments with a new explosive have taken place at Minerva, near Wrexham, Wales. Nearly 500 civil engineers and others interested in mining operations, were present. The new powder, which has not yet been patented, is the invention of Messrs. Curtis & Harvey, the well known gunpowder manufacturers, and among the special advantages claimed for it are that its explosive force is exceptionally great; that it throws off very little smoke or injurious gas; and that it is quite as safe for use as ordinary powder, not being liable to explode by increased temperature, exposure to the sun, percussion or self-ignition.

NOVEL SCIENTIFIC CLASSIFICATION.—J. H. Stenson, of Jacksonville, Oregon, proposes to set before the world a new system of classification for all natural phenomena. It is applicable to all the natural sciences. It proceeds by inductive methods, which are new, and works complete formula for that purpose. By these it brings out the causes involved in any set of phenomena. The system can be used in the wheat field, in the garden, in the dissecting room, and throughout nature. It is a scheme by which results can be calculated in a manner similar to the plan upon which the surveyor acts, when after getting his data, he proceeds to determine the area of the land. The idea was some months since explained by the author to the Agassiz Scientific Institute at Sacramento, at which Rev. Mr. Bonte expressed the opinion that there were merits in the idea, and explained at some length how it would be useful to the world. Dr. Logan also said the subject and its treatment were entirely new, and worthy of serious consideration and investigation.

PRIZES FOR ESSAYS.—The Academy of Arts, Science and Belles Lettres, of Caen, France, offers a prize of eight hundred dollars for an essay on the subject of the functions of leaves in the vegetation of plants. A dissertation on the present state of science on this question, including the results of personal experiment, showing new facts tending to confirm or modify the doubtful points in theories now admitted, is required. The papers must be submitted before January 1, 1876.

Another prize, of one hundred dollars, is offered by the Academy of Sciences of Rouen, for a treatise on the advantages to be obtained by the conservation and improvement of cider by the employment of the processes of heating now applied to wines. The award will be made during the coming year.

MR. STANLEY has been heard from, and in a manner to afford much pleasure and hope to those interested in geographical discoveries. It is understood that he will take up the work left unfinished by Dr. Livingstone, and he gives a very satisfactory account thus far, of his labors. He is satisfied, from actual survey of the Refugi river, that it has two mouths. This is the route taken by slave traders, and Stanley proposes that light-draught boats, carrying steel guns, shall be stationed in the river, as more effective in putting a stop to the traffic than cruisers along the coast. He has established a supply station on the delta, and will proceed vigorously with his work of further explorations.

MECHANICAL PROGRESS.

The Inventor of the Screw Propeller.

Americans, English, French, Germans and Italians all claim this invention, and that not for an individual of each nation; but in some countries more than one of their sons, dispute the honor of being its inventor; and probably experiments to discover the means of applying the screw as a motive power to ships were at different periods spontaneous, independently, and sometimes spontaneously made in various places by inquiring minds, who were perfect strangers to each other and to each other's discoveries and appliances.

So far back as 1726, David Bushnell, a native of England's American Colonies, made experiments by means of a screw to propel a submarine torpedo. Evidently his essays were not successful, or those infernal machines would have been heard of sooner. In 1836, John Smith, an Englishman, formed a company and built the first sea-going screw steamer, appropriately named the Archimedes, from which date the ancess of the screw propeller was an accomplished fact. Between 1726 and 1836, many inventors took the matter up, but it was not until 1832 that one of the experimentalists, Frederic Sanvage, hit upon the idea of applying steam to the screw as a motive power. Up to that period it had been sought to drive the screw by a capstan manned by men, or other cumbrous non-practical means. In France, Frederic Sanvage is considered to have the largest share of merit in practically applying a machine which is the production of many minds, and which even now is being continually improved.

The town of Boulogne-sur-Mer, where Frederic Sanvage was born on the 20th of September, 1786, has lately gone to considerable expense in awarding him posthumous honors, which on Monday culminated in the unveiling of a monument to his memory.

EXPERIMENTAL PAPER MAKING.—At the recent Vienna Exhibition there were some specimens of paper made from several materials which have not hitherto been utilized for that purpose. Among these was paper from the mulberry-tree bark, from the stinging-nettle, and from potato stalks. In districts of European countries where mulberry trees are used for feeding silk-worms the remaining twigs have served only for fuel. But now, in Austria and parts of Italy, the bark is peeled off by a simple arrangement, and from it a material prepared from which a good quality of paper is made. In Hungary the nettle is used with rags for making fine sketching and copying paper, and in Bohemia wrapping paper is made from potato stalks.

GLASS-LINED TANKS AND CISTERNS.—Mr. Hartley, a brewer of Orminsk, has suggested an idea which may solve a difficulty felt in many trades. He proposes the use of a lining of glass to the vats employed for the fermentation of liquors, and has patented a means for attaching plates of glass to iron or other materials commonly used for the construction of such vats. The idea arose from his own requirements, as there is considerable difficulty experienced in perfectly cleansing wood, stone, or slate from the germs of organisms which accompany or induce putrefaction. With glass there is no such difficulty, and especially where no elevation of temperature is necessary this device of Mr. Hartley's appears to be satisfactory. The strength necessary to contain large bulks of liquid is of course given by the wood or iron basis of the vessel, while cleanliness is secured by the lining, which in many cases may be ordinary window glass, and in none exceed three-eighths of an inch in thickness. Although primarily intended for the use of brewers, we do not see why the use of glass linings should not be extended, and it is likely to prove very valuable for house cisterns, as besides being more cleanly, a wooden cistern, glass-lined, would probably cost much less than a zinc or leaden one, and offer no chance of corrosion or contamination.

A NEW STREET CAR.—A citizen of Cincinnati has put upon the streets of that town a vehicle designed to supersede street cars. It is about the size of a common street car, and will seat sixteen passengers. The wheels are similar to those on carriages, but the axle is carved in such a manner as to allow the floor of the car to be on a level with the pavement. The driver sits in front, and uses an ordinary foot brake in place of those common to street cars. The entrance for the passengers is peculiar. The steps are parallel with the side of the car, but the doorways, one on each side, are placed diagonally across the end. This arrangement is made to allow passengers to step directly into the car from the sidewalk. It is said that these cars cost less than others in use, require no track to be laid down, and, owing to the double action of the wheels, run as lightly and easily as buggies of modern improved patterns and constructions. These cars or vehicles may take the place of omnibuses No doubt they will, if properly introduced, but they will not supersede passenger railway cars.—*Chicago Inter-Ocean.*

PETROLEUM OIL FOR DRESSING LEATHER.—Petroleum oils are coming into use for dressing leather, and their use for this purpose is largely increasing. The use of petroleum oils for leather dressing is protected by several patents, issued at different times to R. H. Lightfoot, and now controlled by the Meriam & Morgan Paraffine company, of Cleveland, Ohio. Mr. Lightfoot claims that by the use of petroleum many advantages are gained, among which are: that the leather can be reduced to the desired pliable condition more rapidly and with less cost than with pure animal oils; that the coloring of tanned leather is effected more rapidly and thoroughly than by the old process, and that the finished product is superior, both in pliability and toughness, to leather tanned and curried by the use of pure animal oils. The heavier gravities of petroleum, such as paraffine and steam reduced oils, are the only ones used in this way, and the general introduction of these oils all over the country for these uses, seems to be only a matter of a short time.

DANISH IMPROVEMENT IN BALLOONING.—The Danes, too, it seems, have got the balloon fever. It appears that Sivel, a celebrated Danish aeronaut, made an ascent and crossed the Sound into Sweden for the sixth time this year. *Galignani* says that Sivel has no fear whatever of alighting in the sea, as he has invented a little safety apparatus which would have been of great service to his French colleagues. He drops into the sea a sort of canvass cylinder, of a conical form, and held by a guide-rope to the car. It fills with water and is kept down by the weight of the liquid. He then throws out a little ballast and the balloon arises, but is retained like a captive only a short distance above the sea. He can thus wait until a vessel comes to deliver him or until he drifts ashore. Should he wish to rise again, he pulls a cord attached to the point of the cone and which turns it upside down. The water escapes and the balloon is freed. The invention has been tried by him over twenty times at sea with perfect success.

AMERICAN MECHANICAL PROGRESS.—An English ironmaster from Clyde, Scotland, recently visited this country and made a tour through the Western States. At Chicago he saw sixteen car axles made by one steam hammer in one day. He had heard that we could make double as many axles in a day as they could in England, but always thought it was "Yankee blow." Now he "acknowledges the corn," and says eight axles per day is the number usually made in England with one hammer. He further says that all our shafting and forging is done cheaper than in England. He visited several of the Pittsburg works, and at Wm. Miller's he was again surprised to find that fourteen to sixteen per day could be made with one hammer. He was convinced that the main cause of this was the superiority of our machinery, and the fact that we use a blast for our furnaces instead of a draft, as is generally used in England.

Mining Stocks.

The mining stock market has been in a state of great excitement during the past week, caused by the recent wonderful developments on the Comstock lode. Of course developments like these would put stocks up in spite of anything. The old Comstock lode, which has always been considered a wonder, will make itself even more famous; if we believe only half of the stories of the new strikes, there is still something unparalleled in the history of mining on this coast or anywhere else. All this is good for California, as the Comstock is owned principally by citizens of this State, who invest their earnings here.

The excitement on the streets here with regard to the developments and prices of stocks has been intense. California street has been crowded with anxious speculators all eager to get hold of some of the "good things." Of conrse, California, Consolidated Virginia and Ophir have been the favorites. No one seems to take any notice of the long list of assessments levied this week, though the million dollars to be disbursed as dividends next week will more than compensate for them. California and Ophir ought now to be added to the list of dividend paying mines, and if reports are true should pay larger dividends than even Belcher and Crown Point.

The Ophir compsny have divided their ground and given 600 feet to the Mexican company, Ophir shareholders receiving shsres in the Mexican pro rata to the number now held. Ophir now has 675 feet, and Mexican 600 feet. Both companies have a capital of $10,080,000 in 100,800 shares.

The developments at the north end of the Comstock have affected the prices of all the stocks on the line as a matter of course. How long the present excitement will contine it is impossible to tell, but it will probably occur sgain as soon as a new strike is made.

Sales at the S. F. Stock Exchange.

Thursday, Dec. 3.

MORNING SESSION.

230 Alpha....21¾@24
50....b 30....24
100....h 10....20¾
2388 Belcher....58@56
150....b 30....57
2370 Best & Bel....24½@25
250....b 30....25¾@25¼
1245 Belt Con....8¾@8¾
120 Bullion....19
10....b 30....19¾
40 Bacon....6
950 C Point....85@70
50....b 5....80
88....h 30....72½@73
930 Chollar....68@70
20....b 10....70
30....b 30....70
420 Con G Hill....74@71½
710 Confidence....36@37½
50....h 5....96½
1805 Con Vir....196@190
50....b 30....194@196
440 Caledonia....23½@23
760 California....159@155
70....b 30....160
10....b 10....161
166 Daney....2¼
290 Empire M....14¾@14
50....b 30....14¾
1140 Gould & Curry....24@24¼
120....b 5....24
500 Globe....13¾@2
340 H & N....60½@59
100....b 5....60
1270 Imperial....16@18
285 Justice....48@49
1100 Julia....8¼@8½
115 Knicker....6¾@6¾
1955 Kentuck....23@24½
850 Overman....70@71
50....b 10....71
285 Ophir....113@118
100....h 30....120
2385 S Nevada....13¾@16
50....h 30....15¾
135 Seg Belcher....140@135
1620 Succor....4½@7½
380 Savage....93@91
215 Utah....8@8¾
720 Y Jacket....130@135
50....b 30....137

AFTERNOON SESSION.

135 M Valley....5¾@5¾
375 R & Ely....15@16
660 Eur Con....¼
300 W & Creole....7c
80 Am Flag....2½
170 Belmont....80@81
470 Newark....50@61½
625 Rye Patch....5¾@6
80 M Belmont....13
340 Eldorado....1¼@1⅝
50 St Patrick....1⅜
150 G Mill....5¾@5¾
150 Magenta....2
50 War Eagle....3½
50 S Cord....3¾
35 G Chariot....3¾
200 Empire I....30c
715 S Hill....10¾@10⅞
570 Eclipse....11¾@11½
20 Trench....
325 Challenge....11@11½
315 Dayton....5½@5¾
50 Rock Island....3¾
250 Dardanelles....1⅝
1250 Senator....1½
550 Am Flat....7¾@7¾
300 Pictou....50c
350 N Y....4¼@4¾
600 Occidental....4½@5
1275 Woodville....2¼@2⅝
400 S Comstock....2½
1125 Kossuth....3¾@3⅝
1015 Union....4@4⅛
990 Sutro....2½@2⅝
700 Mint....25c
335 O P Ravine....1
2830 Andes....4½@4⅝
500 Leo....10½@
300 W Utah....1
100 S P Island....1

Thursday, December 10.

MORNING SESSION.

860 Ophir....100@95
1515 Mexican....15@17
1425 G & I....26@27
50....b 5....27
3400 Best & B....26½@29
100....h 30....29½
50....h 5....2
325 Savage....57@60
310 Chollar....65@66
50....b 5....68
335 H & Nor....57@57½
1545 C Point....56@
10....b 5....52
50....s 5....50
65 Jacket....127@130
40....b 30....132@133
20....h 10....130
2835 Imperial....14@14½
150....b 30....14¾
575 Empire M....13½@14
755 Kentuck....19¼@20
100....h 30....20½
810 Alpha....22@23
30....h 30....23½
73....b 5....23
27 Eclipse....11@
Belcher....44@46
25....b 30....47½
780 Confidence....40@39
100....h 5....40
745 Con Vir....27@28
150....h 30....230
1465 Sierra N....13½@14½
100....b 30....15
840 California....215@223
200....h 30....223
20....b 5....223
10 Exchequer....b 30....205
170 Seg Bel....125@130
765 Over....70@72
70 Globe....1⅝@1¾
445 Belt Con....8½@8¾
140 Bacon....6
250 Bullion....17
150 Utah....5¾@5⅞
410 S Hill....10@10¼
180 Trench....10
250 Dayton....6@4½
120 Challenge....11½
200 Dardenelles....18
200 Pictou....50c

AFTERNOON SESSION.

505 M Val....6¼@7
405 R & Ely....21@22
350 Eu Con....13½@13¾
50 Pioche....5
1000 W & Creole....7½@1
300 Am Flag....2¼@2½
1835 Belmont....14¼@14½
440 Newark....1¼
675 Rye Patch....3½@4
50 Eldorado S....2
400 N Bel....1⅝
142 Eldorado N....1⅝
200 Prussian....4¼
115 G Chariot....4¼@4½
50 Ida E....1½
100 S Chariot....1⅝
250 Empire....35c
200 Mammotb....40c
315 New York....3½
505 Occidental....4½@5
415 Am Flat....7⅝@8
25 Tyler....40c
285 Union....38½@39
2019 Woodville....3@3¼
920 Sutro....2¼@3
50 Mint....35
1650 Kossuth....3@4⅛
100 S R Island....1
480 C P Ravine....
360 Leo....1½
435 Andes....3¼@3¾

UTAH MINES.—A dispatch from Salt Lake City says: "Work has been suspended on all the mines in American Fork, snow there being ten feet deep. Yesterday $180,000 in cash was paid by California parties for mining property in the Territory.

THE bullion shipped by Wells, Fargo & Co., from Virginia, Nev. during November, was valued at $1,206,586 53.

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt.	Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business
American Flag M & M Co	Ely District	6	50	Nov 10	Dec 14	Jan 11	G R Spinney	320 California st
American Flag M Co	Washoe	4	1 00	Dec 7	Jan 9	Jan 27	O A Sankey	331 Montgomery st
Andes S M Co	Washoe	3	50	Dec 7	Jan 11	Feb 1	M Landers	597 Montgomery st
Arizona S M Co	Unionville	Nevada	1	00	Nov 30	Jan 8	Jan 29	Wm Willis	419 California st
Baltimore Cons M Co	Washoe	7	1 00	Dec 5	Jan 8	Jan 29	D T Bacley	401 California st
Buckeye G & S M Co	Nevada	12	1 00	Nov 14	Dec 18	Jan 7	C A Sankey	331 Montgomery st
Cederberg G M Co	Cal		50	Oct 29	Dec 1	Dec 21	D M Bokee	215 Sansome st
Cederberg G M Co 1st S Ex	Cal	7	4	Aug 27	Nov 30	Dec 18	J N Webster	420 Montgomery st
Chollar-Potosi M Co	Washoe	5	5 00	Nov 14	Dec 18	Jan 7	W E Dean	419 California st
Daney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Empire M Co	Idaho	8	1 00	Nov 10	Dec 10	Jan 4	William Willis	419 California st
Empire M & M Co	Washoe	16	50	Oct 24	Nov 27	Dec 21	G R Spinney	320 California st
Ida Elmore M Co	Idaho	15	1 00	Nov 16	Dec 21	Jan 12	William Willis	419 California st
Imperial S M Co	Washoe	20	1 00	Nov 26	Dec 29	Jan 19	W E Dean	419 California st
Julia G & S M Co	Washoe	20	2 00	Oct 30	Dec 4	Dec 23	A Noel	419 California st
Justice M Co	Washoe	12	3 00	Nov 13	Dec 15	Jan 15	J S Kennedy	Merchants' Ex
Kentuck M Co	Washoe	12	1 00	Dec 3	Jan 5	Jan 28	F Swift	419 California st
Knickerbocker M Co	Washoe	10	1 50	Oct 30	Dec 5	Dec 24	H Boyle	Stevenson's Bldg
Lady Bryan M Co	Nevada	4	50	Nov 11	Dec 16	Jan 11	F Swift	419 California st
Mahogany G & S M Co	Idaho	14	2 00	Nov 3	Dec 10	Dec 31	O H Higgins	402 Montgomery st
Mammoth S M Co	White Pine		10	Oct 12	Nov 19	Dec 16	D A Jennings	401 California st
Mint G & S M Co	Washoe	8	10	Nov 17	Dec 22	Jan 15	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	Nov 10	Dec 14	Jan 4	W W Hopkins	417½ California st
Newark S M Co	Ely District	9	50	Nov 3	Dec 7	Dec 28	Wm Willis	419 California st
New York M Co	Washoe	11	50	Dec 5	Jan 6	Jan 25	H C Kibbe	419 California st
Original Hidden Treasure	White Pine		1 00	Oct 12	Dec 11	Jan 7	D A Jennings	401 California st
Overman S M Co	Washoe	30	3 00	Dec 1	Jan 5	Jan 26	G D Edwards	414 California st
Pauper M Co	Idaho	3	50	Oct 26	Nov 30	Dec 23	D Wilder	Merchants' Ex
Pictou M Co	Washoe	6	25	Oct 24	Nov 28	Dec 16	S Phillips	408 California st
Raymond & Ely M Co	Ely District	2	3 00	Nov 3	Dec 10	Jan 7	T W Colburn	418 California st
Rock Island G & S M Co	Washoe	5	1 00	Nov 16	Dec 21	Jan 12	J W Clark	418 California st
Red Jacket M Co	Idaho	5	50	Nov 28	Jan 5	Jan 26	Wm Willis	419 California st
Savage M Co	Washoe	16	5 00	Dec 5	Jan 1	Jan 27	E B Holmes	419 California st
Silver Cord M Co	Idaho	3	50	Nov 5	Dec 7	Dec 29	Frank Swift	419 California st
Silver Hill M Co	Washoe	4	2 00	Oct 28	Nov 30	Dec 22	W E Dean	419 California st
South Chariot M Co	Idaho	11	50	Nov 5	Dec 11	Jan 5	O H Bogart	402 Montgomery st
Tyler M Co	Washoe	7	50	Nov 19	Dec 22	Jan 13	O D Squire	Stevenson's Bldg
Utah S M Co	Washoe	7	1 00	Nov 25	Dec 30	Jan 20	W E Dean	419 California st
War Eagle M Co	Idaho	8	1 00	Nov 9	Dec 16	Jan 6	L Kaplan	401 California st
Washington & Creole M Co	Ely Dist	13	50	Dec 8	Jan 11	Feb 4	F D Cleary	Merchants' Ex
Woodville G & S M Co	Washoe	8	1 00	Nov 9	Dec 14	Jan 5	W M Helman	401 California st
Yule Gravel M Co	Placer Co	Cal	5	10	Nov 9	Dec 14	Jan 5	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Baltic Cons M Co	Washoe	1	15	Nov 18	Dec 23	Jan 20	B Burris	507 Montgomery st
Buena Vista Petroleum Co	Cal	23	75	Oct 8	Nov 16	Dec 14	L Harmann	330 Pine st
Chance S M Co	Cherry creek	1	50	Oct 7	Nov 18	Dec 14	J Marks	414 California st
Cherry Creek M & M Co	Nevada	1	15	Nov 10	Dec 14	Jan 7	D F Verdenal	409 California st
Cherokee Flat Blue Gravel Co	Cal	33	5	Nov 10	Dec 14	Dec 29	H Pichoir	603 Washington st
El Dorado Water & Deep Gravel Co	Cal	6	10 00	Oct 26	Nov 27	Dec 12	H Elias	416 Montgomery st
El Madero Silver M Co		6	6	Oct 27	Dec 4	Dec 19	E Halsey	312 Montgomery st
Excelsior G M Co	Tuolumne Co	Cal	14	15	Oct 20	Nov 25	Dec 19	E Chattin	442 California st
Florence M Co	Humboldt Co	Cal	1	10	Dec 5	Jan 8	Feb 3	I E Delavan	220 Montgomery st
Gold Mt G M Co	Holcomb Valley	Cal	3	50	Nov 19	Dec 29	Jan 23	J P Cavallier	513 California st
Gold Run M Co	Nevada Co	Cal	9	20	Dec 7	Jan 11	Feb 3	C G Palmer	41 Market st
Golden Rule S M Co	Utah			5	Dec 5	Jan 15	Feb 13	K Werchsimer	530 Clay st
Howard Hill G M Co	Cal			50	Nov 7	Dec 16	Jan 7	F J Hermann	418 Kearny st
Lake Tahoe & S F Water Works	Cal		6	25	Nov 18	Dec 23	Jan 18	E Chattin	808 Montgomery st
Martin & Walling M & M Co	Cal		1	50	Dec 7	Jan 8	Jan 23	J W Tripp	408 California st
North Bloomfield Gravel M Co	Cal		31	1 00	Dec 1	Jan 4	Jan 23	I Derby	220 California st
North Fork M Co	Plumas Co	Cal	7	75	Dec 5	Jan 4	Jan 19	A Martin	520 Washington st
Omega Table Mt M Co		Cal	4	2½	Oct 15	Nov 23	Dec 14	D Wilder	Merchants' Ex
Orleans M Co	Nevada Co	Cal	1	1	00	Oct 10	Nov 24	Dec 15	J F Nesmith	315 California st
Owens G & S M Co	San Diego Co	Cal	3	1	00	Nov 3	Dec 7	Dec 28	Frank Swift	419 California st
Poorman G & S M Co	Idaho		1	50	Nov 13	Dec 18	Jan 11	William Willis	419 California st
South Fork M & Canal Co	Cal			5	Dec 7	Jan 10	Feb 1	H Knapp	306 Montgomery st
Star King S M Co	Elko Co	Nevada	9	25	Dec 4	Jan 8	Jan 26	L Kaplan	Merchants' Ex
Succor M & M Co	Washoe		10	1 00	Nov 27	Jan 4	Jan 25	W B Watson	302 Montgomery st
Table Mt Blue Gravel M Co	Cal		4	30	Nov 4	Dec 7	Dec 24	W M Helman	401 California st
Thrift G & M Co	Calaveras Co	Cal		50	Nov 14	Dec 26	Jan 16	H R West	240 Montgomery st
Watson M Co	Robinson Dist	Nevada	1	1 00	Nov 16	Dec 21	Jan 13	W H Watson	302 Montgomery st
Woodville M & M Co	El Dorado Co	Cal	1	25	Nov 10	Dec 19	Jan 6	J Glaasman	335 Montgomery st
Zacatero G M Co		Cal		50	Nov 4	Dec 7	Dec 29	L Hermann	330 Pine st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date
Andes S M Co		Edward Landera	507 Montgomery st	Annual	Dec 18
Empire M & M Co	Washoe	G R Spinney	320 California st	Annual	Dec 16
Five Cent Hill Gravel M Co	Cal	J W Buffington	Merchants' Ex	Annual	Dec 17
Georgia S M Co	Nevada	H Wegener	414 California st	Annual	Dec 23
Gold Mt G M Co	Cal	J P Cavallier	513 California st	Annual	Dec 15
Golden Sun M Co		O A Thompson	Oor Market & Kearny	Annual	Dec 14
Gould & Curry S M Co	Washoe	A K Durhrow	408 California st	Annual	Dec 28
Gold Canon Cons M Co	Washoe	A A Pardow	420 California st	Annual	Dec 18
Independence Cons M Co	Grass Valley	F J Hermann	418 Kearny st	Annual	Dec 14
Lady Bryan M Co	Washoe	Frank Swift	419 California st	Annual	Dec 15
Ophir S M Co	Washoe	J Marcs	419 California st	Annual	Dec 12
Quintero M Co		H C Kibbe	419 California st	Annual	Dec 21
Theresa M & M Co		J W Tripp	408 California st	Annual	Dec 17
War Eagle M Co	Idaho	L Kaplan	Merchants' Ex	Annual	Dec 14

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe	419 California st.	3 00	Dec 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Nov 16
Consolidated Virginia M Co	Washoe	D T Bacley	401 California st	3 00	Dec 11
Crown Point M Co	Washoe	O E Elliott	414 California st	2 00	Dec 12
Diana M. Co.		N. G. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	50	Dec 5
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Rye Patch M Co	Nevada	D F Verdenal	409 California st	50	Dec 5

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco.

MAVEL S. M. Co.—Dec. 4. Location: Panamint District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas. A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

ALICE S. M. Co.—Dec. 4. Location: Panamint District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas. A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

STAR S. M. Co.—Dec. 4. Location: Panamint District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas. A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

WYOMING CON. S. M. Co —Dec. 4. Location: Panamint District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas. A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

DELAWARE S. M. Co.—Dec. 4. Locatiou: Panamint District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas. A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

JULIA S. M. Co.—Dec. 4. Location. Panamint Mining District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas. D. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

OARIBOU S. M. Co.—Dec. 4. Location; Panamint District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas. A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

WONDOR CON. M. Co.—Dec. 4. Location: Panamint District, Inyo county, Cal. Capital stock, $6,000,000. Directors—Jas, A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond and J. McGillivray.

PANAMINT WAGON AND TOLL ROAD Co.—Dec. 4. Object: To construct, conduct and maintain a wagon road and toll road in Panamint Mining District, Inyo county. Directors—James A. Pritchard, J. D. Fry, B. Peart, S. A. Raymond, and Jos. McGillivray. Capital stock, $200,000.

OARIBOU HYDRAULIO M. Co.—Dec. 4. Location: Plumas county. Capital stock, $2,500,000. Directors—Henry Merwin, Ira E. Oatman, Chas. W. Reed, John Miller, and A. N. Towne.

GREENWOOD G. M. Co.—Dec. 7. Location: Greenwood District, Mohave county, Arizona. Directors—Jas. A. Pritchard, Robert Steen, S. A. Raymond, W. E. Hall and Joseph McGillivray. Capital stock, $2,500,000.

MEXICAN G. AND S. M. Co.—Dec. 7. Location: Comstock Lode. Directors—J. D. Fry, James A. Pritchard, James H. Robinson, James Frecborn, and A. K. P. Harmon. Capital stock, $10,080,000.

CEDAR VALLEY G. M. Co.—Deo. 7. Location: Mohave county, Arizona Territory. Directors—James A. Pritchard, Robert Steer, S. A. Raymond, W. E. Hale and Joseph McGillivray. Capital stock, $2,600,000.

SUSCOL WATER Co.—Dec. 8. Object: To acquire, appropriate and take up all the waters of that certain stream situated on the lands of Julius O. McCeney, known as the Saucol or Morrisania farm, in Napa county, together with the waters of all tributaries or branches that flow into it; to conduct and convey the same, by means of reservoirs, canals, ditches, pipes and other conduits, for the purpose of furnishing and supplying cities and towns of the counties of Napa and Solano with fresh water. Directors—C. W. Lightner, Tiburcio Parrott, James Frecborn, Robert M. Welch and Julius C. McCeney. Capital stock, $500,000, divided into 6,000 sharea.

PIGEON POINT AND PESCADERO RAILROAD Co.—Dec. 8. Object: To build and control a narrow gauge railroad from high water mark at the Pigeon Point Landing, to the town of Pescadero, in San Mateo county. Directors—Charles Goodall, John O'Farrell, Christopher Nelson, Joaiah P. Ames and James Byrnes. Capital stock, $70,000, divided into 7,000 shares.

RICHMOND G. M. Co.—Dec. 8. Location: Railroad Flat Mining District, Calaveras county, California. Directors—Gerge O. Davis, George W. Cope, O. Embody, Victor David and Wm. T. Rohinson.

The following companies have filed certificates of incorporation in the office of the Secretary of State, at Sacramento:

OARIEOO HYDRAULIO M. Co.—Location: Monterey county. Capital, $2,500,000, in shares of $25 each. Directors—Henry Merwin, Ira E. Oatman, Charles W. Reed, John Miller and A. N. Towne. The principal place of business will ba in San Franeisco.

MONTEREY COAL M. Co.—Location: Monterey county. Capital, $1,800,000, in abares of $100 each. Directors—H. V. Sargent, Gaorge H. Harris, H. Esoolle, Reuben Morey and Lewis Little. The principal place of huainess will he in Monterey.

AMERICAN MILL AND METALLURGICAL Co.—Capital, $10,000,000, in shares of $100 each. Directors—John F. Miller, Noble Hamilton, Louis Sloas, O. C. Miller and Louis Patchen.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALAMEDA COUNTY.

SUNOL VALLEY.—Cor. Livermore *Enterprise*: Several parties have been in this section prospecting for minerals. Six or seven coal discoveries have been made, and it is hoped that the owners will push their work ahead until a paying coal mine is opened. The resources of this valley are just being brought into notice.

AMADOR COUNTY.

MINING AT VOLCANO.—Amador *Ledger*, Dec. 6: Since the incoming of a supply of water, mining operations in and about Volcano have been very active, and a very large amount of gold will be taken from placer claims during the run of water.

Young & Co. are running three hydraulics in their claims on Union Flat, with a splendid body of gravel known to be rich in gold. On the McComber claim, one hydranlic is at work on a fine body of pay gravel.

McCreary & Co., on Indian gulch, have long been engaged in running a tunnel, so as to obtain a tail race from the heavy deposits of pay gravel lying in the hill; the tunnel has very recently been completed, and hydraulicing commenced on last Saturday. The claims of the company now presents a face of forty feet in depth of pay gravel, and when they advance further in the hill, the depth will be ninety feet, and what is better still this vast deposit of gravel shows gold from the surface to the bed rock.

CALAVERAS COUNTY.

BIG CLEAN-UP.—Calaveras *Chronicle*, Dec. 6: Veith & Co., the Tunnel Ridge despoilers, cleaned up about $3,000 this week, the proceeds of a short run. The amount yielded is large when it is considered that a good portion of the time included in the "run" they were engaged in "stripping off" top dirt. Another clean-up will be made about the first of January.

MINING AT CENTRAL HILL.—Gravel mining operations at Central Hill and vicinity are exceedingly lively. Work is progressing in a number of claims with the most encouraging result. Machinery—steam-power—has recently been put upon the mine belonging to Judge J. P. Shear. The shaft, the objective point of which is the famous "blue lead," has reached the depth of 80 feet, and levels are started. Gravel of fabnlous richness is being taken from the old Mullen claim. From a dollar up to three onnces is obtained from a single pan of dirt. Nothing like it has been seen since the palmy days of '49 and '50. The lead is wide. Martin & Prindle, proprietors of the Worth's Hill hydraulic, are washing away with their customary vigor. The claim is one of the most extensive in the county, is worked on a large scale and well managed. The enterprise is proving a profitable one to its projectors.

Robinson & Co., at the head of Indian gulch, during the past summer have drifted out a large amount of valuable pay dirt, which they are now washing up.

Work has been renewed upon the Golden Gate and Confidence quartz mines, near Volcano. Both of those mines have produced very rich rock, and no reason can be assigned why there should not be more.

The Rodgers' quartz mine is turning out richer rock, as a body, than at any former time. 94 tons of rock taken from this mine, produced by mill process $2,800, and the ore now being taken out will return a still better result.

WEST POINT DISTRICT.—G. Eberbardt crushed a lot of ore lately which yielded $70 per ton. Zacatero continues to look promising. A contract was let to sink the Mina Rica main shaft 50 feet deeper, or 178 feet in all. The mill is uearing completion. Good Faith tunnel is getting into better ground. Haskins & Co. are crushing about 45 tons of ore, which is expected to realize in the neighborhood of $9,000.

EL DORADO COUNTY.

HYDRAULIC PREPARATIONS.—*Mountain Democrat*, Dec. 5: C. B. Brown has been manufacturing for the Carrie Hale claim, Henry's Diggins, 500 feet of 14-inch, 500 feet of 11-inch and 1,000 feet of 7-inch sheet iron pipe.

A MODEL MINE.—Robinson, at his fine mine on Prospect Flat, has just put in position and last Saturday started up a new ten-inch cylinder steam engine recently constructed for him at Morey's foundry, this city. This makes five steam engines now in operation at the Robinson mine—one 10-inch, one eight-inch, one six-inch, and a small pumping engine. And all of them are operated with the regularity and precision of clock-work, and with the nicest possible regard to economical and profitable management. Without the slightest fear of successful contradiction, we will venture the assertion that there is not in California a better opened or better managed mine than Robinson's at Prospect Flat, nor one which is more regular in rich yield of the most precious of metals.

OIL STONE.—We saw a fine speoimen of oilstone a few days since, taken from a mining shaft near the city. The indications are that there is an extensive solid ledge of it, and it is believed that it can be worked at great profit.

MARIPOSA COUNTY.

LEASE OF A MINE.—Mariposa *Gazette*, Dec. 5: The property owned by the Maxwell's creek

mining company has been leased to another company and work thereon will soon commence. This mine and mill was formerly owned by a French company, and is situated about a mile from Coultervills.

Pool Mining Co.—This mining property is less than two miles from the town of Hornitos, and embraces five distinct gold bearing lodes of quartz. Some of these have been held by Mr. Pool and others, and occasionally worked, though at a disadvantage, for twenty years or more—the parties working having to haul the quartz seven or eight miles to mill it. There is a good water privilege connected with the property, sufficient to run an eight-stamp mill from six to nine months a year. The capital stock of the company only represents $10,000. It should be taken up at once by practical men and the property developed. There is money in it, but it won't jump out of the ground ready coined. We believe it could be made one of the best paying mines in Mariposa county.

NAPA COUNTY.

Calistoga Silver Mine.—St Helena *Star*: We were most favorably pre-possessed with the appearance of the ledge standing like a "true fissure" almost perpendicular, bound in by solid foot and hanging walls, with a pitch of about eighty degrees. Passing by a dump of some five hundred tons of argentiferous rock, all high grade, a lump of which exhibited the native wire or horn silver, we arrived at the mouth of the lowest level, where we found a number of men selecting choice rock for the stamps. Many tons of this rock had already been collected and was only awaiting its chance to go to the mill.

Mork Mercury.—Messrs. Mayers & Cook have discovered a fine ledge of quicksilver on the land of Mr. Loui Bruck, of Napa. The rock is of the same quality and bears the same oxide as the Phœnix mine. It is six miles a little east of north from St. Helena.

NEVADA COUNTY.

Omaha Mine.—Grass Valley *Union*, Dec. 8: This mine seems to be progressing very favorably. We saw some very fine rock which came out of the mine last Saturday. The ledge is nearly two feet thick, and shows well in free gold, besides giving a generally healthy character of rock.

Idaho.—Foothill *Tidings*, Dec. 5: A trip to the Idaho mine once in a while is a good thing to take, as an offset to the talk of the croakers one finds here every day in the week. The busy hum of industry pervades everything thereabouts, and everybody is too much occupied to think of hard times or that they have any place in Grass Valley. Another such an enterprise as the Idaho here, with the many smaller ones always contributing something to business, would make times as lively here as they ever have been. When the Allison ranch mine starts up again, as we are assured it must at no distant day, it may soon be on a par with the Idaho, both in the number of men worked and the amount of gold produced. So, too, of the Rocky Bar claims, when consolidated and worked. It is not too much to expect to see both these properties working, and on the big plan, within the next year.

Eureka.—Hoisting and crushing still continue at the Eureka, and though they have no regular winter stock of wood on hand purchases are made in quantities needed, and no sign of let up yet. Good buildings have been put up over the hoisting machinery at No. 2 shaft since we were out before, and that begins to look quite like a mine. The clean-up of the past six days' run of ten stamps is 420 ounces of amalgam.

At Gaston ridge the California mine is working with good prospects of complete success. They have their new ten-stamp mill nearly completed, and will be ready to run in a week or ten days. They are said to have a fine lot of ore out and a large ledge opened up which will average well. Our informant thinks there are hundreds of tons of tailings of the old mill that burned down several years ago that would pay well.

The Liberty mine, near Eureka, in this county, seems to be going right ahead, under its new ownership and management. A new steam hoisting works has lately been put up and will soon be ready to run. Their mill is run by water power, we believe, and the works will soon be doing duty, with a good mine to back them with ore.

PLACER COUNTY.

Mining Prospects.—Placer *Argus*, Dec. 5: Work is being prosecuted vigorously on the quartz mines in this vicinity.

Orleans—Extensive improvements are contemplated by the Booth company. Ore of excellent quality is coming out in large quantities, and the prospects of the mine never were better.

St. Patrick.—The Crater Hill mine is rapidly regaining its old reputation. The character of the developments warrants the belief that the mine will yet prove valuable to its owners.

Hydraulic Mining.—Several claims have already begun working and others are only waiting for a good supply of water. The Iowa Hill canal company will be able to furnish several thousand inches of water, and a large tract of very rich ground heretofore but imperfectly worked, will, therefore, be thoroughly mined. At Todd's valley, Yankee Jim's, and in fact, all through the mining camps of that divide, the preparations for work have been extensive, and the prospects are of the best. The Dutch Flat tunnel was so far completed early in the summer that washing on one claim began, but a scarcity of water limited the extent of their operations. There will soon be all the water that is needed, and we may look for rich clean-ups.

Copper.—It is well known by all old settlers that rich copper lodes abound throughout this section of country. All that is needed to revive the copper mining excitement is the procuring of apparatus that will successfully work the ore and save the copper. The only mine being worked at present, so far as we know, is at Spencerville in Nevada county. The ledge on this mine is about 70 feet thick. The success in working the ore from this mine so far has been quite encouraging. We hope it may continue so for there are many other mines in this vicinity, both on the other side of Bear river, in Nevada county, and on this side, in Placer county, equally as rich, that are awaiting the established success of this one.

PLUMAS COUNTY.

Mining Items.—Plumas *National*, Nov. 28: The superintendent of the East Branch ditch expects to have water running through the ditch to Shoo Fly by the last of next week. The Green Mountain mine, between Crescent and Cherokee, has shut down for the present, the roads being so soft that teams cannot haul rock. The Genessee mine is being worked steadily and paying well. Compton is taking out $50 rock from the Baker mine, and the ledge looks firstrate. Trelevan & Co. are taking out some good rock from the Pennsylvania mine. Garland has stopped work on his Lava Bed claims until after New-years. He is getting some firstrate pay. The Indian Valley mine is turning out some good paying rock. Gregg is taking 100 tons of rock from the Grass ledge, for crushing.

La Ponte Items.—*National*, Dec. 5: Couley & Gowel have a good head of water, and are running gravel very lively, working two monitors day and night. Gard & Orr are also at work at the head of Rabbit creek, with two monitors. They have prospects ahead for a big clean-up in the spring. The Spanish Flat company, Wm. Taylor, superintendent, is hard at work on Spanish Flat, with one monitor. The prospects are flattering. The La Porte Gravel and Water Mining company, located at Secret Diggings, was not ready for water before the storms commenced, consequently, they are not running their monitors. The Claybank Mining company are running ahead in their main tunnel, which is now in 1900 feet. They have been working to considerable disadvantage on account of bad air, but have now overcome that difficulty. They have eighteen inches of as fine looking gravel as they could wish for, and there is a very good sprinkling of gold mixed with the gravel. They will, no doubt, be taking out pay dirt in a short time.

SIERRA COUNTY.

Mining.—*Mountain Messenger*, Dec. 5: Shafer & Garabaldi are putting pipe in place with which to hydraulic the red bank north of town. This ground was worked many years since, during flush times, when miners did not work as closely and carefully as they do now, and it is probable that good pay may be obtained in the tailings.

Scales Diggings.—Correspondence *Messenger:* The miners have got about ready for work. The Boyce Bros.' claim, Fair Play, is under headway. This is one of the principal mines here, and the owners are sparing neither time nor money in keeping it such. Last week one of the powder drifts, ran into a 200 feet bank, was fired with grand results. This blast contained 200 kegs of powder. The gravel in this locality is so solid that the owners found it profitable to blast it before turning on their monitors. Connected with these diggings are two as fine reservoirs as can be found in the country. The upper one when completed will be a creditable affair. The ground was well selected, being a natural basin, only lacking a fourth side. This bank, at the lower end, is composed entirely of earth, will be 30 feet high and 600 across the race. This wall will back the water up from about 1,600 to 2,000 feet. The lower one is not quite so large as the upper, although it is being repaired and enlarged as fast as the weather will allow. The necessary ditch and flume carry the water from these reservoirs to the diggings. The hundreds of feet of pipe laid down in the claim of Mr. Williams show that he too is not idle. They are situated just below the business part of town, and even while I write the roar of his monitors can be distinctly heard. The Union Hill boys are busily piping. A 103 keg blast was fired by them about a week ago. Kingdom Bros., of Poverty Hill, are at work, using about 800 inches of water.

TRINITY COUNTY.

Practical Results.—*Journal*, Dec. 5: Four tanks of quicksilver arrived here this week from Lytle's mine, in Cinnabar district, and consigned to Trotter & Smiley, Douglas City. From Wm. S. Lowden, who lately returned from Cinnabar, we learn that prospects are every day improving and there can no longer be a doubt that Trinity county has the richest cinnabar deposit in the world. Large quantities of quicksilver will be produced there next spring and summer.

Miners throughout the county are now at work, but water is not plenty as yet. The ground is thoroughly soaked, and only a little rain will start the water.

TUOLUMNE COUNTY.

Hydraulic Mining.—*Union Democrat*, Dec. 5: The gravel mine at Marlow, near Summerville, owned by James Burns and Wm. C. Connolly, is nearly ready for working. It is quite extensive, and when the hydraulic is started will return the proprietors handsome pay unless all signs fail. When worked last year it proved excellent ground while water lasted.

Alabama Claim. — Work has been commenced on the River or Alabama quartz claim near Jamestown, by a San Francisco capitalist, who has bonded the claim. Shafts and levels will be run to thoroughly open it, the party having ample means and intends to fully explore the vein. Years gone by the old owners worked it a long time with good success. With the late appliances, patience and money there is good reason for believing it will develop into profitable mine.

Golden Gate.—*Independent*, Dec. 6: Looks better as sinking proceeds, and the sulphurets prospect richer. The shaft is now 85 feet below the tunnel level or 210 feet from the surface, with a lode five feet thick. Last month 185 sacks (over nine tons) of sulphurets were shipped below for reduction. It will be necessary to erect hoisting works soon, and it is in contemplation to add ten stamps more to the mill in the spring.

Rich Ore.—Three tons of ore shipped from the Soulsby mine to San Francisco this week, will go $400 per ton.

Nevada.

WASHOE DISTRICT.

California.—Gold Hill *News*, Dec. 3: The north drift on the 1,500-ft. level connected last Friday with the south drift on the same level from the Ophir, thoroughly ventilating the mine to that depth. Cross-cuts have been commenced on both the 1400 and 1500-foot levels to prospect the ore vein, on both of which levels the ore body will be reached in a very few days. The east cross-cut on the south line, from the Cons. Virginia shaft, has cut and penetrated the ore body a distance of twenty feet. This ore in richness baffles description.

Ophir.—Daily yield 240 tons of ore. Four mills are now crushing ore from this mine, and the yield for this month must necessarily be greatly increased. The ore breasts extending from the 1300 down to the 1400-foot level are yielding splendidly. The 1200-foot winze, sunk from cross-cut No. 3 on the ore body, extending down to the 1465-foot level made connection last Saturday with the east cross-cut on that level, greatly benefiting the air circulation of the mine. To this circulation has also been added the connection of the south drift on the 1465 foot level with the north drift from the Cons. Virginia give a strong draft of pure air, cooling of the levels, and making the mine down to the 1465-foot level, one of the most comfortable to work in on the line of the Comstock. The cross-cut at the bottom of the south winze on the south line is in rich ore, and proves the extension of the ore body downward, and leaves but little doubt that when cross-cutting on the 1700-foot level is commenced, the same rich ores will also be found.

Belcher.—Daily yield, 450 tons of ore. The ore breasts throughout the entire mine are looking well and yielding the usual amount of good ore. The new air shaft is down 83 feet in good sinking ground, and is being pushed ahead with all the vigor possible. An up-raise has been started from the 850-foot level to connect with the shaft.

Caledonia.—A winze is being sunk from the 900 to the 1000-foot level. This winze is situated north and east of the shaft, and is down 70 feet. A drift has been run on the 1000-foot level past the point where this winze will intersect it, and a drift is now being continued on the ore vein from that point.

Consolidated Virginia.—Daily yield, 400 tons of ore. The ore-breasts on the 1300 and 1400-foot levels are yielding the usual amount of rich ore, with no signs whatever of giving out. The development of the ore bodies north on both of these levels is pressing close to the California line, and there seems no longer a doubt but that the same rich body of ore will be found on the corresponding levels of that mine. The east cross-cuts, Nos. 1 and 2, on the 1500-foot level, are still carried forward to the eastward, in an apparently limitless body of the richest possible description of ore. No east wall has yet been reached in either of these cross-cuts.

Sierra Nevada.—Sinking the new shaft is making slow progress. The pumps are kept steadily at work, and a young river of water kept flowing from the shaft. The east cross-cut in the Sacramento ground has penetrated a fine body of quartz, with spots of good ore intermixed. The ore body in the north drift from the old Sierra Nevada tunnel is yielding fine ore, and gives promise of a lasting development. The ore breasts in the old upper workings are yielding 65 tons of ore per day. The mill is kept steadily running on ore from the mine, and the future continues to look bright and prosperous.

Hale & Norcross.—The cross-drifts on the 2000-foot level are still pushed vigorously ahead, without any valuable ore developments during the week, notwithstanding which the indications are sufficiently encouraging to warrant a continuation of the explorations in that portion of the mine.

Julia.—The new pumping machinery is working splendidly. The water in the shaft has been drained. The main drifts are all cleaned out and repaired on the 1000-foot level, and preparations are now being made for some thorough prospecting on that level.

Lady Bryan.—Sinking the main shaft is making fair progress, notwithstanding the steady flow of water, which is easily handled by the pump. The ground is quite soft in the bottom.

Crown Point.—Daily yield, 500 tons of ore. The ore breasts on the 1400 and 1500-foot levels are all looking well and yielding splendidly. In fact, the mine is yielding well at all points. The main east drift at the 1600-foot station is still pushed vigorously ahead to cut and prospect the ore vein on that level. The mills are all in good running order, and future prospects of the mine are looking quite favorable.

Phil. Sheridan.—The indications are good for soon cutting the ledge, at a depth of 600 feet below the tunnel of the old upper workings.

Utah.—Prospecting the ore vein north and south on the 400-foot level is still pushed vigorously ahead. Some very promising spots and streaks of gold ore have been found.

Sutro Tunnel.—The present rate of progress in the header is about 10 feet per day, the Burleigh drills operating with splendid success and execution.

American Flat.—The prospects of this mine are quite favorable, and whenever the new pumping machinery is once in, the prospecting will be driven ahead.

Yellow Jacket.—Sinking the main incline is making good headway, notwithstanding the extreme hardness of the rock penetrated.

Baltimore Consolidated.—Some very promising streaks of ore were found in the east cross-cut on the 750-foot level last Saturday. Almost at the same time a strong flow of water was encountered which stopped the progress of the work. The prospects are quite favorable for an ore development in that portion of the mine when work is again resumed.

Dayton.—Daily yield, 65 tons of ore. The ore breasts on the station level are yielding finely, as are also those on the third level. The ore breasts going south on the third level are looking remarkably well.

Imperial-Empire.—The main east drift on the 2000-foot level is still driven steadily onward to connect with the south winze from the level above, as soon as that air connection is completed, cross-cutting the ore vein will be commenced.

Chollar-Potosi.—Daily yield, 45 tons of ore the assay value of which is $27 per ton. Cross-cutting and prospecting at the fifth station level, is still vigorously prosecuted, with no change whatever to report.

Gould & Curry.—The water is now nearly drained from the 1700-foot level. Within a very few days the exploration of the lower levels will be resumed.

Bullion—Some fine promising bunches of quartz are being met with in the south drift on the 800-foot level, and the prospects in that portion of the mine are looking more favorable every day.

Sutro.—The west tunnel cut through a fine vein of quartz and low grade ore 12 feet thick, during the week. This vein is of a very promising character, the ore assaying from $4 to $18 per ton, and the quartz being of a very lively healthy quality.

Savage.—Sinking the main incline goes steadily on, the bottom still in hard blasting rock. There is no new feature to report of the prospecting operations on the 2000-foot level.

Mint.—Sinking the shaft goes steadily on without change or interruption. It is the evident intention of the managers of the work, that the shaft shall have reached a depth at which there can be but little doubt of finding a paying mine, before they again cross-cut.

Dardanelles.—The drift for the ledge is now in 38 feet, running through very hard and tough rock this far, but it grows softer, and is changing to a whiter character, indicating nearer proximity to the ledge.

Leo.—Good progress continues to be made in driving the main tunnel ahead into the hill, and the ledge continues well defined, with the ore vein gradually enlarging and improving in quality.

Andes.—Some favorable ore prospects have been found in the north drift on the 300-foot level. Mr. James H. Sperliug has resigned the foremanship of the mine, and Mr. James S. Rule, an old and experienced mining man has been appointed to fill the vacancy.

Woodville.—The ore breasts on both the 200 and 300-foot levels are yielding the usual quantity of good ore, keeping the mill steadily running.

Daney.—Two drifts, one north and the other south, have been started in the ore vein, on the 400-foot level. These drifts are both in a fine ledge of quartz with some low grade ore.

Kossuth.—The ore prospects in both the main south drift and the south winze continue excellent.

Florida.—The new hoisting and pumping machinery is in place and nearly ready for work, and the building is nearly completed.

Senator.—Still drifting on the 400-foot level with favorable prospects.

Original Gold Hill.—The drifts at both the 175 and 340-foot levels still pushing ahead in low grade ore.

East Belcher.—Shaft sinking in hard blasting ground with indications at the bottom of changing into regular ledge matter.

Buckeye.—Sinking the main ineline for a new level has been commenced.

Occidental.—Sinking the winze, from the upper tunnel level, is making good headway, the bottom still in ore.

Tyler.—The water is almost drained from the shaft, and work will soon be re-resumed in the mine.

Continued on Page 380.]

The North Pacific Coast Railroad.

It was reportsd that the North Pacific Coast (narrow gauge) Railroad would have besn opsnsd from Saucelito to Tomales ahout December 1st. The company had its locomotives (four), passenger coaches, haggage and express, flat and box cars ready, hut the heavy storms so retarded the construction, and in some places damaged the new earthwork, that it is impossible now to be ready for traffic hefore Jauuary 1st, and if the construction parties are again detained by storms, it may be a fortnight, or even a month later. The Directors are determined on having the permanent track in as nearly a perfect condition as may be possible before opening the road to the public, that there may be no suspension of husiness, as has often been the case with other roads in this State, notably with the San José railroad in its earlier days.

The extraordinary difficultios the company had to contend with iu running through a mountainous conntry with a newly built road, will he appreciated when we remember that there have been no suoh antnmn rains as this season since 1849, and that in the Pacific Mill cañon, where the greatest destruction occurred, fourteen inches of rain fell in one storm.

The communication between Saucelito and the front was not resumed until this morning. There is now only a gap of ten miles to fill, and as the earthwork is nearly completed and all the bridge work done, with constrnction trains, working at each end, this gap can be closed within twenty days, if no very bad weather occnr. Most of the road has been permanently ballasted with gravel, and it is in excellent condition. The storms have not only consolidated the earthwork wherever it withstood the rush of water, but have demonstrated which are the weak places that will need watching. The other end of the line runs for many miles near the shore of the Tomales bay, that long, narrow inlet which separates all the Point Reyes country from the mainland. Wherever the railroad is exposed to the action of the waves the face of the embankment has been riprapped and secured in the most substantial manner.

At Saucelito the company is building freight and passenger sheds on the wharf, and also preparing a large quantity of piles with chemical preservatives for the extension of its wharf. The northern portion of Marin county has hitherto been in want of communication with San Francisco, except by sea, but will, when this railroad is completed, be as near San Francisco as San José. This want of communication has hitherto kept back population and improvements, but from this year it may he expected that Marin county will grow in wealth and inhabitants as rapidly as any agricultural county in the State. The many nooks and beautiful building sites nnder the shadow of Mount Tamalpais and White Hill, will, when once brought within easy access of the city, be as much sought after as those of San Mateo county.

Had it not been for the unexpected and now regretted antagonism of some of the San Rafael people, trains would now be running for the past three months three times a day each way over the branch which was built to connect San Rafael with Saucelito, and the passengers instead of paying 75 cents each way between that place and the city, would have been charged 40 cents, whether they traveled by San Quentin or Saucelito. If the matter is properly brought before the Supreme Court they will reverse a decision clearly made under a misapprehension of the facts, and San Rafael will be taken in "out of the cold."—*Post.*

Calaveras Iron Mines.—Rsferring to the advantages that would accrue to the rsilroad company hy opening up the iron mines of Calaveras, the Calaveras *Chronicle* suggests the building of a road from Milton, and says: "A branch road from Milton, the eastern terminus of the Stockton and Copperopolis line, twenty-five miles in length, would tap both the iron ore beds and timbered region of this county. A narrow gauge would answer every purpose, and to obviate a change of cars at Milton a third rail could be laid down from that point to Stockton at a small expense. The grading of the road from Milton to the mines does not present any serions engineering difficulties, and heavy gradients can be entirely avoided. The completion of the road—if its owners saw proper to engage in the manufacture of iron—would practically make them masters of that interest on this coast. Superior facilities for making, coupled with a short line of transportation, would enable them to lay iron down in San Francisco cheaper than it can be obtained elsewhere. But even if the railroad company was adverse to engaging in manufacturing, the completion of the road would lead to the immediate development of our mines. Thousands of dollars of capital stands ready to inangurate the work, the moment cheap and rapid mesns of transportation are assured, and once institutsd, the importance at which that branch of industry would ultimately arrive can hardly be estimated. The enterprise is certainly an inviting one. The consumption of iron on this coast is great and increasing, and there is no good reason why home manufacture should not take the place of importation in supplying the demand. The subject is worthy the attention of those who have it in their power to institute such an enterprise, and we hope to see it meet the consideration its importance deserves."

Central Hill Mines.

The most prominent and best paying claim in this district is the Rising Star claim, owned by J. C. Dyas & Co. This company have just complsted their hoisting works and huildings, and are now ready to commence taking out pay dirt. They are now hauling the tailings of the last two washings to a place where they can be washed again, and are confident these tailings will pay from $20 to $30 per day to each hand working.

The gravel in the channel pays from ten cents to twenty ounces to the pan. This is undoubtedly the richest claim in the channel, as far as prospected, having taken out a great many thousand dollars in the last six or eight months. The claim cannot be worked out in twenty years.

Next and adjoining this is the John Harkins & Co.'s claim. This claim prospects well, and from all indications will be as good as the former. They have also completed their hoisting works, and are now sinking their second shaft.

Next on the lead is the claim of John Shears & Co. This company have also completed their hoisting works and sheds, and are now sinking and pumping by steam power. There is considerable water to contend with in this claim, but with the aid of an engine they hope to reach the channel, where they will no doubt strike as rich gravel as in the other claims.

Adjoining this is the "Monitor." "This claim has been worked in former years by D. Latimer & Co., and a great deal of money was taken out of it as long as they could successfully contend with the water. Mr. Cole and a San Francisco Co. are now the proprietors. This company have pnt up works, they sunk a shaft 140 feet deep, and are now running a drift on the channel and getting out pay dirt. We have no doubt that under the present management this claim in a short time will commence to yield its thonsands, as of yore.—*Calaveras Citizen.*

Robinson District.—The White Pine *News* is informed that the farnace of Judge Walsh, at Mineral City, has again started up, and will continue to run along as usual. James Montgomery, formerly employed at this point, and under whose direction the furnace was erected, has left for some other locality, but his place is supplied by a competsnt man. We have never been informed whether the working of the furnace has been profitable or not, but we know that the success in working the same has been fully established. With the immense amount of croppings and surface ore found about Robinson, no one can doubt that, as a smelting camp, it has a bright future hefore it. Should success attend the operations of other companies during the winter, we shall not be surnrised to see other and substantial furnaces built next spring to reduce the ores being extracted now. Certainly no class of men have so persistently clung to their locations, through adverse circumstances, as have those at Mineral City, and reward must surely await them. Superintendent Elmore seems confident in the future of his company, and is constantly at work endeavoring to more fully develop his mining interests there. The mill of the Watson company was running at last accounts, and, we are told with good results.

The Krom Concentrative.—A correspondent of the *Silver State*, writing from Star City, says: During the month of November there has been shipped to the Reno mill by the Sheba company, 13,943 pounds of concentrated ore, which assayed $500 per tun, and 21,722 ponnds of dust which averaged $115 per ton. During the same period the Krom company shipped 71,340 pounds of concentrated ore, all of which was reducsd at the Krom Concentrating Works, from ore which averaged by assay $50 per ton. The celebrated De Soto mine was shut down and all hands discharged last week, hy order of the superintsndent, Judge Hydenfeldt, of San Francisco.

The Sheba is still in full blast, and report says the force will shortly be incrsased. It is hoped that a large quantity of ore will he extracted during the winter, and give the Krom works a long run through high water. To reduce ore by the Krom process it is necessary to have it perfectly dry, and the quantity furnished at present will not warrant the erection of a drying kiln. At present the works are closed down, and unless the weather is favorable will not resume work until early in the apring; at leas., so I am informed hy the manager: The high-grade ore produced by the mines is not redneed here, but shipped elsewhere.

Virginia City Coal Co.—The *Enterprise* learns that the second stratum of coal in the mine of the Virginia City Coal Company, in El Dorado Cañon, was penetrated day before yesterday at a distance of about 350 feet west of the main shaft. This measure, which is abuut 15 feet in thickness, pitches westward at an angle of thirty or thirty-five degrees. A tunnel from the main shaft, 90 feet below the measure, has been run for the double purpose of attaining greater depth upon it, and at the same time draining it. The measure has been cut at a distance of 350 feet from the shaft. A large flow of water followed, precepitating into the tunnel shale, coal, sandstone and mud. Work is being prosecuted nuder great difficulties, but the miners—some of the hest selected from the Comstock—are holding their ground, and in the course of eight or ten days it is expected the water will have been exhaustsd, when the vein will be opened to its full width. So soon as this is done the company expect to begin to take out coal in large qnantities for the markst

Peavine District.

The late developments in this district, says the *Nevada State Journal*, have given rsnswsd confidence in the success of the district, and an air of activity is visible on all sides. In the short time we were in camp it was impossible to obtain a complete report of the affairs throughout the district, but such information as we glean of the condition of the mines, we gladly place before the reading public:

Paymaster.

Work on this mine is progressing favorably. Men are now engaged in making the connection between the upper and lower levels. When this is completed the incline will be continued to the surface so as to he ready for the hoisting works. The ore breasts are all looking well and yielding splendidly, abont twenty tons of ore being extracted daily. The company have over two hundred tons of ore on the dump, which will be worked as soon as the McGlew furnace gets into operation—about Christmas. Thirty men are employed.

Golden Fleece.

Tbis is the latest excitement in the camp. The body of ore recently found by this company grows larger and larger, and from present appearances the Golden Fleece is destined to he one of the best mines in the district and in the State. Work is being prosecuted night and day and as soon as sufficient ore has been extracted it will be sent to the mill, and if worked to 50 per cent. of the assay value, the lucky hombres who control it have a splendid opening for a colossal fortune. San Francisco capital is being pnt iuto this claim; it is said Governor Leland Stanford has just given $7,500 for 1,500 shares.

Nevada State.

This company are on the north of the Golden Fleece, and have excellsnt pruspects. A tunnel is to be driven immediately to tap the same ledge, which it is calnculated will be accomplished in about 40 days.

Hopkins.

The Hopkins, the first south extension of the Paymaster, is lying idle, though we understand work on it will be commenced in a few days. This claim is considered one of the most meritorious in the district, and its friends claim that it will prove a better mine than the celebrated Paymaster.

Many other claims not now being prospected will resume work shortly, the recent development warranting the outlay of additional capital.

The Prospects

Of Peavine Mining Distriot are flattering in the extreme. Of course the successful working of the rebellious ores by the McGlew furnace there can be no question, and this is all that is needed to insure the future permanency of Peavine.

Covered by a Cap of Sedimentary Rock.—It is a fact known to msny persons here, but probably to few persons at a distance that to the northward of the Utah mine there comes in a sedimentary rock which lies across the course of the Comstock lode in that direction. Nothing bnt this sedimentary rock showing upon the surface, little prospecting has been done beyond where it sets in. As the Comstock doubtless keeps its course under this cap rock, there are probably as good mines in that direotion as in any other, could they be found. The cap rock is a speoies of coarse gneiss, and at one time, some years ago, a quarry was opened in it, and rock taken out for building purposes, and for use as flag and curbstones for sidewalks. The rock is too soft to he of much value for these uses, and of late years but little of it has been quarried. It would be an easy matter to bore through this cap rock, and by means of a diamond drill the continuation of the Comstock might he found hsyond the Utah by any company that might locate the ground and undertake the job. In case of finding it it would not cost much to sink a shaft down to it through the sedimentary rock. Should a strike be made in the Utah it would not he long before parties would be out north, horing through this oap rock in search of a continuation of the lode; indeed, such an experiment has alreadv been talked of hy some of our mining men.—*Virginia Enterprise*

Rising Star Ore.—The ore from the Rising Star mine in Flint district, Idaho, brought to the Humboldt Reduction works for reduction, was worked up to 95 per cent. of its assay value. The bnllion produced was 812 fine. The ore contains a large percentage of antimony and other hase metals, and the owners of the mine have expended nearly $300,000 in vain attempts to work it successfully. The mine is represented as looking well, and capable of producing an nnlimited qnantity of ore, and a good deal of it will be brought to Winnemucca by return freight teams from Silver city, as this is the only place where it has been worked successfully.

Raising Sunken Vessels.—The main feature of a new plan for raising sunken ships is closing hermetically the hatches and all openings in the upper parts and then to pump down air through tubes insertsd through the bottom. The air thus introduced rises toward the under side of the deck, and, not being able to escape, presses the water down and out through the holes in the ship's bottom. The vessel by this means will be rendered buoyant and rise to the surfacs.

Raymond and Ely.

Ysstsrday afternoon we took a stroll up to the Raymond & Ely mine, where wo wsre received by the efficient foreman, T. J. Andrews, who kindly showed us over the works. Since our last report a considerable amount of mason work has been done, setting the foundations for engines. They are being built in the most solid and substantial manner possible. They are clamped and bolted together with hnge iron rods iu such a thorough manner, that anything like stir seems out of the question. Not a great deal of the machinery has yet come to hand, and it is feared that the proapect of an early winter may interfere grsatly with the hauling from the railroad. However, every effort will and is being made to hasten the delivery, but the machinery is all of so ponderous and unwieldy a character, that firm and good roads are an essential condition to admit of its transportation. The work of enlarging and retimbering the shaft is almost completed, the pump and bod stations opened and prepared, so there will be no hindrance on that account. The machine shop of the company is now supplied with first-class appliancea for work. Since our last visit a magnificent lathe has been added, which includes all the modern improvements and offers every facility for finishing heavy work. A drilling machine has also been set up, of great power and is now a most a useful and ingenious piece of mechanism.

In the mine there is a much greater activity than heretofore. Since the acquisition of the Magnet ground by the company, work has been resumed on the eighth, ninth, tenth and eleventh levels. The ledge as exposed in the eighth level is very large and shows metal all throngh it. The average assays are not high, though some streaks are very rioh indeed. The lower levels are being pushed toward the air chimney with all convenient speed. The amount of ore being raised at present is from 20 to 30 tons per day, bnt the amount will soon he very greatly increased when the ledge is tapped on the lower levels. From the Burke mine some considerable ore has been raised. One of the company's mills is now at work crushing the ore that the mine is now yielding. Some 200 men all told are at work in the mine and on the snrface, their presence giving the works their former busy look.

The Silver Lake District.—Doc. C. D. Stoy returned this morning from the Winters miue, situated in the Silver Lake District, on the west side of the Walker River range of mountains. He says he is confident that at last they have got a mine in the district. The Winters has a shaft 250 feet deep, three tunnels running in upon the ledge—the longest of which is 350 feet, and numerous cross-cnts, drifts and winzes. The ledge is nine feet wide at the depth they have reached, and the ore body some 60 or 70 feet in length. The ore assays from $100 to $150 per ton. Some assays that have bsen made from seleoted ore run as high as $300. In the lower tunnel another fine body of ore is visible. At present the company are not shipping any ore on account of the condition of the roads. On the 19th of this month snow fell to the depth of two feet. In three days time a west wind came and drifted it in great heaps, blockading the roads and rendering teaming impossible. This storm took the inhabitants of the district by surprise, for it came much earlier than was expected. No winter supplies have been laid in yet. Doc. Stoy says that they have several good prospects or claims in the district; that the population is slowly but steadily increasing, and that all are contsnted.—*Gold Hill News.*

A Goon Deen.—We heard of a transaction yesterday which was so creditable to one of our prominent citizens that we cannot forbear mentioning it. In the transfer to the Raymond & Ely of the Magnet company's ground, the employes of the latter, to whom about two months' wages were due, were left out in the cold. John P. Kelly had acted as superintendent of the Magnet and had engaged the men, and though of course he was not legally bound, thought as a matter of princinciple he should see the employes paid, so yesterday he paid them out of his own pocket, taking an assignment of their liens as security. We think it a most creditable transaction on the part of Mr. Kelly, and more than justifies the entire confidence which this community places in him.—*Pioche Record.*

Paradise District.—Squire Meador informs us that the Credit Mobilier ledge, in Paradiso district, has besn struck in the tunnel seventy-two feet from the surface. There is plenty of ore, both gold and silver, in sight. The mine is owned by Allen M. Sadorus and Jerry Cope. The Governor Flanders, in the same district, is looking well. A drift is being run on the lead at a depth of fifty feet from the surface. The ledge is better defined than heretofore, and carries two feet of good ore. The Governor Flanders is owned by Capt. John Winn, to whom much credit is due for his perseverance and energy in developing it. Paradise district is destined to become a lively camp before a great while.—*Silver State.*

Change of Superintendents.—J. C. Corey, Esq., has superceded John W. Mineer in the superintendency of the Ida Ellmore mill and mine, and taken charge of the property. Mr. Corey is also superintendent of the South Chariot. He is a shrewd businesa man, a very clever gentleman, and eminently qualified for ths positions he holds.

Good Health.

The Philosophy of Pain.

Sir Hamphrey Davy, when a boy, with the defisnt constancy of youth which had as yet snffered nothing, held the opinion thst psin was no evil. He was refuted by a crab who bit his toe when he was bathing, and made him roar loud enough to be heard half a mile off. If he hsd maintained, instead, that pain was a good, his doctrine would have been unimpeachable. Unless the whole constitation of the world were altered, onr very existence depends npon our sensibility to suffering. An anecdote, which is quoted by Dr. Carpenter in his 'Principles of Human Physiology,' from the 'Journal of a Naturalist,' shows the fatal effects of a temporary suspension of this law of oar nature.

A drover went to sleep on a winter's evening upon the platform of a lime kiln with one leg resting apon the stones which had been piled up to burn through the night. That which was gentle warmth when he lay down, became a consaming fire before he rose up. His foot wss burnt off above the ankle, and when, ronsed in the morning by the msn who superintended the lime kiln, he pat his stump, unconscious of his misfortnue, to the gronnd, the oxtremity crumbled into fragments. Whether he had been lalled into torpor by the carbonic acid driven off from the limestone, or whatever else may have been the cause of his insensibility, he feit no pain, aad through his very exemption from this lot of humauity, expired a fortnight afterwards in Bristol hospital.

Without the warning voice of psin, life would be a series of similar disasters. The crab, to the lasting detriment of chemistry, might have eaten off the future Sir Humphrey's foot while he was swimming, without his entertaining the slightest suspicion of the ravages which were going on. Had he survived the injuries from the crab, he would yet have been cut off in the morning of his famous career, if, when experimeating npon the gsses, the terrible oppression at his chest had not warned him to cease inhaling the carburstted hydrogen, nor, after a long struggle for life, would he have recovered to say to his alarmed assistant, 'I do not think I shall die.'

Without physical pain infancy would be maimed or perish before experience could inform it of its danger. Lord Kaimes advised psrents to cut the fingers of their children 'cnnningly' with a knife, that the little innocents might associate suffering with the glittering blade before they could do themselves a worse injury; but if no smart accompsnied the wound they would cut up their own fingers with the same glee that they cut up a stick, and burn them in a candle with the same delight that they burn a piece nf paper in the fire. Without pain we could not proportion jour actions to the strength of our frames, or oar exertions to its powers of endnrance.

In the impetuosity of youth we should strike blows thst would crnsh our hands and break our arms; we should take leaps that would dislocate our limbs, and, no louger taught by fatigue that the muscles needed repose, we should continue our sports and oar walking tours till we had worn out the living tissue with the same unconsciousnesa that we now wear out onr coats and shoes. The very nutriment which is the support of life would frequently prove our death. Mirabeau said of a man who was as idle as he was corpulent, that his only use was to show how far the skin would stretch without bursting. Without paiu this limit would be constantly exceeded, and epicures, experiencing no uneasy sensations, would continue their festivities u til they met with the fate of the frog in the fable, who was ambitious of emulating the size of the ox.

Sir Charles Bell mentions the case of a patient who had lost the sense of heat in his right hand, and who, unconscious that the cover of a pan which had fallen into the fire wsa burning hot, took it out and deliberately returned it to its proper place, to the destruction of the skin of the palm and fingers. This of itself would be an accident of incessant occurrence if the monitor were wanting which makes us drop such thiugs quicker than we pick them up. Pain is the grand preserver of existence, the sleepless sentinel that watches over onr safety, and makes us both start away from the injury that is present snd guard against it carefully in the time to come.—*London Quarterly Review.*

Lead Poisoning.—A few months sgo, on an estate in the department of *Semi El Marile*, 26 people were taken seriously ill, of whom two died. The physicians who attended them were convinced it was a case of lead poisoning. It turned out that the lead was contained in the brine used for preserving butter. This brine, besides sugar and salt, held in solution saltpeter, acstate of soda aud chloride of lead; the latter is plaiuly the result of a reaction between sugsr of lead and salt. In six experiments, from 2 3 to 7.5 grains of sugar of lead were found in one liter of brine.

The butter, even when well pressed, contains a considerable amount of lead; and besides, the butter when not pressed, was nsed in cooking. A post-mortem examination shnwed lead in the intestines, liver and brain of those who died.

Some Points About Health.

There is a great drift of populatiou iuto cities taking place now in England as well as this oonntry. The spirit of civilization is affecting people everywhere, and this gathering of humsn beings into so necessarily compressed qusrters is offering peculiar facilities for the development and spread of disease. Consideration nf the publio health is constantly becoming of more and more public importance, as people come to live more and more dependently npon each other. Dr. Lyon Playfair, at the recent Social Science Congress at Glasgow, took this subject for his discourse, and showed how, by intelligent sanitsry regnlatiou, the dangerons tendency of city growth might be avoided and the public health be steadily improved. London, two centuries ago, lost yearly 80 ont of every 1,000 inhabitants; to-day, with its vastly aagmented population, the city loses but 22.4 ont of every 1,000. Glssgow, where the lecture was delivered, is more careless than London and the direct resalt is visible in a deathrate of 30 to London's 22.4.

The secret of individual health is cleanliness, the work of sanitary administration for the people generally is to force everybody to be clean. So far as the effort succeeds the health rate improves. The great epidemics of the middle ages came npou people who for years and successive generations did not know what it was to bathe. The filth that was an element of their lives was an element and cause alike of their deaths. Clean houses, clean water and clean air are the three points that Dr. Playfair demands as essential to health. Rivers from which cities drink must drain neither cities uor factories. There is a natural tendency of water to clean itself, but that ability is limited to a certain amount, and sewage in unlimited quantity may make a river poisonous; and again, clesn houses and clean air are only to be had by a oomplete breaking up of the over crowded tenement system, where nothing can be clean or pure. Remedy these evils and the way to health is comparatively easy. Nor is it possible forever to neglect them. Going from bad to worse in neglecting these possible causes become actual causes of disease, which once broken oat does not confine itself to the place or the class of its origin.

Bnt while untimely death may be averted hy carefnl management we have to admit that death itself is snre to come sometime. It is at best only postponed. The time that would be saved to the world by a lengthening of the term of life by enforcing greater care would not nearly equal that which would be ssved by the abolition of what may be termed nnnecessary sickness—the time lost in sickness by people who do not die but recover. In England 34 people are each sick 18¼ days for every individual who dies. If the rate is the same here our 500,000 annual deaths will demand 17,000,000 oases of sickness, with a total yearly loss of about 315,000,000 working days.

Treatment of Erysipelas.—The *Medical Record* states that in the Brooklyn city hospital the following has proved efficacious as a local application for erysipelas: Acetate of lead, carbonate of magnesia, camphor, each twenty grains, water one piut.

Useful Information.

Combustion of Coal.—Combustion is a chemical process, consisting usually in a combination of one of the elements of our atmosphere (the oxygen) with the fuel. The main substance of fuel, eapscially when it is coal, is carbon, and the chemical equivalent of this, 12, combines with two chemical equivalents, 2x16, or 32 parts by weight of oxygen, which is equal to two and two-thirds parts of oxygen for every part of carbon. A pound of coal requires thus two and two-third pounds of oxygen for its perfect combustion; as now one pound of this gas under ordinary atmospheric pressnre occupies a space of some 12 or 13 cubic feet, or two and two-third pounds of oxygen a space of 34 cubic feet, which in the air is diluted with four times this amount of nitrogen, it requires five times this quantity, or not less than some 170 cubic feet of fresh common air to furnish the oxygen required; it is therefore necessary to psss 170 cubic feet of air through the furnace grate in order to secure the perfect combustion of every pound of coal. If less air is passed, the combustion is retsrded, while an excess of air cools the furnace.

Colobing Matter in Chili Saltpeter.—The yellow color in native Chili saltpet r is caused by potassic chromate, and the v olet shade by manganic nitrate. The stones which are found with the Chili saltpeter are often covered with calcic chromate and magnesic chromate. In ordinary Chili saltpeter Iodine exists as potassii and sodic iodide; but if the saltpeter is free from potsssiums, iu ths form of sodic percodate.

Ammonia Sona Paocess.—This process is attracting much attention. Prof. Reed Gunsberg finds from his experiments thst the most advantageous yield of soda by this process depends on regulating the respective proportions of oommon salt, ammonia and water, so that at the end of the transformation there may remain a saturated solution of sal-ammoniac. The whole process hinges upon degrees of solubility.

Mud Spots on Varnish.—On this subject the *Carriage Monthly* remarks: High grade finishing varnishes, whether of Englisb or American make, possess their wearing qualities from the simple fact thst they retain their elasticity or oily principle to a great length of time. The surfaca h rdens sufficiently to resist dust and to admit of being washed, but the body of the varnish remains soft and sensitive, and mud allowed to dry on the surface of the varnish both stains it and extracts by capillary attraction the oil contained in the varnish. Each spot of mud, according to its size and shape, acts on the varnish immediately under it, bnt no further, from the fact that a suction is created by the evaporation of the moisture contained in the mud. Different kinds of soil act with more or less injurious effects. Sandy soil would have but a slight effect on a varnish which would be badly soiled by a more adhesive clayey soil, and the filth of a large city would be still more fatal to the gloss of a varnish.

Nickel-Plated Screws.—In car building nickel-plated screws are rapidly coming into general use. This grows ont of the fact that though their original cost may be a trifle more than silver-plated screws, yet as nickel does not oxidize by exposure to air, the excess of cost is more than made up in the durability of the plating. Hence, in nearly all of the large car mannfactories, nickel-plated screws are superseding silver-plated for nse in joinery work. Jnst why house-builders have been slow to practically recognize their superiority, we are at a loss to conceive, unless, indeed, they cling to the "penny wise and pound foolish policy" of making a trifling saving in original cost at the expense of an ultimately greater loss in dnrability. We are glad to notice, however, a gradual but steady increase in the use of nickel-plated screws in house joinery, which argues well for their final adoption for all such work, in which silver plated screws are now employed.—*Builder.*

Varnishing Paper Diagrams and Maps.—The first and most essential operation is the proper sizing of the paper, as, if this be improperly done, almost any kind of varnish will penetrate the paper so as to make oil spots. Glue-water of the proper consistency is the best protective against the absorption of the varnish. It should be of the right strength, however. If, after being dried, it cracks in bending a corner of the paper, it was not diluted enough. When dry, the map is varnished with a solution of mastic, sandarac, or some other colorless resin in turpentine or alcohol, or a mixture of both; experience shows the best consistency in order to lay it on evenly with a brush. In cold weather it requires more of the solvent.

Why Paints Crack and Peel.—A writer in the *Hub* thinks that the cause of paint cracking and peeling is to be found in the water which is contained in linseed oil, as it comes from the hands of the manufacturer. He made the experiment of boiling linseed oil by steam, until all the moisture was expelled from it. On using this oil, without any dryer, it was fonnd to dry in one-half the usual time. He then mixed with it some siccobast, using only half the usaal quantity employed to dry oil not boiled, and obtained similar results. 'The introdaction,' says he, 'of steam into the linssed before grinding aids in the expulsion of the oil; but it must stand a long time to precipitate the watèr completely.'

Impaoved Red Fiae.—Ordinsry red Bengal fire is usually a mixture of strontium nitrate, potassium chlorate, and sulphur. This mixture takes fire very easily, especially if damp nitrate has been used in making it, or if flowers of sulphur have been used instead of roll sulphur. M. Bottger recommends the following as a mixture which keeps well aud does not take fire spontaneously: One part of shellac and four psrts of very dry nitrate of strontium. The best way of making the mixture is to reduce the lac to coarse powder, and then half fuse it with the strontium salt. When cool, a mass is obtained which can easily be reduced to very fine powder.

New Enoravino Paocess.—M. de la Grye reports a new process in engraving on copper. It consists, says the *Scientific American*, in first covering the plate with a thin coating of adherent silver, which is in turn covered with colored varnish. The lines are then drawn with a sharp point, after the fashion of using a diamond for stone engraving, aud subsequently sunk into the plate by means of the actiou of perchloride of iron.

Something Woath Knowing.—It is said that the furring or coating on the inside of steam boilers may easily be removed, making the sarfsce appsar like new iron, by placing a quantity of raw potatoes in the boiler and letting them boil to pieces. After two or three days, open the man-holes and a sandy deposit will be fouad; brush it out and the boilers will be all right.

A Few drops of sulphurio acid will prevent any decay in solutions of gum-arabic. Herschberg says that by this acid the lime is precipitated as a snlphate.

An ingenious Frenchman in the Baltimore jsil has invented an improvement for sewing the heels on shoes, for which he has been offered $5,000.

Domestic Economy.

Zinc in Cooking Utensils.

Much care and caution should be exercised by cooks and house-wives in using cooking ntensils lined with zinc: The *Iron Age* says: Zinc is not a metal which can safely be used for lining cooking utensils. In its pure metallic state, zinc is not poisouous, bnt several nf its compounds are prejndicial to health or fstal to life, according to the quantity taken into the system. The zinc of commerce, which is seldom pnre, and often contains both lead and arsenic, forms various unwholesome compounds when snbjected to the action of acid and heat. Many of the vegetable acids are very powerfnl in their action on metals, and ziuc, eveu when pnre, is but little calculated to resist their corroding action. In any acid, when iron is preseut, zinc becomes the sacrificial metal snd is dissolved, thns setting up galvanic action, by the aid of which any acid, and even a solation of common salt in water, will attack it and eat it away with greater or less rapidity, according to circumstances. There are so many vegetable acids which are so complex in themselves aud in their reactions, thst we cannot here enter upon a consideration of the compounds which zinc would form nnder the circumstances indicated by our correspondent. Tin, though not entirely free from these objections, is altogether a safer metal than zinc as an inside coating for cooking utensils, and in some respects better even than vitreous enamel. While the enamel lasts, it is probably the best substance which can be employed for this purpose, but it cracks with the contraction and expansion of the metal to which it adheres, and these cracks become filled with matter which cannot fail, in time, to render unwholesome whatever is brought into contact with it during the operation of cooking. With recent progress in the manufacture of enamels, we seem to be approaching a degree of perfection in the art whioh will give us a substance both elastic aud insoluble, and which will answer this purpose admirably.

How to Make Oatmeal Cracknels.—Oatmeal crackuels, or bannocks, as the Scotch call them, are excellent indeed, and are nsually made as follows: Take the best quality of oatmeal and stir in barley with euongh water to wet it through; add a pinch of salt; let it stand for ten minutes to swell; then roll out the mixture a quarter of an inch in thickness, first flouring the board and rolling pin with wheat flour; cut it with a biscuit cutter, and bake in a moderate oven, as these cakes will burn quickly, and only require to be of the lightest brown. They will snap easily between the fingers, and are delicious for lunch, requiring no hatter to make them palatable. If put into a close jar, they will keep for several months. In the Highlands of Scotland they preserve their bannocks in the barrel of oat-meal, and can keep them a loug time.—*Phrenological Journal.*

Apples in Imitation of Ginoea.—To three pounds of very hard apples take two pounds of loaf sugar, aad a quarter of a pound of best white ginger. Put these in layers (having first sliced the apples in eight pieces and cored them) alternately in a wide-mouthed jar. Next day infuse an ounce of white ginger, well bruised, in about a pint of boiling water; let it stand till next day. Then put in the apples that have been two days in the ginger. Simmer slowly until the apples look clear. Take great care not to break the pieces.

Coffee.—The browned coffee of the shops should always be browned over, thus throwing off the grocery taint which it has acquired by exposure to the fowl air, being a powerful absorbent or disinfectant. The heating, which should make it a shade darker (the coffee of commerce will hear it), will also develop strength. By all means brown over your coffee, and keep it in a well corked bottle or jar, or what is better, brown as you want to use, thus having it fresh and strong, and better flavored.

Why are Fish Poisonous?—This question was recently discussed before the Medical Society of Konigsberg, Prussia, by Dr. Schiefferdecker. It is well known that prawn, rock-fish, oysters, etc., are, at certain seasons, unwholesome articles of food, and even poisonous. This does not arise from decomposition, nor from any observable change, as Dr. S. proves. He concludes that it depends upon a change in the blood, connected with the process of spawning.

Cocoanut Cake.—One-half cup of butter, two cups of sngar, three eggs, or the yolks of eight, keeping the whites for frosting, one cup of sweet milk, five cups of flour, half a teaspoonful soda, and one teaspoonful cream tartar. Bake in layers, as for jelly cake. Spread icing on each layer, and cover thickly with cocoanut.

Canned Fruits.—Make syrup with sugar and water, averaging a quarter of a pound nf sugar to each pint of juice; boil the fruit until done, fill the jars boiling hot, seal up immediately. Keep the jars warm before filling with the fruit.

To Preserve Cranberries.—Boil a pound of the fruit very soft in a little water, not allowing it to burn. Then add a pound of sugar and boil five minutes, closely covered.

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W. B. EWER.....SENIOR EDITOR.

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MISCELLANEOUS.—Bringing Water to the Mines Heavy Hydraulic Mining Operations; Refractory Ores Worked Successfully; Roughing it at Panamint; The Mineral Wealth of California and Nevada; A Little Giant Railroad; New Discoveries in Inyo County; Chroms Iron; New Mines, 370 The North Pacific Railroad; Calaveras Iron Mines; Central Hill Mines; Robinson District; The Krom Concentrative; Virginia City Coal Co.; Peavine District; Covered by a Cap of Sedimentary Rock; Rising Star Ore; Raising Sunken Vessels; Raymond & Ely; The Silver Lake District; A Good Deed; Paradise District; Change of Superintendents, 374. Unjust to Nevada; Colorado Mines; Our Transit of Venus Party; A Sulphurous Region; Colorado Bullion; Longevity of Seeds; Japanese Paper Fans; The Milton Ditch; Marsh's Scientific Expedition; A Lengthy Run; Savage New Works; Completed, 378.

A DAILY stage line is now running from Bakersfield to Kearnville, and thence tri-weekly to Panamint. The schedule time for mail service between Bakersfield, Lone Pine and the Panamint mines has been shortened from five days to two. Feed is high at Panamint. It costs the stage company $25 per day to maintain the team they are obliged to keep there.

RICH BOTTOM OF GOLD DISTRICT.—The Indiana Hill, Cement hill and mining company, of which we spoke in our last issue, recently took over $1,000 in gold from a space of ground less than one cubic yard in dimensions. The gold was found on the bed-rock by the side of a boulder.

THE property owned by the Maxwell creek mining company, Mariposa county, has been leased to another company and work thereon will soon commence. This mine and mill were formerly owned by a French company and are situated about a mile from Coulterville.

THE English capitalists, Partridge & Co. who have recently made extensive investments in gravel claims near Placerville, have opened large and marvelously rich deposits in two of their claims. These gentlemen are greatly elated with the results of their investments.

MOORE & Co. give notice that mines and prospectors will be allowed to pass over their Cassiar trail free of charge.

Gravel Mining.

The late rains have furnished a supply of water to most of the hydraulic mines that are ready to commence piping. At some of the mines they were not prepared for such early rains, but they are rapidly hurrying up repairs and getting ready to wash. We hear of claims which have begun washing all over the State, and most of the miners report a long and prosperous season. Large extents of gravel have been prepared this year, for hydraulicing, and if the season is long, as is hoped, the bullion yield of California for the next year will be measurably increased.

A number of new mining ditches have been built this year, which will afford water for opening up new mines, or increased supplies to old claims. In Amador county, since the completion of the great Amador canal, they have quite an excitement, and are finding out that many of their deposits are richer than they thought. New claims are being opened up for work. In Nevada county the claims at You Bet and Little York are all at work, and in other parts of the county will be soon ready for operations. At Moore's Flat, in the same county, where the deposits are pretty extensive, they have had some troubles about not getting water at satisfactory prices. At that place the Blue Banks Company is stripping off a large amount of gravel, and washing off top dirt.

In Calaveras county a number of new enterprises have been inaugurated this year for working old and new ground. The old Red Hill claim is being fitted up so as to get more water under a heavier pressure. Water is to be conducted to the mine from the main ditch through a 10 inch pipe nearly a mile long, giving a 200-foot pressure.

Up in Plumas county they have been making very extensive improvements, and the North Fork mining company have made preparations for heavy work. Some of the details of the operation are mentioned in another column and next week we shall give a description of the mining property of the company. A large force of men have been employed all summer to complete the 25¼ miles of ditch and 8 miles of pipe. The ditch is 6 feet wide at the top and is 3 feet deep. The work of bringing the water to the mines on Dutch Hill has been very laborious and expensive, but the outlay will probably soon be repaid. They have an immense body of good gravel, and all the modern improvements in hydraulic mining to aid them.

In Placer county hydraulic mining is very active More ground has been fitted up for operations this winter than ever before. The Iowa Hill canal company will be able to furnish several thousand inches of water, and a large tract of very rich ground heretofore but imperfectly worked, will therefore be thoroughly mined. The Placer *Argus* says that at Todd's Valley, Yankee Jim's, and in fact all through the mining campe of that divide, the preparations for work have been extensive, and the prospects are of the best. Gold Run and Dutch Flat will begin in earnest this winter to work the Blue Gravel, the richness of which has been thoroughly tested, but which for want of fall for the sluices, they have been unable to work. The Dutch Flat tunnel was so far completed early in the summer that washing on one claim begun, but a scarcity of water limited the extent of their operations. The Gold Run tunnel, one of the most important mining works in the State, will soon be ready for use. By employing the facilities it will afford, the miners of Gold Run, will be able for the first time to draw on the real store-house of their wealth. The surface gravel has paid well, but nothing to what the lower stratum will yield Altogether the future of the mines of Placer county never looked better. In fact from all parts of the State where gravel mining is carried on we hear encouraging news. New ditches are being built, new mines are being opened, old ones put in order, and everything ready for a prosperous season. The California as well as the Nevada miners can congratulate themselves on the prospects of a busy time.

EUREKA BULLION.—The *Sentinel* states that the furnaces in Eureka district produced the following amounts of bullion in November. The Richmond produced 1,277,910 pounds; Eureka Consolidated, 780.765 pounds; K K Consolidated, 285.000 pounds; Hoosac, 260,347 pounds; total, 2.284.022 pounds.

THE bid of M. Beatty to build and equip the railroad from Colfax via Grass Valley to Nevada City for $500,000 has been accepted. He is required to have the road in running order by next October.

THE New York Hill mine, Nevada county, crushed 60 tons of rock at the Lawrence mill, and cleaned up $4,000, without counting the value of the sulphurets.

COMSTOCK ORE.—They shipped last month over the Virginia and Truckee railroad 3,272 car loads of ore, aggregating 22,764 tons.

THE inquiry of J. J. S., in relation to piling wood on a side hill will be answered in next week's issue of the PRESS.

THE Carson mint coined $492,069 in Nov.

California Mines.

So great is the excitement now with regard to the Comstock mines that attention is turned entirely in that direction, and California and other mines are left out in the cold. The Comstock mines are owned principally by residents of San Francisco, and a large part of the money which comes from them is spent here. Our foundries and machine shops are principally maintained by orders from the mining districts, and the largest orders come from the Comstock. Several of the largest buildings now being erected here are being put up with Comstock money, and really the recent developments in that district benefit this city more than any other place.

To the mining developments of California, however, the Comstock developments are rather injurious than otherwise. There is no use in offering a California mine of any kind for sale in this market. The capitalists are making so much money out of mining stocks and Comstock mines that they will not look at a productive moderate profit. Everything must be on the scale of millions, and big mines are all the rage. Properties of great value are lying idle all over California for want of requisite capital to work them, and it is impossible to make any of the men who usually invest in such securities look at them at all. They are interested on the Comstock, and that is good enough for them. They will talk about California mines by-and-by, but not just at present. It does not make much difference to the general public where the bullion comes from, as long as it brings property with it; but the residents of all the interior towns of California near mining districts are very much interested in the working of the mines near them. If these mines are idle, business is dull and times hard, and this is the case in many parts of the State. Capital is scarce in the interior of California, and many mines are idle which should be worked; but for the past few months it has been impossible to get any one to invest any money in these mines, a state of things which will last some time yet.

In the end, however, it will result well for California. Large amounts of money are being made by the capitalists, who will after a while turn their attention to California mines. Jones & Stewart have put considerable money into Panamint, and others will probably follow their example by investing in mines within the borders of this State. In a few months the value of the present developments on the Comstock will be comparatively well known, and prices will settle to something like a permanent basis. Just now, however, the stock market is in a fever of excitement, and everything is held at high prices. After the excitement is over, some of the millionaires may deign to turn their attention to California mines, and help us develop some good properties here, as they have helped develop those on the Comstock.

Academy of Sciences.

A regular meeting of the California Academy of Sciences was held on Monday evening last. The following donations to the museum were received. A collection of eggs of California and European birds, presented by W. G. Blunt; curious specimen of sulphuret of iron, found in a piece of West Hartley coal, presented by Wm. Ruesell; shells from Ounalaska, presented by Captain L. May, of the Alaska Commercial company; specimens of crustacea, from Monterey, presented by Dr. J. G. Cooper; marine fossils from Stanislaus county, presented by Dr. Hudson; fossil bones from the Blue Gravel Hazard mines, Placer county, found five hundred feet below the surface, in an ancient river bed, presented by R. H. Floyd.

The Secretary read a short communication from Dr. J. G. Cooper, stating that since he had made his remarks on the coal formations of California he had had an opportunity of examining the new edition of "Dana's Manual of Geology." This learned professor, the acknowledged leader of American geologists, goes farther than did Dr. Cooper in bringing down the Mount Diablo coal strata in the scale of geological time, for he considers them as well as that of the Rocky mountains as belonging to the lignite era of the Eocene. Although in both cases there are some cretaceous fossils found in and above them, he considers the presence of lignite as more important, especially as showing the existence of a decidedly tertiary vegetation. He believes that the cretaceous mollusca continued down into the Eocene epoch, there having been no important convulsion to destroy them until the middle of the Eocene on this side of the continent. This is a coincidence with Dr. Cooper's theory that there is here a bridging over of the gap between the two formations, remarked on the Atlantic side of the continent.

The eleventh paper in the series of Pacific coast Lepidoptera, by Henry Edwards, was read by title. Judge Hastings read two characteristic papers, which were placed on file. The committee to nominate officers for the ensuing year will present their report at the next meeting.

New Amalgamating Machine.

Mr. J. T. Tunbridge arrived in this city from the East a few days since, bringing with him one of his amalgamators or "gold traps" which he proposes to introduce here. One of these machines has been in use about a year in the mines of Sturges & Sons, Franklin county, North Carolina, where it has given satisfactory results. At these mines they have numbers of "ribbon veins" a few inches wide, of partly decomposed rock, so soft that in some instances it is piped out. This ore is crushed in arastras and then put through the "gold trap" without passing over plates, through pans or anything else. The rock yields about $2 per ton, and is worked for $1 per ton.

Having made a success of his machine on very low grade ores in North Carolina, Mr. Tunbridge expects to be successful in working the high grade ores of California. He is going to adopt the proper course to introduce his apparatus. He brings a full-sized machine with him, four feet long and two feet wide, of a capacity sufficient to dispose of the tailings of a twenty-stamp mill. This he will put up at one of the mills at Grass Valley at his own expense, work it at his own expense, and ask no assistance from any one except the privilege of putting his apparatus where he can prove to practical mill men and miners that it will do what he says it will. An accurate record of its work will be kept, and he thinks that the Grass Valley mill men will bear him out in his assertions after they see the apparatus working.

The operation of the "gold trap" may be briefly described as follows: It consists of two cylindrical vessels, placed one inside the other, the outer reservoir or vessel measuring about 4 feet by 2; at the end there is an inclined bottom. At the apex is attached a small inverted siphon; directly over this the mouth of a discharge pipe of larger dimensions, and communicating with the interior from this side, while the other point or end of discharge is turned upwards. The inner vessel or cylinder has a coarse sieve attached at both ends and so constituted that they can be easily removed when necessary. Inside of this is placed a multitude of pieces of amalgamated metal, of such a form that their packing is prevented, and to admit of the slimes passing through. The form to be used here is an S-shaped piece, giving a large amalgamating surface, and having no opportunity for the different pieces to pack together. In addition to this rough description of the apparatus, it may be mentioned that there are other precautionary attachments of less importance.

The method of working consists in passing the slimes of diluted pulp directly from the stampe, or from the end of the plates, or any other process of grinding of the ore into the inner vessel previously filled with water, and submerging the amalgam therein. The slimes quietly descend, percolating through the great mass of attractive matter, filtering out as it were. The fine particles of float gold are secured by their attaching themselves to the highly sensitive surface of the electro galvanic compound metals. Mr. Tunbridge leaves for Grass Valley in a few days and we hope our mining friends there will give him a favorable opportunity of thoroughly testing his machine.

Transit of Venus.

The following dispatch to the New York *Herald* from Prof. George Davidson, chief astronomer of the American expedition to Japan, is dated Nagasaki, Japan, Dec. 8. This is the only news so far received of the result of the observations of any of the Transit of Venus parties: During our observations of the transit of Venus to-day the weather was very cloudy and unpromising. The time at which it was calculated that the transit would begin passed away without our being able to record the exact moment of the transit and of the first contact of rules. After about a quarter of an hour, and before Venus reached the state of her second contact the observer at the equatorial caught a glimpse of the sun planet, and was successful in taking several measurements of planets.

During the interval between the first and second contacts, the time at which the latter contact occurred was obtained with success and duly recorded. Shortly after the second contact further measurements of distance between Venus and the sun's western edge were made with the micrometer. In all there were taken 150 micrometeric measurements of the line between Cuspus. Besides these, three micrometrical observations were made on both edges of sun across the meridian of Saturn, and similar views of the right and left edges of Venus in crossing the same line.

Eighteen micrometric surveys were made of the respective delineation of the sun and planet, by observing both the upper and lower limbs while on the passage of the meridian, and about 60 excellent photographs of the transit, during various periods of its occurrence, were taken. Extreme good fortune attended the astronomers, for just as Venus departed from the sun, clouds began to gather, and threatened rain. Toward the close of November we were enabled to telegraph the difference of longitude to Madivistock, so that the location of position here is definitely determined. At the latest accounts from Professor Hall his party were all well.

Aquarium and Flower Stand.

The beautiful cut on this page of our paper represents a combined aquarium and flower stand; a tasteful and appropriate ornament for the parlor or window. Still, the term ornamental is hardly adequate in giving our readers an idea of its merits; for when it is properly occupied by its aquatic, amphibious and floral tenants, it furnishes a worthy subject of study for the student of natural history. Its presence would have an improving influence on the youthful members of the household, and would tend to the development of a taste for natural history. Here they could watch the growth and habits of plants, fishes and amphibious animals. The cost of the stand with globe—unoccupied—would be about $17; with the different apartments properly filled it would probably be from $25 to $30.

For the cut we are indebted to the *Guide to the Vegetable and Flower Garden*, recently issued by R. J. Trumbull, seedsman of this city. We have seen nothing in the catalogue line that equals this in its practical suggestions, in its adaptability to the Pacific coast, and in its general make up. We shall occasionally appropriate information from this publication for the benefit of our readers.

The following directions for filling and managing the flower stand and aquarium were written by P. R. Hoy, M. D., of Racine, Wisconsin:

How to Fill the Aquarium.

First, cover the bottom of the tank to the depth of one-half inch, with pure fine sand, on top of which put an equal quantity of fine gravel; over this gravel sprinkle small ornamental stones, shells, coral, etc. Everything put into the tank must be thoroughly washed. Next put in position an ornamental central piece of coral, stone, or anything out of which you can construct an arch through which the fish can readily swim. Now fill the tank one-third full, with pure cold water from the lake, river or well.

Plants.

The best aquatic plant for ærating the water in the aquarium, is *Anacharis Canadensis*, found growing under water on the bottom of nearly all sluggish streams and ponds. The *Valisneria Spiralis* (eel-grass) is the next best, after which comes the *Myriaphyllum Spiralis* and the *Myriaphyllum Verticellatum*. There is a species of *Conferva* found in rapid streams, attached to stones, that is an excellent ærator, valuable especially during the winter when other plants do not flourish. If you get the *Anacharis*, remove all decayed stems and leaves, wash clean, and arrange in packets of 10 to 15. Make a hole in the sand, insert the butt-end of the plants, and secure in this position by pressing small stones about them. Insert in this way about six to eight bunches, and be careful to make them secure at the bottom. Roots are not necessary, as the cuttings will soon send out fine, white rootlets. Now you are ready to fill up the tank with water to within one and a half inches of the top. Wait two or three days before introducing the fish, that the plants may have time to commence growing.

The Fish.

Almost any small species of fish may thrive in the aquarium, but we think the best for the purpose are the red-bellied minnows and sticklebacks, all found in small streams. Select small fish; from four to eight for a tank holding from eight to 12 gallons. Such a tank will support four small ones better than one larger. Introduce also 10 or 12 water snails. The *Lymnæ* are the best; yet the *Planorbis* and the *Physa* are interesting. Better, however, get a few of every kind you can find in the ponds and stagnant pools in your vicinity. They feed on the softer parts of aquatic plants, and do not exhaust the oxygen mixed with the water, for they are air-breathing, and have to come to the surface to take in a supply of air to be used while they go about cleansing the plants and the glass of the tank with their curiously constructed jaws.

Food.

The best food for the fish is angle-worms and flies in summer, and fine bits of fresh raw meat in winter. Never give the fish more than they can eat at one time, for whatever is left will injure the water.

Position.

The best place for the aquarium is where it will be exposed to the sun at least one hour each day, in order that the plants may exhale oxygen, which can only take place under the stimulus of light. Too much light, however, is to be avoided, as the fish do not thrive when exposed to the sun, and the glass will be soiled by *conferveæ*, a green vegetable matter. In summer an out-door position is best, if there be sufficient shade. It is well to cover the aquarium, both for the shade and to keep the fish from leaping out of the tank.

Cleansing the Aquarium.

If well balanced with plants, fish and shells, the water will remain sweet for an indefinite time. We have an aquarium that has been in service for the last 12 years, and which does not require a change of water oftener than once or twice a year, and then only to renew the sand which becomes filled with excrementitious matter.

Benefits.

A well regulated aquarium is a beautiful ornament for the home, and one which is a perpetual source of amusement and instruction. It has the peculiar advantage of making us acquainted with forms and habits of animated existence which are commonly hid from our inspection. Thus its influence upon the family circle is wholesome and elevating, tending constantly to awaken in all the members, both young and old, an increased love for the contemplation of the wondrous skill and wisdom of the Great Creator.

Amphibious Animals.

If lizards, frogs or other amphibious animals are introduced, they should be provided with some surface above the water to climb upon. The rocks may be built above the water, or a piece of flat cork may be allowed to float upon it, when the animals will climb and produce no small amount of amusement and instruction.

Gold Fish.

Gold fish may be kept 10 or 12 years, (their average period of existence), by using the following precautions:

1st. Allow not more than one fish to two quarts of water.

2d. Use the same kind of water, whether well or river; change it every other day in summer and twice each week in winter.

COMBINED AQUARIUM AND FLOWER STAND.

3d. Keep clean sand and pebbles at the bottom, washing it occasionally or replacing with a fresh supply.

4th. Use a small net rather than the hand while changing the water.

5th. Feed with cracker, yolk of egg, lettuce or flies, one each week, except in cold weather. Feed but little at a time. Remove any crumbs that may remain on the surface after feeding.

6th. Do not feed at all from November to the end of February, and but little during the following three months.

7th. If there are growing plants in the aquarium, water need be changed but rarely.

8th. Keep from sun and in coolest part of room.

Seth Green gives the following advice concerning the care of gold fish:

Use any well, creek or river that is not impregnated with mineral. Change the water when the fish come to the top and stay there, breathing part water and part air; take out nearly all the water, leaving enough for the fish to swim in, and fill the vessel with fresh water. Never take the fish in your hand. If the aquarium needs cleaning, make a net of mosquito netting and take the fish out in it. There are many gold fish killed by handling. Keep the glass clean. Watch the fish and you will find out when they are all right. Feed them all they will eat, and anything they will eat; be very careful to take anything they do not eat out of the aquarium. If your fish die, it will generally be due to handling, starvation or bad water.

Mining Claims.

The first of January will soon be here and negligent miners are again reminded that they must do the work required by the laws of the United States on or before that date, or they will be liable to lose their claims. It is not to be expected that Congress will again postpone the time within which the required work must be done, nor is it just that they should do so. Plenty of time and warning has been given, and claim owners will have no one but themselves to blame if they forfeit their rights by not attending to their property in time.

If certain claims are not of any value, they will now be abandoned by the locators; and it will probably happen that some of the "jumpers" will get fooled in some cases, supposing that work is not done because it has been neglected. As a general thing, however, none but claims of some value will be liable to be jumped, and many of these claims have no doubt been "spotted" by this time by parties on the look out for just such chances. A good many miners will of course put off doing the necessary work until the last minute, intending to commence on the first day of January. Those who are left out in the cold by procrastinating can blame only themselves.

The best way, no doubt, for *bona fide* locators to do, is to patent their claims at once. This will save annual expenditure and give a good title at the same time. A patent is a very good thing to hold in case of a sale. The English purchasers of mining property will not now look at anything which is not covered by a United States patent, and it is an incentive to any purchaser to know that he is sure of a good title. In this connection it is proper to suggest to locators the propriety of having the original location properly surveyed by a competent surveyor, so as to have a perfect record to proceed upon when making application for a patent. The careless way in which measurements are usually made in original locations makes it difficult to get the official surveys for patents in accordance with the legal regulations. A lawyer in this city told us not long since that in more than half the cases where patents were wanted it was impossible to get the surveys to correspond with the original record of location. In many cases the ground was formally relocated to save trouble. It is always best to have a preliminary survey made before applying for a patent.

On File.—We have two letters on file received too late for publication, giving a detailed description of Tybo District, Nevada. One of these will appear in our next issue.

The Developments on the Comstock.

The recent wonderful developments on the Comstock are far ahead of anything before made on that famous lode. The great *bonanza* or ore body running through the Consolidated Virginia, California and Ophir mines seems to be improving in all directions. The general character of the ore is the same as in all mines—being a mixture of red chloride and sulphuret ores. The California mine has come suddenly forward as the richest mine on the Comstock, and Belcher and Crown Point, producing over a million a month, are thrown into the shade by the developments in the mine above mentioned. Mining experts who have visited the lower levels place most astounding estimates of the amount of ore in sight. Some of these estimate that in the Consolidated Virginia there is standing in the mine above the 1550-foot level, over $43,000,000 worth of ore, or about $27,000,000 in dividends. The estimates of the value of the ore in the California vary from $50,000,000 to $150,000,000.

Plenty of ore is found in the Consolidated Virginia, assaying on an average $600 per ton. At one place the ore body is found to be 140 feet wide. No ore has come from the lower levels but what has been taken from the winzes and levels, it being almost all virgin ground. The body of ore developed by the drifts, cross-cuts and winzes of the 1500 and next lower level is as yet totally undetermined as to the extent, no limit having been reached in any direction. The development, toward the north, of the ore bodies on the 1300 and 1400-foot levels is constantly furnishing results of increasing value.

In the California mine the discoveries are attracting universal attention. About a week ago the north drift on the 1500-foot level was connected with the south drift on the same level in the Ophir, thoroughly ventilating the mine and creating a fine circulation of air. Cross-cuts have been commenced on both the 1400 and 1500-foot levels to prospect the ore ven. The Virginia *Chronicle* says it is simply the continuation of the sulphuret and chloride ore body of the Consolidated Virginia, to the northward. This, taken together with the fact of the southwest body of ore in the Ophir butting square against the California line, and extending downward from the 1300 to the 1465-foot level, and that the cross-cut from the bottom of the south winze on the south line of the Ophir, 60 feet below the 1465-foot level, is developing a more valuable body of ore than anything yet found in that section, no longer leaves a doubt that the California has one of the richest and most extensive ore bodies ever discovered on the line of the Comstock.

The ore in the Ophir is the same as that in the Cons. Virginia, showing that both companies are at work on the same body. On the 1465-foot level the *bonanza* is constantly expanding and the value of the ore is almost daily increasing. It is estimated by those who have taken the pains to make the necessary measurements that there are now in sight on the 1465 and 1300-foot levels of the Ophir not less than 150,000 tons of ore. The *Enterprise* says that recently a great and almost stunning strike has been made in a drift near the north line of the California. A winze was sunk on the line to the depth of 35 feet, from the bottom of which a winze was run in a northwest direction a considerable distance in excellent ore. They then came back to within 25 feet of the winze and started a drift south toward the California. This drift is now in about 15 feet and is in the richest ore seen on the Comstock in many years; indeed the only ore of the kind ever found before was in the old Mexican mine. Specimens are here found that are so pure as to be maleable on some of their surfaces. A specimen taken out here on Saturday assayed over $8,200. It is thought that the ore in this drift will average $1,200 per ton. At last accounts, last evening, the face of the drift was in the same material.

The first result of these strikes has been a very exciting time in the mining stock market in this city in Comstock shares. From all appearances the old Comstock is likely to last many a long year and pan out its millions regularly. As one mine gives out another comes to the front, and each richer than the other.

To be Sold.—Under instructions from High Court of Chancery of England, Messrs. Cross & Co. of this city offer for sale the silver mine and property belonging to the Mineral Hill Silver Mining Company, at Mineral Hill, Elko county, Nevada. These mines yield about 600 tons of ore per month and are represented as looking very well at present. There are two mills on the property, one of 20 and the other of 15 stamps.

Three men on the way to Panamint from Pioche on foot became discouraged when about 70 miles from Pioche and started to return. When seven miles from Elko they were attacked by Indians and two of the men killed. The settlers are in pursuit of the Indians.

The frame of the building for the new hoisting engine, at the Savage mine, is completed, and the masons have commenced laying the foundations for the engine.

Unjust to Nevada.

California journals are copying a paragraph from a Montana paper to the effect that Montana produced more of the precious metals last year, per capita, than any other State or Territory. This is absurdly nntrue. According to the census returns of 1870 Nevada and Montana had at that time the following populations, respectively:

Nevada	42,491
Montana	20,595

The precions metal product of Nevada and Montana were as follows in 1873:

Nevada	$37,254,507
Montana	3,892,810

Allowing that the popnlations of Nevada and Montana have increased during the past four years in about the same ratio, and we have these results: Nevada, with about double the popnlation of Montana, produced nine and one-half times more gold and silver last year. Or, in other words, Nevada produced all of four times more bullion in value per capita in 1873 than Montana. Yet the statement referred to is quoted in many journals without comment. Should it be said that the statement was intended to apply only to the number of persons actually engaged in mining, it would still be qnite as far out of the way, for in 1870 there were 8,000 miners in Montana and 15,000 in Nevada. It makes but little difference, perhaps, but in giving figures so wild a mistake should not occur.—*Virginia Enterprise.*

Colorado Mines.—The Colorado *Register* ssys: From onr personal knowledge of operations and schemes now in progress, we are enabled to state positively and truthfully, that the business of mining in Gilpin connty has not presented so flattering an aspect for years as at present. Still the task of a mining reporter at this jonctnre is no easy one. With scarcely an exception, our large mine operators meet our requests for items with "wait for a dsy or two," "hold on for a week longer," "in a fortnight or less we'll he ready for you," at the same time giving ns no insight of what is going on. This makes our work just now a peculiarly unsatisfactory one. Nevertheless we shall endeavor to cnrb our impatience a few days longer, knowing that when the ban of silence is removed we shall he enabled to make public developments of a startling character. That the near future of Gilpin ocunty is to be marked by numerous brilliant mining successes is no longer a subject of speculatiou, as will ere long be made apparent to all.

Our Transit of Venus Party.—Information by mail, under date of Octoher 20th, from the transit of Venus station at Nagasaki, Japan, which is under the supervision of Professor Davidson, ie as follows: The instrumente of the party have been arranged for detailed adjustment. This work neoeesitated the cutting of a road for a mile up a hill 800 feet above the sea, and two miles south of the fort at Nagasaki. The summit was then leveled, in order that epace might he secured for observations. The work was heavy, and the carrying of observatories, piere and instruments was slow and laborions. The Professor contemplated building another observatory near the cahle station, to transmit and receive clock signals between Nagasaki and Wladivoetok for differences of longitode. Next he would connect his longitude and Venus etations by a small triangulatiou.

A Sulphurous Region.—The Winnemucca (Nevada) *Silver State* says: Right here in Humboldt, within a hundred yards of the Central Pacific railroad, and in the immediate vicinity of the eilver mines of the Humboldt range, are heds of sulphur capable, it is helieved, of eupplying the whole world with that article for centuries. These snlphur deposits are located in the Humholdt valley, not much over a mile from the Humboldt House, and prohably thrice that distance from the base of the Humboldt range. But little is known in reality of the extent of the beds, except that they cover a large area in the valley, and have been proepected in one place to a depth of several feet, where the excavations expose hundreds of tons of the pure article, which can he made available for oommercial purposes at no greater expense than loading it on the cars and shipping it to the great commercial centers.

Colorado Bullion.—The Central city *Register* eays: The shipments of gold and silver hullion from this county dnring the week ending November 18th, 1874, amount, in the aggregate, to $51,564 05, corrency value. Of this amount, $17,000 was in gold retorts, the remainder being eilver bare. Probahly not exceeding one half of the above stated gross amount of hullion ehipment can he claimed as the proceeds of Gilpin county ores, the balance heing from mines lying within dietricts adjacent and more or lese tributary to this county, and are always inoluded in our records of bullion shipments for the reason that they are not reported elsewhere in the Territory.

The Quartz hill tunnel has now reached a total length of 829 feet, and is still advanciug towards the core of Quartz hill, prohably one of the richeet mineral deposits in thie county, at the rate of two and a half feet per week. It has thus far ent five lodes, none of them at a sufficient depth however, to warrant working them, the last one heing 550 feet hack of their present workings, or only 280 feet distant from the gulch.

Longevity ot Seeds.

The ways and conditions of field and garden seeds are not altogether "past finding out," though there are few subjects involved in more doubt and uncertainty. We have on former occasions devoted considerahle space and labor to clear the way of the seed purchaser and make his path straight, and shall continue to make a proper use of such information as we can obtain on the subject.

The following table, showing at what ages seeds of different kinds are supposed to lose their germinating power, has been going the rounds of our exchanges of late. The estimates were evidently made from an Eastern standpoint, and after consulting parties who are well acquainted with the habits of these seeds in California, we have made such alterations in the supposed longevity of seeds, as the difference between the climate of California and that of the Atlantic States would warrant. These differences are in all instances in favor of our State; though this, like some other characteristics of the country, is barely worth bragging about. On the contrary, the longevity of seeds is extended in California by means of what is known to be our greatest climatic misfortune, the dryness of our atmosphere. We think it will he safe to consider the following seeds good in California for the length of time named:

	Years.		Years.
Artichoke	5	Lettuce	5
Asparagus	4	Maize	3
Garden Beans	5	Melons	10
French Beans	2 to 3	Mustard	5
Beets	5	Nasturtium	3
Cabbage	5	Onions	2 to 3
Carrots	4	Parsnip	1 to 2
Cauliflower	7	Parsley	3
Celery	7	Peas	4 to 5
Garden Cress	5	Pepper	4
Wster Cress	4	Potatoes	2
Cucumber	10	Radishes	5
Dandelion	1	Rhubarb	2 to 3
Egg Plant	7	Salsify	2
Fennel	6	Spinnach	4
Gourds	9	Strawberry	3
Leeks	2	Tomato	5
Thyme	2 to 3	Turnip	

As we stated above, the conditions that favor the germination of seeds are snch as leseen the period of their longevity. Exposure to the long and severe winters of the Eastern States would not extend the longevity of eeeds, but passing through one of their short, hot summers would arouse the latent germinating power, and thue the period of their longevity ie at once ehortened. Imported seeds that have passed through the tropice are materially damaged in this respect; so much so that careful seedemen will not handle eeede that have heen thus exposed. It ie not necessary that such exposure should he open, and the seed come in direct contact with the heated atmosphere. It is believed that germinating influences penetrate the most carefully sealed packagee, and when germination commences, decay begins.

In connection with seeds that are known to he good for a long time we have heard experienced farmers and gardeners declare—and from our own obsevations we are inclined to endorse the declaration—that such seede are improved hy age, and that they may advantageously be left to a period approximating that of their supposed fertility. It is hardly prohable that the properties of germination are entirely dormant or stationary at any stage of their vegetable life; and are we not justified in supposing that these long-lived seeds are really undergoing a steady though slow procese ot maturing up to the time when natural decay commences? And is it not prohable that the apparent inevitable "running out" of some graine and vegetables, is attrihutable to sowing eeed that has not been allowed the maturing time which nature has allotted it?

In response to enqniries recently put forth through the columns of the Rural Press, in regard to seed tests, a veteran California nurseryman called at our office lately, and suhmitted his test which he declares to he perfectly reliahle. His theory is that the presence of the germinating property in the seed is to be recognized hy an oily substance which exudee from the seed when crushed. It is well known that some kinds of seeds on heing crushed yield more oil than others; hut the test consiste in taking a numher of any variety of seed, and crush them upon a sheet of paper, giving a epace to each seed, then examine each with a magnifying glass, when the relative proportion of the germinating property may he ascertained hy the peicentage of the vital oil which they have emitted. Persone accuetomed to nsing thie teet on certain kinds of eeeds will learn what amount of vital oil they ought to give forth, and he able to judge of their fertility aocordingly.

The germs of all seeds should be of a pearly whiteness, and when the degree of whiteness of any given variety of eeed is ascertained, any varying ehade ehould he taken as evidence of deterioration. Grass seede exhibit less oil than most seeds.

Japanese Paper Fans.—The paper ueed in the manufacture of the Japanese fans, now so common in thie country, is obtained from the root hark of the mulherry tree. The figures upon the flat fans are printed hy a lithographic process, while those upon the folding ones are painted by hand.

The Milton Ditch.—The North San Juan *Times* says: We learn from Mr. V. G. Bell, that the Milton Ditch was completed to Poor Man's valley a week ago, and that water had passed throngh the Milton ditch to that valley as early as the 16th. In less than one week from this date water will be got through the ditch as far as Eureka South. This would hsve heen accomplished sooner, hut for the terrible storm thst prevailed from last Saturday nntil Tuesday evening. The rain and suow stopped all work on the ditch for the time heing. But for the storm mentioned the entire ditch would have been completed hetween Eureka and Backbone house. As it is, if the weather continues fair, the entire ditch from the Milton dam to Moore's Flat will he completed and water running through it hy the next month. The Milton company anticipate having water throngh the ditch from Milton to French Corral hy the 30th inst., and would have had bnt for the storm aforesaid. This is the most beautiful ditch ever constructed in the State. It shows whst engineering and mechanical skill can do. Hsmilton Smith, Esq., of the North Bloomfield Gravel Mining company, wss the engineer, and that company constructed the ditch under contract. The capacity of the ditch was intended for 2,200 inches of water, miners' measure, hut the care taken in its construction has increased its capacity to 2,500 inches. Persons who have seen sections of the ditch pronounce it very heantiful.

Marsh's Scientific Expedition.—A telegram from Cheyenne, dated Dec. 3rd says: Professor O. C. Marsh and scientific party arrived here last evening from the Bad Lands, south of the Bisck Hills. The expeditioo was very successful, notwithstanding the extremely cold weather and continued hostility of the Indians. The latter stopped the party twice when on their way to the Bad Lands, attempted a night attack on their camp, and otherwise molested them. The explorations were made under difficulties, hut resulted iu importsnt discoveries. About two tons of the remains of extinct animals were collected, among them many new to science. This collection will go to Yale College, and will soon be described hy Professor Marsh.

A Lenothy Run.—A correspondent of the Salt Lake *Tribune*, writing from Stockton, states that the Chicago compsny's second furnace has started np. Both furnaces are in full hlast, and working all right. The first furnace has heen in continual hlast since the 25th of May last, and will now run until the 23d of December, when a short rest will be taken, extending over the holidaye. This is the most remarkahle run ever made by a silver smelting furnace on the continent.

Savage New Works.—Good progress is being made in the erection of the building in which is to he set np, at the Savage mine, the new engine and hoieting machinery for the incline. As this new machinery ie to be of a sufficient capacity to sink the incline to a depth of 4,000 feet it will be of the most powerful description. The pits for the fonudatione of the engines and machinery are excavated, and the greater part of the stone for the mason work is on the ground.

Completed.—The tunnel which has been driven into the North Bloomfield mine is now completed, and a mau can walk from one end to the other. The entire length of the tunnel is about nine thousand feet, is from six to eight feet wide and as many high. It has taken about two years and a half to drive it, and the expense has heen enormous. The fluming will he completed, and the work of washing will then commence.

Signor L. M. d'Albertis, the Italian naturalist, who recently aecended the Afrak mountains in New Guinea and made important diecoveries, is now at Genoa preparing for a fresh expedition in the eame country. He will endeavor to penotrate into the district adjacent to Torres Straits, where mountain ranges of coneiderahle altitude are known to exist.

Lodes carrying rich ore in small and scattered veins in Colorado are now made to pay well hy means of concentration works. And veins carrying only 30 ounces of silver per ton, if running 40 per cent. lead, find a ready market at prices that afford a good margin of profit where the veine are etrong.

Smyrna is the only one of the great cities on the west coast of Asia Minor which has survived from ancient times, and etill retains its importance as a great emporium of trade hetween Europe and Asia.

Hints to be Remembered.

A note dated on Sunday is void.
A note obtained by fraud, or even from one intoxicated, can not be collected.
If a note be stolen it does not release the maker—he must pay it.
An indorser of s note is exempt from liability, if not served with notice of its dishonor within twenty-four hours of its non-payment.
A note by a minor is void.
Notes bear interest only when so stated.
Principals sre responsible for their sgents.
Each individual in partnership is responsible for the whole amount of the debts of the firm.
Ignorsnce of the law excuses no one.
It is a fraud to conceal s fraud.
The law compels no one to do impossibilities.
An agreement without consideration is void.
Signatures in lead pencil sre good in law.
A receipt for money is not legally conclusive.
The acts of one partner bind all the others.
Contracts made on Sundsy can not be enforced,
A contract made with s minor is void

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Our long experience in ohtaining patents for Inventors on this Coast hae familiarized us with the character of most of the inventione already patented; hence we are frequently able to save our patrons the cost of a fruitless application hy pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applicatione which will iuterfere with their obtaining a patent.

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Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it hae repeatedly happened that applicante have not only lost their money, but their inventions also, from thie cause and conseqnent delay. We hold ourselves responsible for all fees entrusted to our agency.

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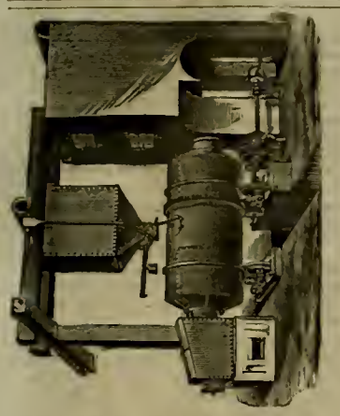
Mining Machinery.



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For Roasting, Desulphurizing, Chloridizing and Oxidizing Ores, etc. For the reduction of Gold, Silver, Lead and other ores, saving a larger percentage, at less cost, than any other invention now in use. Chloridizing Silver ore more thoroughly, in less time, with less fuel, salt and labor; also roasting Lead ore preparatory to smelting, better and cheaper than any other invention. The Furnace is so constructed that one man, of ordinary ability, tends five or more furnaces; controls them with ease; adding heat or air; stopping or starting at will; charging and discharging with ease. Also, Patent "Conveying Cooler," for conveying and cooling roasted ores, heating the water for amalgamation and the boilers at the same time. Saving the large space in mill (covered with brick or iron), and the labor of two men per day, exposed to the poisonous chlorine gases. Also, Patent Air Blast "Dry Kiln," for drying ores direct from the mine or breaker, saving fuel and labor heretofore necessary in drying ores for dry pulverizing. For description refer to MINING AND SCIENTIFIC PRESS, No. 18, October 31, 1874. For particulars address

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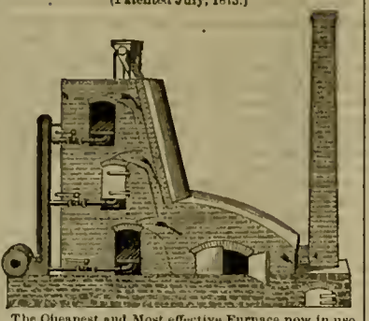

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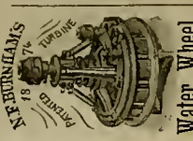

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The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apparture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference ae before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

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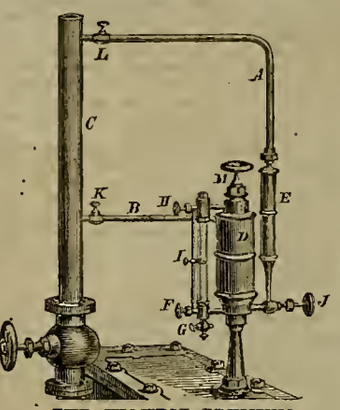

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I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will hint little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

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MINERS write for your paper.

Continued from Page 373.

Arizona.

Prospects.—Arizona *Citizen*, Nov. 21: Col. Boyle says the Arizona fever has just broken out in earnest, and that during the coming winter and spring, we may expect a great influx of solid, moneyed men, too. Several friends of his are coming down to buy lande. Regarding his operations down here, he says that he has the machinery for the artesian well building, and that he comes this time to stay. Everything looks favorable with him for the future in Arizona, and no doubt in a few months there will be much actusl work going on under his supervision in this conuty. The introduction of a Krom concentrator will be, in our opinion, just the machinery needed to suocessfully work most of the ores in this county; and the boring of one artesian well we hope will lead to the sinking of msny more.

Operations.—Judge Wymsn and Mr. Pearce left on Thursday for the mines at Clifton with a view to adjust some matters there and examine the mines, and return to Tucson. Mr. Pearce is now prepsred to make cash advances on ores rich enough to ship ahroad for reduction, and, after reduced and returns reported, will pay the owner every oent of the yield less the expenses of shipment, etc., as shown by proper vonohers.

Sometime ago, Mr. P. Lazarus sent samples of ore from the ledges at Cañon del Oro, to Castle Dome for assay. Monday of this week, he received from Mr. H. Goldberg, a telegram to wit: "Ore assays 32 per cent. copper and two ounces silver"—evidently mesning so much per ton of 2000 pounds. Here is another locality shown to contaiu immense qnantities of copper and some silver, for we are assured that the ore of which the sample was assayed, is almost without limit in extent. Now we have this, Clifton, Silver Mountain and Quacharty districts in which the proof is abundant of the existence of almost unlimited deposits of copper containing some silver. These several districts are quite acoessible and are certain to be within a few miles of the Texas and Pacific railwsy, and mnst at no distant day be yielding millions of dollars annually to those who properly work them.

British Columbia.

New Diggings on Vancouver Island.—Nanaimo *Free Press*, Nov. 25: From Mr. Patterson, C. E., who returned from a professional visit to the northern part of this island by the schooner "Alert," we learn the following particulars of an extensive discovery of gold-bearing country: Messrs, Coon, Johnson & Smith, who have been prospecting the entire summer on the streams and rivers running into and flowing out of Karuuutzen lake, state that they discovered diggings on the Nimkish river, flowing ont of the Karmutzen lake, and on the Kilpah and another river flowing into the above named lake, that will pay frsm $2.50 to $4 per day to the hand, and, perhaps, in favorable localities, $5 per day. About 10 miles of such diggings have been discovered and prospected, and it is believed that a larger area will he fonnd to be gold-bearing. The Nimkish river flows into the salt water about 21 miles south of Fort Rupert, Vancouver Island.

Colorado.

Among the Mines.—Central City *Reporter*, Dec. 22: The shipments of gold bullion from the two banks of this oity, during the week ending November 25, 1874, amonnted to $17,300,00, enrrency valne.

The First National Bank of this city shipped on the 27th inst. three silver bars of the aggregate coin value of $5,384.38, or a little over $5,800 currency value, being the result of less than a week's run of the Nederland mill on ore from the Caribou mine.

Wm. Mundie and associates are pushing their Spring gulch tunnel for the Canandaigua or Bucher lode, on Central City hill, and are now within four feet of it. This lode has produced considerable quantities of rich ore and qnartz, some of the latter running as high as seven onnces to the cord, or over $20 per ton.

The work of surveying for a county ditoh, through which a full supply of water for mining and milling purposes is to be derived, will commence on Monday next, nnder the direction of the Board of County Commissioners.

Clear Creek County Items—*Miner*, Nov. 20: The Steward reduction company are now in the market not only for silver ores, but for gold ore and ore containing silver and gold.

Rich Strike.—On Wednesday evening last, in the east end of the Fred. Rodgers mine, on Col. Connor's ground, ten inches of solid ore was strnck of a character not hitherto found in the mine. It oconred at a depth of 130 feet. An assay of this ore gives a coin value of $2,335 per ton, and the ore is expected to run over a thousand onnces in the mill.

Masonville Renuction Works.—An important enterprise for our county has just come to onr knowledge. The Masonville reduction works, together with several prominent mines, have been secured by certain gentlemeu here and in Philadelphia for the purpose of engaging in the bullion business. The works, we understand, are to he put in runniug order, and started early in the spring.

Pelican.—We learn from Mr. McCunniff that 100 men are steadily employed in this mine, working in the ground that is not involved in the lawsuit with the Dives.

San Juan District.—*Transcript:* Some 1200 pounds of ore arrived at the Golden smelting works on Saturday, all the way from the San Juan country. This ore was transported on nine "jacks" the entire distance of 350 miles, and will pay well for the cost and trouble of transportation. Part of it from the Hudson, near the forks of the Animas river, gives $360 per ton in silver, and the other part from the Equator, located near the famous Little Giant, will assay well in gold. Both mines will be he developed next spring when good wagon roads will expedite tranaportation.

Montana.

Sampling Works. — *Montanian*, Nov. 26: From inquiries we have gathered the following particulars concerning the sampling works erected last spring by Messrs. Dahler, Armstrong & Co., in the Bryant mining district. During the season jnst closed there was pnrchased at, and shipped from these works, upwards of 400 tons of silver ore, none of which yielded less than 90, and some as high as 1,500 ounces to the ton. In addi ion there were shipped from the Trapper lode 100 tons, which was redneed at Freiburg, Saxony. The Trapper rock was shipped by the First National bank of Helens on advanoe and commission (not purchased as previously stated), about 35 tons going *via* Corinne, and the halance over the Muscleshell ronte. The future of these works depends npon the district to a great extent, and is now full of promise. Several lodes will he worked through the winter, and if the prospects are as inviting in the spring as at present, the proprietors will erect rednotion furnaoes near their other works.

Coln.—Batterton Bros. were still running their Little Giant at Yamhill last week, and cleaned up $1,400. The cold snap this week would probably close the operations—the last on the bar. The mercury dropped down to 20 degrees below zero at the Penitentiary on Wednesday, and to 12 and 14 degrees in towu. So far, this has been the coldest November experienced in Deer Lodge for many years.

Flint Creek Mines.—*New Northwest*, Nov. 17: In common with many others, we have felt a strong interest in the result of the operations of the Flint Creek Ditch and Mining Co., in working the heavy bar on Flint creek. The seasou has passed without demonstrating positively whether it will be successful or not. It was late in the season before the ditch was completed; and then successive delaying breaks occurred deterring work. However, the Giant was finally started, a long cnt rnn to the bar, and quite a large pit opened, cutting through the rim and exposing considerable veins of gold hearing gravel. Having opened this up a cut was started frcm another direction, and some 70 or 80 feet higher than the former, and work prosecuted on this with good results nntil the cold weather stopped the operations. The company have thus pretty thoroughly prospected the bar, are satisfied with the situation, and will turn loose at it in the spriug.

Oregon.

New Discoveries.—Cor. Oregon *Sentinel*, Nov. 28: Having heen spending some time in company with others prospecting the mining country in Josephine county, I take this method to give publicity to some things I have seen. I have seen an immense qnantity of placer mines lying on the hills along Rogue river, from the month of the Applegate to three miles below the month of Galice creek, that would pay handsomely if some company would put in a large ditch from Applegate on the mountains above said hills. There are placer diggings enough here to employ a thousand men for the next 10 years to profit, if scientifically managed.

But the matter that took me into the mines was to see if the great ledge of quartz, discovered three miles below the mouth of Galice creek, was what it is represented to he. But now comes the incredible part that the ledge is over 125 feet wide. I have traced it for over 3 miles, and at different points have found where it is cut with small streams that run through it. It is cased the same as at the river, and on the left hand fork of Rocky Gulch it is wider than it is at the river.

Utah.

Stockton Mines.—Cor. Salt Lake *Tribune*, Dec. 5: A strike was made to-day on Mineral hill, in a new prospect which has not been named, about 400 feet below the Leonore. A body of galena ore was found at a depth of three feet from the surface. The party striking the same was driven off the ground. This, in connection with the strike, has created considerable excitement in mining circles and among prospectors.

The First National is at present working a large force of men under the supervision of W. E. Pratt. The main incline is in 150 feet, showing a well defined vein. They have 25 tons of good high grade ore on the dump, sacked and loose.

The Chicago smelter is running day and night, and to its full capacity, (two stacks) producing sixty tons per day. The dumps of the smelter are piled with thousands of sacks of ore, from the mines of Stockton, Dry canyon and Ophir. It is a very interesting sight to see the number of teams losded daily with bullion, bound for Salt Lake.

The Waterman smelter is not running at present. I presume they are making some necessary repairs. Their mine is constantly shipping ore to the smelter, and they have a large amount in the mine and on their dump.

The Jacob's smelter, it is rumored, will be soon turned loose again. We are sorry so complete a structure shonld be compelled to remain idle while there is so general a demand from miners to have their ores workod, as has been the case this summer.

General News Items.

Gone From our Gaze.—King Kalakus left for the East on Ssturday last, and will spend the coming week hob-nobing with the dignitaries at Washington. The universal verdict seems to be that notwithstanding the compsrative insignificsnce of his power and little island kingdom he nevertheless bore himself, while here, with true dignity—neither putting on nndue importance or letting himself down at all from his proper position. In all the manifestations of respect which were shown him, a propriety and decorum was observed on both sides, which was both agreeable and impressive. It is hoped and believed that he will meet with a similar degree of respect in such Eastern cities as he may think proper to visit, after paying his respects to the head of the nation at Washington.

—"But not Julius Caysar,
Nor Nebuchadnayzar,
Nor no man o' their day, sir, could iver compare,
Wid the Royal attendance
That did just hegin hence
To follow the King wid such anxious care."

Spain ann the Centennial.—The grest Spanish patriot and republican, Castellar, will represent Spain at the coming centennial. It is also rumored that the Prince of Wales will represent England at the ssme time. Many eminent men, whose views and public services make them citizens of the world will visit Philadelphis in 1876.

Wherefore.—It is said that experts sent by Mr. Hayward to examine the Crown Point mine, in which he is a large owner, were refused admiesion under gronnd. It will soon be in order to legislate that owners in mines may have the privilege of receiving their own property under, at least, reasonsble restrictions.

Locomotive engine explosions, which were almost unknown until within the last three or four years, are becoming quite nnpleasantly common. A locomotive exploded near Columhus, Ohio, on Saturday last, seriously injuring the engineer and killing his son, who was acting as fireman.

Nevada Narrow Gauge.—It is now said that the Nevada narrow gauge railroad is a certsinty—the contract is let for its construction and equipment. It runs from Nevada to Colfax. A road from Nevada to Marysville will soon he found a necessity.

Whipping.—They still tie up and whip in public in little Delaware. Eight meu and boys lately suffered that disgraceful puoishment there in the presence of several hundred persons, among whom were several women.

Frogs.—Frederick Dickman, of Virginia City, has discovered a live frog in the center of a tree four feet in diameter. Frogs seem to have a singular disposition to seclusion—to hiding themselves away in trees, turnips and stones. Why is it?

Varieties of Beer.—Four hundred different kinds of Berlin beer were exhibited recently at an international exhibition of beer and brewing interests, held at Hygenian, Alsace.

Luxurious Living.—There are probably 150 families in this city whose expenses are all the way from $20,000 to $40,000 a year. There are several whose expenses reach or exceed fifty thousand.

Great Loss of Life.—Twenty-one lives were lost on the coast of Scotland by a gale which prevailed there during Saturday and Sunday Nov. 28 and 29—nearly simultaneous with the heavy rains on this coast.

Land in New York City.—Peter Cooper, of New York, says that he was once offered a tract of land in New York city for $11,000, which would, to-day, command fifteen millione.

The Trade Dollar.—Mexican dollars are now quoted at a discount and trade dollars at a preminm—a fact which indicates that San Francisco is soon to control the trade in silver with China.

Thirty Lives Lost Near Cuba.—A Spanish coasting steamer ran ashore near Havana (Cuba) on Friday of last week, and immediately sank, with a loss of thirty persons.

Coulin't Stand Defeat.—A young lady at Burlington, Iowa, was so chagrined because she failed to spell the school down that she went and drowned herself.

A Fortune.—It is reported that D. E. Gilbert, of Hollister, has just received information that a fortune of three millions awaits him and five others at Norwich, England. Lucky men.

Absconded.—William Blake, a member of the S. F. stock-board, has left the city for parts unknown with $10,000 of other people's money.

The "Fisk Jr." Estate.—The settlement of this estate shows the amonut of $1,122,240 to he divided among heirs and devisees after paying all debts.

Several suicides and casualties have been reported the past week in various portions of the State. Suioides seem to be alarmingly on the increase.

Fooling Away Time.—It took a Detroit msn five weary months to whittle a broom-handle into a chain.

Wooden Cups are taking the place of glasses for sherry, such being the fashion now-a-days.

Reducing the Price of Gas.—Mr. Malam of Dumfries, has devised a mesne of distilling gas-coal by which he can avail himself of very high temperatures and thereby convert what would otherwise be liquid hydrocarbon compounds into permanent illuminating gas. The Glasgow *Herald* tells us that this gas engineer is able to take from three and a half to four thonsand cnbic feet of illuminating gas out of a ton of coal more than is extracted by any other system of carbonizing coal that is in general practice amongst gas msnagers. By this new system of working he still gets 17 candle gas from Newcastle gas coal, and 28 candle gas from Scotch cannel-coal, while the actnal yield of the marketable commodity is brought np to 11,000 cubic feet per ton in the former case, and to nearly 15,000 cubic feet per ton in the latter. During the year 1873, the Dumfries Gas Lighting company effected a saving of 986 tons of coal, eqnal to 30 per cent. compared with the previous year, under the ordinary method of working.

Fatal Railroad Accident.—A serious and fstal railroad accident occurred on Tnesday morning at Boca station, on the Central Pacific railroad. A freight train was side tracking for the west-bound passenger trsin, when it broke in two, and collided with the passenger, completely demolishing the caboose and one emigrant car, killing two passengers instantly, and badly wounding three others, who are not expected to live; also seriously injuring Conductor Bennett, who was a passenger at the time. He was thrown some sixty feet down the embankment, into a pile of rocks. Quite a number are still missing, snpposed to be in the river, as the emigrant car was thrown down the embankment.

Brutal Assault.—Just after going to press last week a most savage and brutal assault was made upon Mr. Thomas Newcomh of the *Call*, of this city, in the editorial office of that paper. Mr. N. was badly heaten, and the osse might have been a most serious one had not the printers in the adjoining room heard the disturbance and come to his relief. It seems almost a mockery of justice that such a severe and unprovoked assault should be coudoned for $300 in coin. Nothing short of ignominious imprisonment for a term should be the penalty for such an offense. Perhaps, however, the law rather than the jndge was at fault in the matter.

Tragedy at Merced.—A fearful tragedy occurred at Merced on Monday last in which Edward Madden, editor of the Merced *Tribune*, was shot dead by Harry Granice, step son of Mr. Steele, editor of the *Argus*, and son of Mrs. Rowenns Granice Steele. The affair grew out of one of those personal newspaper quarrels, which have become such a disgrace to the newspaper press of California. Public opinion at Merced seems to be very generally in sympathy with the deceased; in other places, where the parties are known it is very much divided.

Horse Racing.—The following advice given to an unsophisticated youth in the Eastern States is peculiarly applicable to this longitude about this time: "Never bet on a horse race, my son. It is wrong to bet, and, hesides, the horse that ought to win is likely, in nine out of ten cases, to he jockeyed to the resr. Do not bet at all, my son; hut, if you bet on horses, get acquainted with the riders in advance of the contest, and see how the thing is coming out."

Coal in Santa Cruz.—The Santa Cruz *Sentinel*, of Dec. 5th, in speaking of the late coal discoveries near Monterey, says: "They have opened out the drift some 40 by 80 feet and will push the work vigoronsly until they have as good a quality of coal in market as any other company. Mr. Sargent ssys they will have a depot in our town soon, where all who desire can obtain it for nse.

City Expenses —Our city fsthers have a bill of $2 000 against the treasury for toting "the king of the Sandwich Islands" ahout town. We say "squelch" that bill, and let those who dance pay the fiddler. Our people are taxed to death in this city, and they in turn tax the country whenever they can.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Dec. 8th, 1874.

For Week Ending Nov. 24th, 1874.*

Bee-Hive. — Peter Ole Peterson, Oakland, Cal.

Machine for Holding and Shearing Sheep.—Ephraim Chaqnette, Independence, Cal.

Implement for Shearing Sheep.—E. Chaquette, Independence, Cal.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

Woodward's Gardens embraces an Aquarium, Museum, Art Gallery, Conservatories, Tropical Houses, Menagerie, Seal Ponds, and Skating Rink. Admission, 25 cents; children, 10 cents.

Quicksilver.

The following item appeared in a recent issus of ths St. Helena (Napa county) *Star*.

"That we've got 'he fever' and got it bad there is no doubt. The St. Helena mining company and a half dozeu mors companies are daily bringing in new and important discoveries. The talk about psy rock, assays, per cent. gold, do. silver, quicksilver and so forth is becoming monotonous. Geutlemen give us less talk and let us see a little more of yonr coin."

That is jnst what is ths matter; too much talk and too little coin. Refsrriog particolarly to the quicksilvsr discovsries being made all over the State, it msy hs safely stated that sbout ons in 20 ever amounts to anything. The miners ars all complaining about the high price of quicksilver, and say that with all the new discoveries it ought to come down to a reasonable figure. If half of the discoveries were what they are represented, it would come down materially, hut unfortunately they are not. A little red rock is'strnck and straightway it is announced that "a new quicksilver ledge has been struck that is gradually widening as it goes down." The reverse seems to be the case with many of them, for they shortly drop ont of sight and are heard of no more.

Cheap quicksilver is one of the greatest needs of the mining community. They loss in workiog ore from one to two pounds per ton which at $1.55 per pound is a very important item even for small mills. With all the new discoveries the supply of this metal has not increased snfficiently to make np for ths deficiency cansed by the dscreased prodnct of the New Almaden mine. The demand is at the eame time very mnch grester than ever before and the price is bigher. Perhaps some 15 or 20 of ths mines discovered within the psst two years are producing metal, bnt by far the larger psrt are mere "prospects" on which more talk than work is done. The writer of thie, last year attempted to collect the statistics of quicksilver prodnction for the year and in tbe conrse of his investigations found that only some 10 or 12 of the qnicksilver mines of tbe State were producing any metal at all. The othere were getting ready or expecting to, hnt had tnrned out nothing.

It is very much to be boped that a few hundred more discoveries will be made so that one ont of 10 of them will be worked and increase the qnicksilver product of the State. Alter all onr talk about immense beds of cinnahar being discovered, it is hnmiliating to think thst we cannot supply the demands of tbe mining States and Territories.

Daily stages are now rnn between Healdsburg and the Geysers, by way of Pine Flat, Illinois city, Mercuryville and the Sonoma, Rattle-snake, Missonri, Oakland, Geyser, Mercnry and Kentuck quicksilver mines, leaving Healdsburg at 5 A. M., and tbe Geysers at 1 P. M.

The town of Panamint is not a favorable place to keen borses. It ie so far into the desert that feed ie amazingly dear. It coste the stage company $25 per day to maintain the team they are obliged to keep there.

Over three million feet of lumber have heen manufactured in Big Cottonwood canyon, Utah, this yesr and nearly the same amonnt in Ogden canyon.

About a mile heyond tbe Silver Bow in Oats canyon, Pope valley, they have struck a ledge of cinnahar eight inches thick.

Several boys are reported to have discovered rich gold diggings forty miles east of Sslt Lake.

The Crown Point mining company dishnrsed tbe following amounts one day last week: Pay roll for mine $89,700; psy roll for mills $3,560. Total, $93,260.

Bullion to tbe amonnt of $56,000 was shipped from Silver City through Wells, Eargo & Co.'s office during the month of November.

The Anaheim railroad is now finished to within 11 miles of that town, and will be completed by Christmas.

Miners throughout the State are preparing for a brisk season.

They are talking of another smelting establishment in Sacrsmento.

Santa Cruz will soon be supplied with Monterey coal.

Why Is It Popular?—Ask any fair minded physicial or any family in which it has been used, ask the whoin Drug trade, why *Hale's Honey of Horehound and Tar* ie so popular. The answer will he that the cures of ins veterate coughs, which it is everywhere effecting, are the topics of conversation in every city, town and village in the United States. Its enormous and constantly increasing sales are based upon the grend fact, notorious throughout the whole country, that it controls and masters every disease leading to consumption.

Pike's Tooth-Ache Drops—Cure in one minute.

Any Person receiving this paper after giving an order to stop it, may know that such order has failed to reach us, or that the paper is continued inadvertently, and they are earnestly requested to send written notice direct to us. We aim to stop the paper promptly when it is ordered discontinned. tf

METALS.

Wednesday M., Dec. 9, 1874.

American Pig Iron, ₱ ton	—	@	46 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig, ₱ ton	—	@	46 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ lb	—	@	4½
Refined Bar, good assortment, ₱ lb	—	@	4½
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 8	—	@	5½
Sheet, No. 10 to 14	—	@	5½
Sheet, No. 14 to 20	—	@	5¾
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	—	9¾	@ —
Norway Iron	—	8	@ —
Rolled Iron	—	6	@ —
Other Irons for Blacksmiths, Miners, etc.	—	@	— 4½
COPPER.—			
Braziers'	—	31	@ — 32
Copper Tire'd	—	45	@ —
O. Nail's Pat	—	50	@ —
Sheathing, ₱ lb	—	—	@ — 24
Sheathing, Yellow	—	—	@ — 25
Sheathing, Old Yellow	—	—	@ — 12½
Composition Nails	—	24	@ —
Composition Bolts	—	24	@ —
TIN PLATES.—			
Plates, Charcoal, 1X ₱ box	13 00	@	15 00
Plates, 1 C Charcoal	13 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ lb	—	32½	@ — 33
STEEL.—English Cast, ₱ lb	—	20	@ — 25
Anderson & Woods' American Cast	—	—	@ — 16½
Drill	—	—	@ — 16½
Flat Bar	—	18	@ — 22
Plough Steel	—	8 50	@ 10 00
ZINC	—	—	@ — 11
Zinc, Sheet	—	—	@ — 11½
NAILS—Assorted sizes	4 25	@	8 00
QUICKSILVER, per lb	—	@	1 55

GENERAL MERCHANDISE.

Wednesday M., Dec. 9, 1874.

BAGS.			
Eng. Stand Wht	—	@	12
Detrick's Machine Sewed, 22x36 lb	12	—	@ 12½
do 22x36, do E W	—	@	13½
do 20x40, do A	—	@	13½
Flour Sacks ½s	9½	@	11½
" ¼s	6	—	@ 7
Stand. Gunnies, double seam	13	@	14
single seam	13¾	@	14
Wool Sacks	60	@	67½
Barley Bags 24x36	13	@	14
do 22x40	—	@	14½
do 24x40	—	@	15
do 29x36	—	@	16
Oat Bags, 24x40	16	@	16½
do 20x36	—	@	17
Hessian 40-in. grds	9½	@	9¾
do 45	10¾	@	11
do 60	—	@	16
CANNED GOODS.			
Asst'd Pic kls and Sauces in 2½ lb cans	2 50	@	2 75
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	—	@	3 50
Sardines, qr box	1 80	@	—
do hf boxes	3 20	@	—
COAL—Jobbing.			
Australian, ₱ ton	10 50	@	12 50
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	—	@ 11—
Cumberl'd, cks	—	—	@ 18 00
do bulk	16 00	@	17 50
Mt. Diablo	6 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 50
West Hartley	—	@	14 00
Scotch	10 00	@	11 00
Scranton	—	@	13 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ sk	75	@	—
Coke, ₱ bbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Central Americ'n	20	@	22
Costa Rica per lb	23	@	24
Guatemala	20	@	22
Java	—	@	26½
Manilla	19	@	20
Ground in cs	—	@	27
Chicory	9	@	10
FISH.			
Pac. Dry Cod, new	5	@	6
cases	6	@	7
do boneless	11	@	12
Eastern Cod	8	@	8½
Salmon in bbls	9 00	@	9 50
do ½ bbls	5 00	@	5 50
do 2½ lb cans	—	@	2 80
do 2 lb cans	2 65	@	2 75
do 1 lb cans	1 75	@	—
Do Col. R. ½ lb	—	@	12 00
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No. 1, ½ bbls	9 00	@	11 00
" Extra	—	@	12 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess. ½ bbls	—	@	13 00
Pic'd Herr'g, bx	3 00	@	3 50
NAILS.			
Assorted size, ₱ lb	5 37½	@	7 50
OILS.			
Pacific Glue Co. Neat P't No. 1	—	@	90
Pure	—	@	—
Castor Oil, No. 1	—	@	25
do do No. 2	—	@	12½
Cocoannt	1 47½	@	1 50
Olive Plagniol	—	@	—
do Possol	—	@	—
Palm lb	9	@	—
Linseed, raw	—	@	05
do boiled	—	@	10
China nut, in cs	77½	@	82½
Sperm, crude	—	@	40
do bleached	1 90	@	2 25
Coast Whalee	45	@	—
Polar, refined	50	@	52½
Lard	1 15	@	1 30
Coal, refined Pet	37½	@	—
Oleophine	21	@	24
Devoe's Bril't	25	@	28
Long Island	21	@	24
Eureka	—	@	—
Devoe's Petro'm	21	@	24
Barrel kerosene	21	@	24
Olive	4 20	@	9 25
Downar Kerose'e	—	@	37
Gas Light Oil	—	@	26
PAINTS.			
Atlan. W. Lead	6	@	10
Whiting	—	@	2
Putty	4	@	5¾
Oheik	—	@	2½
Paris White	2¾	@	—
Ochre	2	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ₱ lb	6½	@	6¾
do 2, do	5¾	@	6
Japan	6	@	7
Rice Cleaned	7	@	—
Patna	6	@	6½
Hawaiian	7¼	@	8
Carolina	10	@	10½
SALT.			
Sal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	24 00
do coarse	16 00	@	—
SOAP.			
Castile ₱ lb	10	@	11
Local brands	5	@	8
SPICES.			
Cloves	50	@	55
Cassia	26	@	27
Citron	33	@	35
Nutmegs	1 20	@	1 30
Whole Pepper	21	@	22
Pimento	—	@	15½
Gr'nd Alisp'rd	—	@	12½
do Cassia do	—	@	50
do Cloves do	—	@	50
do Mustard do	—	@	20
do Ginger do	—	@	90
do Pepper do	—	@	1 00
do Mace do	—	@	2 00
SUGAR, ETC.			
Cal. Cube per lb	11	@	—
Partz' Pro. Cube hhl or 100 lb bxs	—	@	11¾
do in 50 lb bxs	—	@	12
do in 25 lb bxs	—	@	12¼
Circle A crushed	—	@	11½
Powdered	—	@	11
Granulated	—	@	11½
Dry granniated	—	@	17½
Golden C	—	@	10¾
Hawaiian	8	@	11½
California Beet	10¾	@	11½
Cal. Syrup in bla	—	@	60¾
do in ½ bls	—	@	70
do in kegs	—	@	75
Hawaiian Molasses	25	@	30
TEA.			
Oolong, Canton, lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	1 00
Gunpo'der, Cant	30	@	42½
do Pingsuey	50	@	90
do Moyune	65	@	1 25
Y'ng Hy., Canton	28	@	40
do Pingsuey	40	@	70
do Moyune	65	@	85
Japan, ½ chests, bulk	30	@	75
Japan, lacquered bxs, ½s and 5 lbs	45	@	67
Japan do, 3 lb bxs	45	@	90
do pl'n bx, ½ lb	35	@	65
do ½ & 1 lb paper	30	@	55
TOBACCO—Jobbing.			
Bright Navys	—	@	50
Dark do	50	@	55
Dwarf Twist	70	@	72½
Light Pressed	70	@	90
Hard do	50	@	60
Conn. Wrap'r	35	@	40
Penn. Wrapper	20	@	45
Ohio do	15	@	20
Virg'a Smok'g	44	@	75
Fine ct che'g, gr	8 50	@	9 25
Fine cut chewing, hue'a, ₱ lb	75	@	90
Banner fine cnt	9 00	@	9 25
Eureka Cala	—	@	9 00
TURPENTINE.			
Eastern	55	@	60

LEATHER.

Wednesday M., Dec. 9, 1874.

City Tanned Leather, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@29
Country Leather, ₱ lb			24@28
Stockton Leather, ₱ lb			25@29
Jodot, 8 Kil., per doz	50	00@	54 00
Jodot, 11 to 19 Kil., per doz	66	00@	90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55	00@	72 00
Cornellian, 12 to 16 Ko	57	00@	67 00
Cornellian Females, 12 to 13	62	00@	67 00
Cornellian Females, 14 to 16 Kil	71	00@	76 50
Simon Ulimo Females, 12 to 13, Kil	60	00@	63 00
Simon Ulimo Females, 14 to 15, Kil	10	00@	72 00
Simon Ulimo Females, 16 to 17, Kil	73	00@	75 00
Simon, 18 Kil. ₱ doz	61	00@	68 00
Simon, 20 Kil. ₱ doz	65	00@	67 00
Simon, 24 Kil. ₱ doz	72	00@	74 00
Robert Calf, 7 and 9 Kil	35	00@	40 00
French Kips, ₱ lb	1	00@	1 75
California Kip, ₱ doz	40	00@	6 —
French Sheep, all colors, ₱ doz	8	00@	15 00
Eastern Calf for Backs, ₱ lb	1	00@	1 25
Sheep Roans for Topping, all colors, ₱ doz	3	00@	13 00
Sheep Roans for Linngs, ₱ doz	5	50@	10 50
California Russett Sheep Linings	1	75@	4 50
Best Jodot Calf Boot Legs, ₱ pair	5	00@	5 25
Good French Calf Boot Legs, ₱ pair	4	00@	4 75
French Calf Boot Legs, ₱ pair	4	00@	— —
Harness Leather, ₱ lb		30@	37½
Fair Bridle Leather, ₱ doz	48	00@	72 00
Skirting Leather, ₱ lb		33@	37½
Welt Leather, ₱ doz	30	00@	50 00
Buff Leather, ₱ foot		17@	—
Wax Side Leather, ₱ foot		17@	—
Eastern Wax Leather		—@	—

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Started in 1860, is one of the oldest weekly journals now published in San Francisco. It has been conducted by its present proprietors for ten years, during which period it has been repeatedly enlarged and constantly improved. The active and steadfast efforts of its publishers have gained for its conduct an amount of practical experience greater than any other pnolishere hava accumulated on this coast, of a weekly journal.

The sum paid by us for the best editorial talent obtainabla for our special class journal; for engravings, for interesting news and correspondence, and for printing a large-sized, handsome sheet, is unequalled by that of any other American weekly west of the Mississippi.

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Mining and Other Companies.

Electric Mnining Company—Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 23th day of November, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States Gold coin, to the Secretary, at the office of the Company, in San Francisco.

Any stock upon which this assessment shall remain unpaid on the fourth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payments made before, will be sold on Monday the 25th day of January, 1875, to pay the delinquent assesment, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.

Office—Room 13, No. 318 California street, San Francisco, Cal.

"Golden Rule" Silver Mining Company—

Principal place of business, San Francisco, California. Location of works, Ophir Mining District, Utah Territory.

Notice Is hereby given, that at a meeting of the Board of Directors, held on the 8th day of Decemher, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin to the Secretary, No. 530 Clay street, San Francisco, California.

Any stock upon which this a sessment shall remain unpaid on the fifteenth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment he made before, will be sold on Monday, the fifteenth day of January, 1875, to pay the delinquent assesment, together with costs of advertising and expenses of sale.

K. WERTHEIMER, Secretary.

Office, 530 Clay street, San Francisco, Cal.

Notice.---The Annual Meeting of the

Stockholders of the Theresa Mill and Mining Company for the purpose of electing Trustees for the ensning year, and for such other busine-s as may legally come before the meeting, will he held at the office of the Company, 408 Califoruia street, room 16, San Francisco, Cal., on Thursday, the 17th day of December, 1874, at 2 o'clock, P. M.

Transfer hooks will he closed on Tuesday, the 15th inst, at 3 o'clock, P. M.

dec12-1t J. W TRIPP, Secretary.

Land Purchaser's Association— Office

No. 331 Montgomery street, room 7, San Francisco, California.

Notice.—There are delinqnent npon the following described stock, on acconnt of assessment, (installment No. 42) levied on the 28th day of October, 1874, tha several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John A Callison	20	1	$10 00
D S Hutchinson	65	1	10 00
M A Hutchinson	105	1	10 00
Otis Jackson	180	2	20 00
W E Mayhew	205	3	30 00
Mrs N McCarty	147	1	10 00

And in accordance with law, and an order of the Board of Directore, made on the 28th day of October, 1874, so many shares of each parcel of said Stock as may be necessary, will he sold at public auction at the office of the Secretary, 331 Montgomery street, room 7, San Francisco, California, on Thursday, the 24th day of December, 1874, at the hour of 12 o'clock, M., of said day, to paysaid delinquent assessment thereon, together with costs of advertising and expenses of the sale.

C. S. WRIGHT, Secretary.

Mansfield Gold Mining Company—In

accordance with a resolution adop ed at a meeting of the Board of Directors of the Mansfield Gold Mining Company, held this day, a special me ting of the stockholde s of said company is hereby called, to be held at the office of said company, in San Francisco, No. 531 California street, room 1, on Monday, the 21st day of Decamber, 1874, at 1 o'clock P. M., to take into consideration and act upon the proposition to increase the capital stock of said company from nine hundred and ninety thousand dollars, divided into thirty-three thousand shares, of the par value of thirty dollars each, to on million, nine hundred and eighty thousand dollars, divided into sixty-six thousand shares, of the par value of thirty dollars each. Also for the transaction of any other business that may properly come before the meeting.

R. COULSON, President.
J. HISHFELD,
J. E. HILL,
F. W. VOLL,
J. L. SMITH
} Directors.

San Francisco, Nov. 20, 1874. no28-4t

Martin and Walling Mill and Mining Com-

pany Principal place of business, San Francisco, Cal. Location of works, Coulterville District, Mariposa County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 7th day of December, 1874, an assessment (No. 1) of fifty (50) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company in San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 8th day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Saturday, the 23d day of January, 1875, to pay the delinquent assessment together with costs of advertising and expenses of sale.

J. W. TRIPP, Secretary.

Office.—Room 6, 408 California street, San Francisco.

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, Cal. Location of Works, Julian Mining District, San Diego County, Cal.

Notice—There are delinquent upon the following described stock, on account of assessment, (No 3.) levied on the second day of November, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Joseph Storey	1	10	$10 00
J O Lytle	2	10	10 00
A Pauly & Sons	4	10	10 00
Jas D Lynch	22	10	10 00
W R De Frees	23	300	300 00
W R De Frees	50	150	150 00

And in accordance with law, and an order of the Board of Directors, made on the second day of November, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by the Secretary at the office of the Company, Room No. 4, Hayward's Building, 419 California street, San Francisco, on Monday, the 28th day of December, 1874, at the hour of one o'clock, P. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

FRANK SWIFT, Secretary.

Office, 419 California street, San Francisco, Cal.

Orleans Mining Company—Location of

principal place of business, San Francisco, California. Location of works, Grass Valley Township, Nevada County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 16th day of October, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Charles Platt	9	59	$59 00
Silas C. Hay	10	59	59 00
William G. Grant	11	119	119 00

And in accordance with law, and an order of tha Board of Trustees, made on the 16th day of October, 1874, so many shares of each parcel of such stock as may be necessary will be sold at public auction, at the office of the company, room 8, No. 315 California street, San Francisco, California, on Tuesday, the 15th day of December, 1874, at the hour of one o'clock P. M., of such day, to pay said delinquent assesment thereon, together with costs of advertising and expenses of sale.

J. F. NESMITH, Secretary.

Office—Room 8, No. 315 California street, San Francisco, Cal. no28-2t

Theresa Mill and Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Coulterville District, Mariposa county, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the twenty-fifth (25th) day of November, 1874, an assessment (No. 1) of fifty (50) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, room 16, 408 California street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on Wednesday the thirtieth (30th) day of December 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 15th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale. J. W. TRIPP, Secretary.

Office, Room 16, 408 California street, San Francisco, Cal

Virginia Consolidated Mining Company.

In accordance with a resolution adopted at a meeting of the Board of Directors of the Virginia Consolidated Mining Company held this day, a special meeting of the Stockholders of said Company is hereby called, the same to to he held at the office of the Company in San Francisco, No. 318 California street, Room 13, on Monday the 21st day of December, 1874, at 2 o'clock P. M., to take into consideration and decida upon the proposition to increase the capital stock of said company from three million dollars, divided into thirty thousand shares of the par value of one hundred dollers each, (the present capital stock,) to six million dollars, divided into sixty thousand shares of the par valua of one hundred dollars each. Also, for the transaction of any other business that may properly come before the meeting. By order of the Board of Directors.

EUG. CHENOT,
ROBT. P. CHASE,
A. F. BENARD.
} Directors.

San Francisco, November 12, 1874. 21v29-4t

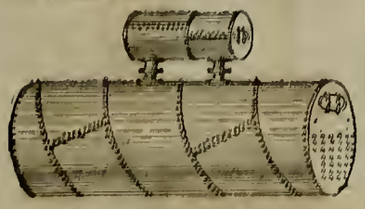
Iron and Machine Works.

San Francisco Boiler Works,

120 and 125 Beale Street.....SAN FRANCISCO

D. I. OURRY,

(Late Foreman of the Vulcan Iron Works,) Proprietor



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	James D. Walker,	

WM. H. TAYLOR.....President
JOSEPH MOORE.....Vice-President and Superintendent
LEWIS K. MEAD.....Secretary
24v11-ly

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All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

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Sacramento.

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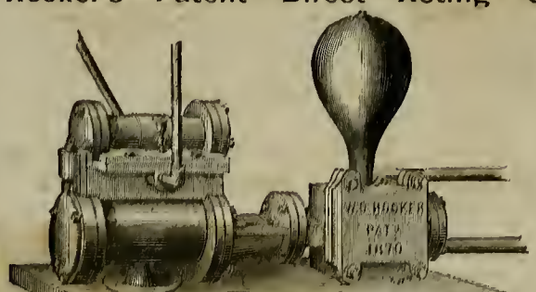

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SIMPLE, CHEAP AND DURABLE.

Adapted for all purposes for which Steam Pumps are used.

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IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the Stephens Rolling Pan and Cochituate Grate Bars, suitable for Burning Sawdust.

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MANUFACTURERS OF ALL KINDS OF

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BIRCH, ARGALL & CO.,

Builders of QUARTZ, SAW AND FLOUR MILLS.

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THE ECONOMY HYDRAULIC HOIST FOR STORES, And General Machinists. 25v26-3m

CALIFORNIA BRASS FOUNDRY,

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All kinds of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bolts and Gauges of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with Repairs on short notice. PRICES MODERATE.

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Marysville Foundry,

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PRESCOTT & ECKART,

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Manufacturer of Flour and Saw Mills, Stationary and Portable Steam Engines, Pumps, etc. Boilers built and repaired, and all kinds of Iron and Brass Castings furnished at short notice. 19v25-3m

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LIGHT AND HEAVY CASTINGS,

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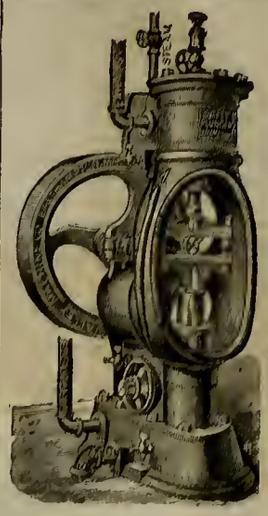

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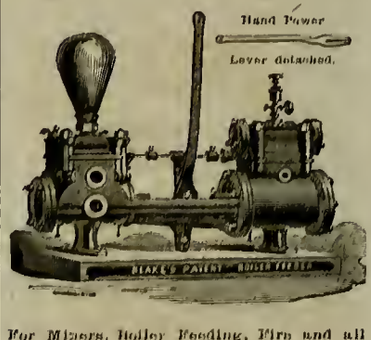

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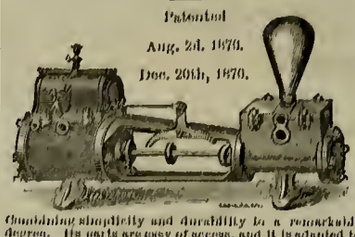

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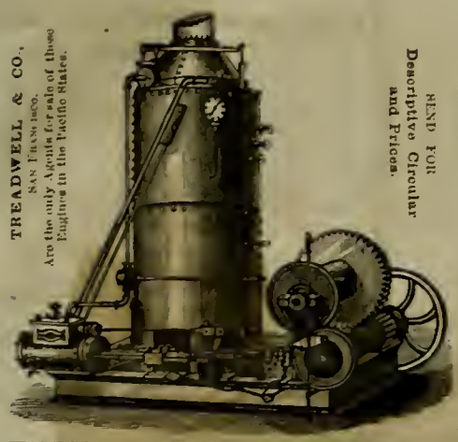

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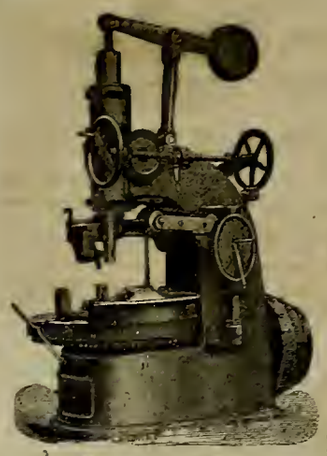

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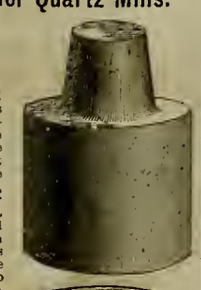

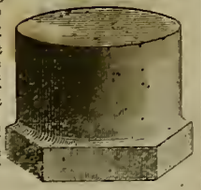

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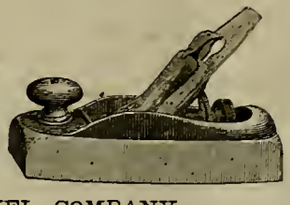

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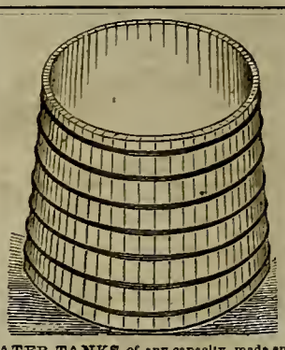

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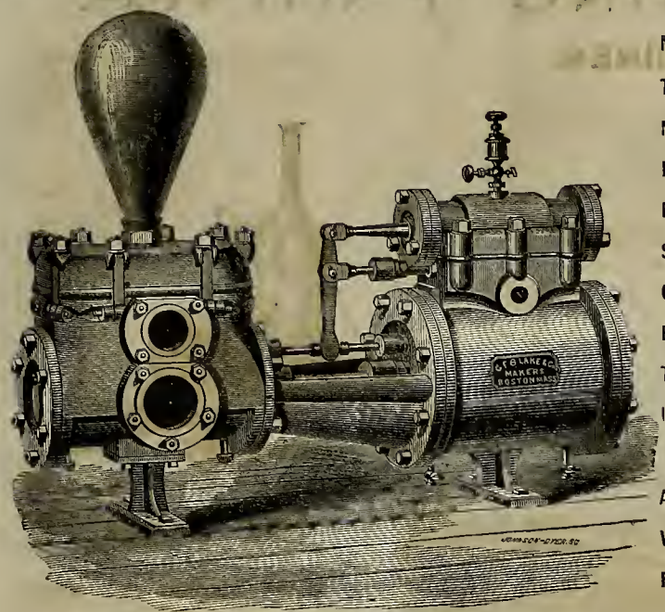

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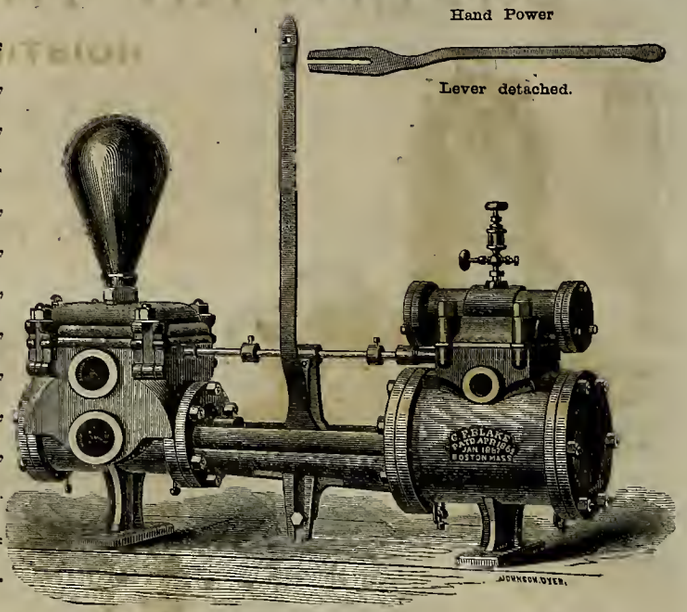

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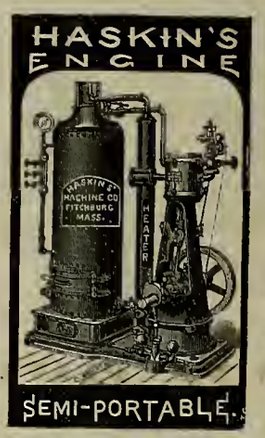

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SAN FRANCISCO, SATURDAY, DECEMBER 19, 1874.

VOLUME XXIX Number 25.

Hydraulic Mining in California.*

No. 4.

Blue Cement.

There are exceptions, however, to this condition. We find this deposit sometimes changed into the hardest kind of blue cement, yielding only to the constant application of drill and powder. This cement is generally very rich, but has to be submitted to a crushing process in mills, similar to quartz mills. In such cases the hydraulic process can therefore only be applied till this blue cement is encountered, but it produces a double benefit, extracting not only the gold from the upper strata, but also freeing the blue cement from all incumbrences, and making thus its breaking up a comperatively easy matter.

Rotten Bowlders.

Next to the blue lead or cement a yellowish or reddish gravel is found, generally very rich. It is known in some localities under the name of rotten bowlders, and is composed of quartz, gravel, and bowlders of cley-slate. This deposit is from 5 to 25 feet in thickness, in some localities even thicker. It is rather soft and easily worked, and consequently excellent material for the "hydraulic."

Upper Gravel.

The blue lead and yellow grevel, or rotten bowlders, next to it, are the principal gold bearing strata; still, the deposits of quartz, gravel, and sand overlying these in huge masses, contain fine particles of gold, known as flour gold, in sufficient quantities to make the working of these upper strata sometimes very remunerative.

These different deposits gain their full characteristics only toward the deeper and more level portions of the channel or basin, and are less pronounced toward the sloping river or shore.

Quicksand.

As on the bars of the present rivers, great bodies of sand are found on the sloping rimrock, which, under the influence of water, become quicksand and form the greatest obstacles to the sinking of shafts or inclines, whenever found. This sand seems to be nothing but crushed quartz, and yields in many instances small particles of gold. In hydraulic mining it is rather an advantage, as it offers no resistance to a stream of water and facilitates the caving of any superincumbent strata.

Iron Cement.

Small streaks of a very hard, brownish cement, generally called iron cement, from one to two inches thick, may separate the different gravel deposits mentioned above. These cement streaks are easily crushed by the falling hank or a blow of the sledge, and thus disposed of.

Pipe-clay.

In almost all deep gravel deposits a sedimentary deposit is found, which is known under the name of pipe-clay. This deposit is generally found in huge masses near the rim-rock or shore of our deep gravel streams, and is evidently the sediment of immense bodies of muddy water. Fortunately that substance, which has really the characteristics of clay, and deserves its name, is very rare in our mines and only occurs in small layers. Even thus, it is troublesome and hard to dispose of, as water will not dissolve it, but turns it into a pasty, tough substance, yielding only reluctantly to the pick.

These mud-deposits, however, known as pipe-clay, or joint clay, break under the shock of a blast into fine pieces, dissolve in water, and have generally a worse name than they deserve. Their position is always close to the rim-rock and their bulk disappears toward the deeper and more valuable parts of the gravel deposit. To account for these facts it will be necessary to look into the origin of this so-called pipe-clay. It must be evident that the immense gravel channels of California were filled by periodical floods, occurring through the long ages; furthermore, that from time to time, and particularly when the rush of waters temporarily had lessened or almost subsided, great blockades in the ancient channels took place, keeping the remaining waters back and thus forming lakes. During such temporary intervals bodies of mud could settle upon the underlying gravel, and, reaching from shore to shore, form in time the deposits called pipe-clay, or joint clay. Any succeeding flood, carrying with it masses of gravel, sand, etc., would necessarily make a new channel in this mud deposit, destroying the middle portions of it, but leaving both shores comparatively intact. This explains the occurrence, near the shores, of masses of pipe-clay, which, as experience has shown, almost disappear deeper in the channel.

*Condensed from an article by Charles Waldeyer, in the last Annual Report of the U. S. Commissioner of Mining Statistics.

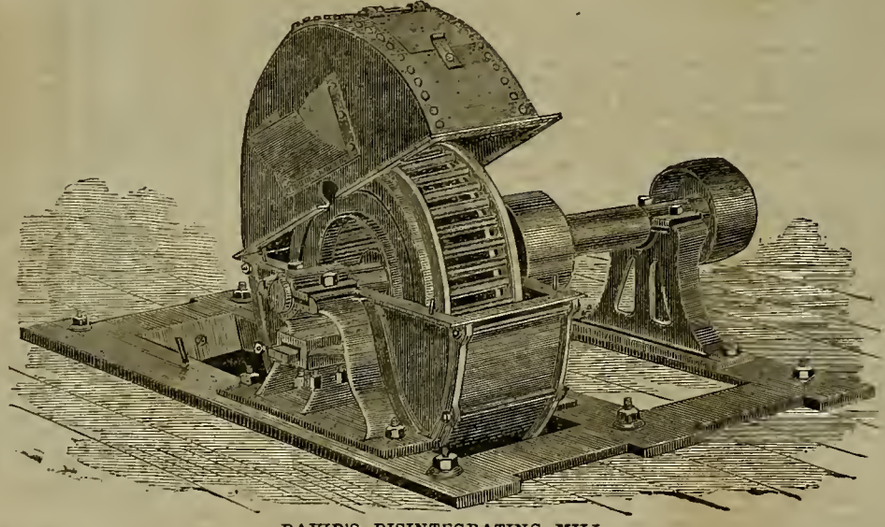
Consolidated Virginia. — The *News*, in speaking of the recent ore development in the Consolidated Virginia mine, says: Three crosscuts have been made in the ore to the eastward, at intervals of 100 feet. The southermost drift has reached the east wall. The ore at this point is 150 feet in width, and of a very superior quality. The next cross-cut, 100 feet further north, is extended 205 feet in ore of a much better quality than exists in the first mentioned drift. The distance estimated from the new survey of Mr. James, to the east clay wall in the course of this cross-drift, is 55 feet. It is expected to reach the wall in about two weeks from the present time. The third, or northwest crosscut, 14 feet distant from the north boundary of the mine, is in ore for a length of 39 feet. This ore is of a quality exceeding in richness any found in either of the other cross-drifts, or in any other part of the mine. All of the mining experts who have examined the ore in this drift, agree in pronouncing it the finest development ever made on the Comstock lode. The distance across the ore body at this point cannot be less than 280 feet. The appearence of the vein favors the belief that the ore will continue equally good for this entire width.

Borax.—Mr. Engelke, who has charge of Griffing & Wymen's borax works, situated between Columbus and Fish Lake, has concentrated or manufactured something over thirty-four tons of borax crystals during the month of November. It is understood that some additional works are to be built, designed to utilize the borate of lime, which rather preponderates over the borate of soda in that vicinity.

Major R. P. Hammond has been appointed general manager of the Central Pacific Division of the Atlantic and Pacific Telegraph company.

David's Disintegrating Mill.

The David mill or disintegrator proper consists of several cylindrical cages formed of round bars secured to disks and annular rings, one inside the other, and made to revolve in opposite directions, but presenting no scrubbing or grinding action. The materials to be disintegrated are received into the inner cage, and by the rapid revolving of the cages a centrifugal force is created that instantly projects the materials through the cages; disintegrating them by a system of free blows, from which no friction ensues. At this time—less than four years since the makers commenced offering the mill to the public—fully $150,000 worth of the mills have been put in successful operation, and the very fast growing demand for the mills indicates that several of the largest machine works may soon be exclusively engaged in their manufacture. This being the view of the patentee, Messrs. Denmead & Son, the makers, are about to offer the territory on our side of the mountains for sale.



DAVID'S DISINTEGRATING MILL.

A large number of the mills are used as herein mentioned, and many have purchased who are unwilling to disclose their use, but for disintegrating or pulverizing the following named materials: Peruvian guano, alone and mixed with other materials; South Caroline Phosphates, do.; merchantable steamed, boiled, and hard bones; slaughter house tankage, iron and other ores, cone ash, salt cake, carbonated soda, cracklings, coal, coke, oyster shells, clay for fire and building brick, fish from which the oil has been compressed, animal matter in almost all conditions, cement, concrete, peat, zinc ores, rock asphalt; also, for mixing cement, morter, sugars, etc. We are informed by the manufacturer that many of the small or 3-feet mills are grinding one ton of iron ore per hour, and many of them are grinding and preparing clay for 35,000 bricks per day each.

Very small mills are being prepared for grinding corn, etc., for feed. A 3-foot ordinary cley or bone mill will grind 120 bushels of corn per hour. Parties desiring information concerning these mills or patent rights may address Desmead & Son, Baltimore, Md.

Griffith's granite quarries, at Penryn, have become one of the most important institutions of Placer county. Polishing works are being erected, and tombstones of splendid quality will soon be manufactured. One hundred men are employed and large amounts of stone are being taken out.

An oil-cloth factory has been established in this city.

Next Year's Bullion Product.

Although the figures for the bullion product of this year have not yet been compiled, we are beginning to think already of the possible bullion product of 1875. Dr. Linderman, Director of the Mint, has been inquiring as to the probable productions of gold and silver during the coming year, with a view of regulating coinage. He announces as the result that from the Comstock lode alone a yield of forty millions is anticipated; that its production will, apparently, be only limited by milling facilities during the next two years. A part of the mixed bullion from Nevada will have to be refined at the Assayer's office, New York, the refining capacity of the Pacific Coast not being sufficient, and, therefore, arrangements will be made for that purpose.

What people will think of this statement who labor under the delusion that mining is played out on this coast, we do not know. The bullion production, as a whole, has been steadily increasing of late years. Nevada now heads the list, the Comstock lode turning out enormous quantities of gold and silver. We have a new and magnificent mint in this city which has as much as it wants to do to turn the bullion into coin, and as Dr. Linderman says the refining capacity of the coast is yet insufficient. In *three* days last week the mint in this city coined $1,600,000, the largest amount of coinage ever run in the same period. During November the refining works deposited at the mint $1,925,838 in refined gold. The mint at Carson coined last month $462,069. These figures convey some idea of what is being done now, and will without doubt be greatly increased next year.

In fact our mining is just beginning on this coast, and particularly in California. Thousands of quartz mines will be opened in this State within the next few years which will add their quota to the bullion product. The gravel mines are doing excellently and hundreds of new ones are being opened. Water is being brought to new areas of ground which will materially aid the bullion product. Altogether the mining interests are in a very prosperous condition all over the coast.

Trouble over Quicksilver Mines. — Advices from Santa Barbara mines state that a body of armed men have taken forcible possession of the Los Prietos quicksilver mines, situated in the Nojalayegna mining district. The parties claim a previous title to the mines, and express their determination to hold the same until the matter can be properly brought before the Courts. All work has been suspended, but no trouble is anticipated. The parties claiming the mines have put up a notice warning all persons against trespassing on the lands, cutting down timber, working in the mines, or otherwise destroying the property belonging to the Santa Barbara Quicksilver Mining company.

Black Hills.—Trouble has already begun in the Black Hills in consequence of miners going there in search of gold, in disobedience of Government orders. Dispatches state that the Indians have been defending their territory, and the result was a fight between a prospecting party and the savages. Two white men and ten Indians were killed, with nearly everybody else concerned badly wounded. Another party of miners have not been heard from since entering the debatable ground.

Moab Quicksilver.—It is reported that a Mexican from the New Almaden mines has discovered a rich vein of cinnabar on Six Mile creek, between Murphy's Camp and Angels, Calaveras county.

The Jacobs mill—the first at Panamint—commenced operations on Monday.

CORRESPONDENCE.

Tybo District---Its Mines and Mining Resources---A Glance at the Neighboring Districts.

EDITORS PRESS.—In pursusnce of a long entertained desire to visit tho district whose name forms in part the caption to this article, I jumped upon Belle's Tybo stsge at Eureka, on Thankegiving day, Thnrsday, the 26th ultimo, and was sgreeahly surprised to find myself, at 10 o'clock the followiug morning, slighting from it, tired and weary, in front of N. S. Trowbridge'e store, in the immediate vicinity of the company's works, Lower Tybo.

The dietance between Eureka and this point is usually reckoned at 100 miles. The rosd, with the exception of the first ten miles outside of Eureka, is in good condition indeed, when ths season of the year is considercd. The stage line is a new enterprise, inaugurated last May by Mr. Bell. Tbe dietauce between the aforessid points is usually accomplished in sbout 24 hours, in which is included tbe stoppages to chsnge and the time consumed in the delivery of the U. S. mail at

Morey.

Thie latter place is a mining camp of some pretensions. It lies emhosomed in the hills, four miles due west of the stage ronte, and is about 65 miles south from Eureka, and 35 miles north of Tybo. Tbe Morey company, to whom belongs the most of the mines in that camp, have a 20-stamp mill in constant operaiion upon ore supplied by ite own mines, and it ships its silver hars, via Eureka, to New York, where the majority of its stockholders reside. This hss been a paying concern from its inception upwards, and tbe cbances are that the future developments will give smple attestation of tbe enhanced value of the property. The ore is, I believe, free milling, and carries not more than one or two per cent. of lead, which doee not interfere in the least with its being freely and profitably worked. This is a valuable property, snd fully demonstrates the sagacity of tboee who have invested their money in it.

Rattlesnaks Canon,

Seven milee north of this camp, in the Hot Creek range of mountains, is the next place of note that we come to outside of here. This place was discovered and located a few years since, and some of its veins have been worked with considerable profit from that up to tbe present time. The veins are true fissure in character, snd sre small but extremely rich. Owing to there being no mill on the ground, the miners have been compelled to ehip their ores to eitber Belmont or Morey for reduction, hut principally to the former place. This they could very well afford to do with the rich ore at tbeir disposal. Tbese mines are directly north of and in a direct line with the Tybo compsny's property, and I have no doubt hut they are a continuation of the same veins ruuniug north.

Now we turn to the south-east from here, and trsvel the stage road 35 miles, to the old and well-known town of

Belmont.

Mr. Bell hss also established a semi-weekly stage line between this camp snd tbe former, thus affording facilities of travel not heretofore enjoyed by the public. Belmout is too well known and appreciated, ss a reliable bullion producing camp, to need mucb praise or decription at my hsnds. I will, however, say thst st no time since the discovery and location of the Belmont Mining District, has there beeu a better prospect for permanency and prosperity preeented to its inhsbitants thsn there is at tbe present moment. Tbe yield of the precious metsls promises to be unusually large in the future. Tbis is tbe unqualified opinion of the old practical miners of the camp, who know aud underetsnd what they give utterance to. The Belmont property, with its 6,000 feet of ledge, whicb averages seven feet wide, and yields from one hundred dollsrs per ton away into the thousands, is, in iteelf, sufficient to maintain the camp and afford work to hundreds of miners the year round. In a few months hence this valuable mine will he opened from end to end throughout ite full extent, with new and substantial hoistiug works erected at the extremities of the lode, over newly sunk perpendicular shafts. Tbese improvements will considerably enhance the value of the miue, and will place it besides in a condition to work with esse a large force of men. Next comes the Monitor-Belmont and El Dorado South, and several others whoee prospects are equally brigbt. The two lsst named incorporations have extracted from tbeir ground immensely rich ores, and in considerable quantities. Tbe Belmont company hss been working shorthanded for some time past, opening levels, etc., but I am credibly informed by those wbo ought to know, that over 100 men will be employed witbin the next two weeks, with a view to push forward, with the utmost dispatch, the projected developments.

Traveliug nortbweet the next place of importanoe wbich we enter is

Jefferson Canon,

A newly discovered district, which hids fsir to rival in extent snd wealth some of its sister districts. It is distant from Tybo district over a very good rosd, 45 miles, and it slresdy boasts of two new ten-stamp mills, lately erected by some of its public spirited citizens. One of tbese mills is now running upon ore from the Prussian miue. The yield is commensurate with the hope of its owners. The Prussian, North and South, are two of its principal mines, though there are quite a number of others in process of development, which promise equslly hig results accruing from them to their lucky owners. The rock is a fine free milliug quartz, found in veins from two and a half to four feet wide, encased beween well-defiued foot and haugiug walls. One noticeable feature observable in connection with the majority of tbe mines of the csmps located to the south of Eureka is, that the veins sre well defined and distinct in outline, snd that they invariably tend northwest and southeast, and maintain a perfect uniformity throughout their entire length. Tbere are, of course, occasional breaks to be met with, but these, as every practicsl miner full well knows, are unavoidable aud of frequent occnrrence in the best developed mines. Even the Comstock, well defined though it is, ie not entirely free from the evidences of the throes aud eccentricities of old mother Nature.

Having now glanced at a few of the adjacent mining districts whose leading features and excellencies I have tried to point out in the foregoing desultory remarks, I will retrace my wandering steps and bestow a few thoughts upon

Tybo, its Minss and Minsral Resources,

Considered from a mining standpoint, by oue whose chief aim it is to promulgate the truth and notbing but the truth in relstion to its merits as a mining center.

Retrospectively viewed who shall eay that Tybo has not made giant strides in the way of development aud material progresss within the paet nine months? This is but a short period in man's existence, aud but a mere bagatelle in dnration, and yet though brief has been the spau, how great has been the work which has beeu performed, and how vast tbe improvements which have been completed here during its passage, to the gulf beyond, let the facts which I subjoin testify.

Exactly nine months ago to-day, there appesred in the editorial columus of the PRESE sn article on Tybo from the pen of the writer hereof. My knowledge of this locality was, at that time, extremely limited, for Tybo was tben a kind of *terra incognita* to sucb ss did not dwell in its immediate vicinage. Tbere was but very little known to the outside world in relation to the charscter or extent of its mineral wealth, and not till the purchase of the "Two G," "Casket," "Lafayette," and "Hunksdori" mines, by the indefatigable John B. McGee, late superiutendent of the Richmond Consolidated Company's proporty at Eureka, on behalf of bimself and three otber geutlemen —two of whom reside in London and the third in San Fraucisco—became a *fait accompli*, did the district receive any considerstion in mining circles. Its advsntages were, however, known to a few of the miuing nabobs of tbe Bay City, wbo kept an eye upon its miues, chief among which were and are the quartette referred to ahove; yet, notwithstanding all their wealth aud vigilance, the present euperintendent of the Tybo Consolidated Compsuy's propeity, member elect to the next State Legislature, stole a march upon them, and, relying on his own judgment and experience, quietly purchssed ss aforesaid the property which he has since so admirably managed. It is to-day in a very prosperous condition, aud is a living monument of the skill, judgment and enterpriee which hss marked his course since he assumed untrsmoled control of it last April.

The Improvements

Consummated since that period give ample evidence of whst one energetic, vigorous minded man can accomplish when backed up by the sinews of war. Mr. McGee has been singularly fortunate in tbe acquisition of this unrivaled piece of mining property. Having an unlimited supply of high grade emeltiug ore on band, he immediately set about tbe execution of a furnace in whicb to reduce it. This was soon built and set in motion. It bas a reduction capscity of 30 tons each 24 hours. It is circular in form, above the well, and the ore has a fall from the feeding place of something like 14 feet, and its entire altitude is about 65 feet from its foundation. The amount of bullion rnn through each 24 hours ranges at about 7,000 pounds. This bullion has heretofore averaged net $400 per ton, and the indications are strongly in favor of it exceeding this standard in tbe future, for as depth is being attained in the mines the ore is found to be both rich and abundsnt, and the smeltiug ore also more highly impregnated with lead than it has been higher up towards the apex of tbe vein. The charcoal biu is very conveniently locsted bsck of the furnace, on the declivity of the same hill, whicb affords ample fall through the sheds for it into the car underneath, hy wbich it is taken to the feeders, a few yards distant. Here the coal is emptied from the car on to a medium sized screen, through which the emall and fiuer psrticlee of coal, which are valueless for smelting purposes, sre precipitated to an apartment underneath, from whence they are taken to the boiler, and utilized as fael, thus effecting a saving of one-third in the amount of wood formerly consumed. The coal bin, though elevated, is readily reaobed by an easy grade, one-third of a mile in length, which, in places along its course, had to he cut into the solid rock.

Lower down the hill is still another grade, of like extent, which connects the furnsce with the outer orifice of the tunnel, through which the ore ie run from the mine. Upon this grade is laid a 30-inch csr track, nicely ironed, over which the ore is transported in csrs (two) drawn by one horse with the gresteet esse to tbe furusce. These csrs which have a capacity of one and a-half tons esch, need not be changed from their originsl longitudinal position on the track to allow of their contents being discharged, the same as the common hsnd car is, for they open on the side next the furnace, and thus easily and quietly deliver the ore into the compartment prepsred to receive it. Tbe cost of transportation hy tbis easy method does not exceed 20 cents per ton; for a man snd horee, costing $6.00 per diem will deliver at tbe furnsce 30 tons, or snfficient to keep it going during the 24 hours. The boiler, engine and machinery are new and substantisl, aud admirahly sdapted to the purposes for which they are used. The engine has a 12-incb cylinder, is 30 horse-power, and has a 34-inch stroke, aud works in tbe smoothest manner possihle. The boiler is 16 feet long by 54 inches in dismeter, and the steam drum which surmounts it, has a length of six feet four inchee, by 30 iuches in diameter. The fly wbeel weighing 12 tons has a circumference of 36 feet, made up in segments firmly bound together. The boiler and furuace receivo a plentiful supply of the squeous element from a tank snfficieutly elevated, whose capacity is 16,000 gsllons, which is conetantly held as a reserve against accidents of any kind. The blsst is supplied the furnsce by one of Root'e number 6 patent force blast blowers, msnufactured at fhe Globe Iron Works, Stockton, California. This is by far the most powerful blower of its size which I have ever seen work. It is capable of giving five pounds of wind to the square inch, while a number 7 Sturtevant blower, makiug the eame number of revolutions, 100 per minute, could not when used in tbe early stages of operations here, concentrate more thsn 19 or 20 ounces to the square inch. Tbe present engine and blower are powerful enough to supply sufficient blast for an additional cupola.

The whole of the machinery, wster pipes, etc., are under tbe direct supervision of a very attentive aud skillful mechanic, Mr. J. H. Brydeu, late head engineer at the Richmond Consolidated Reduction Works, at Eureka. He is a man eminently qualified for the responsible position he occupiee; and is qoiet and unassuming, polite snd courteous to all with whom he has to deal.

The balance aud concluding part of this article will be forwarded in time for your next issue. The length ot this part of it admonisbes me that if I would retain the good will of the PRESS, I must for the preseut write *finis* and —J. D. POWEA.

Tybo, Nevada, Dec. 1st, 1874.

QUICKSILVER IN LOS ANGELES.—A correspondent of the *Alta*, writing from Los Angeles, says: There are, perhaps, but few who have heard of our immense and valuable lodes of cinuabar. Among the first discoverers ie our townsman, James W. Gibson. His firet discovery in this district was a lode of an average width of four to eight feet, now called the Ethiopisn; his second was the Rocky mountsin—100 feet in width. Then followed the followiug lodes Red, Wbite aud Blue, Silver Moon, Rough snd Ready, Sentinel, Mereney, etc. Mr. Luke Smith has also located in the same district the following uamed lodes: Solon, Occident and Bumblebee, the average width of said lodes being from three to forty feet. Ore for assays from all these different mines is now in the hands of some of the best assayers of San Francisco. The location of the mines is 60 miles uorth of Los Angeles, on the stage road to Bakersfield, and six miles southwest of Elizabeth Lake. We have wood and water in abundance; the former consisting principslly of osk; the latter in streams sufficient for all mechanical purposes.

MANHATTAN MILL.—Tbe *Reese River Reveille* says: Wells, Fargo & Co. shipped for the mouth ending November 30, 1874, for account of Manhattan S. M. company, 62 bars of bulliou, weighiug 5,032 pounds, and valued st $74,933.79. There was produced hy the Manhsttau mill, during November, additionsl to the above, 19 bars, weighing 1,911 pounds, valued at $25,384.17, which did uot get in iu time to he included in the Novemher shipmeut. This brings the monthly product of the mill up to $101,367.87.

SAGEBRUSH is the great item of fuel at the Humholdt Reduction Works, and at Kemler's flouring mill. It is cheap and is more desirable for making steam thsn wood; besides, there is but little trouhle in keeping the boilers clean when sagebrusb is used.

IT is stated that there sre 300 coal mines in Russia, of which about twenty bave really some title to be called serious undertakings, and but three iron works, one of whicb helonge to the Crown.

THE steel trade in Austria is makiug great progress; ths production during ths past two years has been 135,000 tons and 150,000 tons respectively, whereas, in 1863 it did not exceed 7,000 tons.

Property in the Mining Counties.

For a number of years psst, ssys the Stockton *Independent*, property in the mining counties has been grestly deprecisted in vslue by enormously high rates of taxstion. The burden hss been ss heavy ss the people cculd possibly hesr, and in eome instsnces sbsolutely crushing. Many persons who accumulsted fortunes during tbe flush days of plscer mining by trading in the towns and villsges stuck firmly to the spots where fortune smiled upon them, until at lengtb they found tbemselves bankrupt. Otbers found their way to San Frsncisco, where they invested advantsgeously and are now ricb. As a rule those who retsined the cssh they hsd aecnmulated, invested in mountain cansls, roads, brick and other buildings have been thus fsr disappointed in realizing their expectations. When miners were flourishing money was accumulated very rspidly by locsl traders. The mouey was sent off, however, instead of being retained for the work of future development. The mines built up San Francisco with a rapidity that has no parallel in the growth of cities. Had one-half or one-sixth of tbe capital which has found its way from the mountains to the metropolis of our own State and to otber States and countries been retained, no foreigu capital would have been required to plsce machinery on every gold-bearing quartz vein in the iuterior. To those early settlers in the mountsin towns and mining districts who have held their grip, struggled along witbout faltering and retained their foothold in a region where the work of development is only in a measure begun, the country owes a debt of gratitnde. During the long season of slow change in tbe system of miniug the residents of the mountain districts have been under a cloud, which is at length beginning to vanish, but how rapidly it will wholly disappear time snd events can alone determine. Happily the prospect is gradually brightening, tbsuks to the tenacity and industry and energy of the courageous band who have not deserted the field which yet contains millions of hidden gold. Additional value will he given to property and new life infneed into bnsiness generally in tbe mountain districts by tbe settlers procnring titles from the Government for their farms, orchards, gardens and mines. This will give a feeling of security which has not heretofore existed, and will lesd to renewed activity, more extended labor and venture and soon change the condition of affairs from cbronic dullness to a scene of life and vigor in botb old and new iudustries. We helieve tbat the mining counties of California have passed through their eeverest ordeal, and that a prolonged period of prosperity is openiug up before them. Property is appreciating in value, satisfactory exhibits continue to be msde in heavy miuing enterprises, and there is evidence of more hopeful anticipations and esrnestness in productive pursuits generally. The extraordinsry determinstion and unflagging vigor shown by the residents of Mokelumne Hill in their unconquerable struggle against sdversity, may be alone accepted as a type of tbe geueral spirit and temper which animates and actuates the people of the mining counties at the present time.

FROM CHERRY CREEK.—We are plessed to hear from gentlemen just in from this camp, that indications were never better than at the present for a splendid mining camp in the near future. Even those leaving there for Panamint declsre their iutentious of returning at no distsnt day, if tbe outlook does not exceed anything they ever saw, and we have no doubt that early spring will find many returniug prospectors on their way back to Cherry Creek. As we have repeatedly said, and as we firmly aud truly believe, time will bring out many portions of Wbite Pine county which will vie witb any new district now known. However, tbese new excitements attract many people away from us, and reuder our future just so much longer of reslizstion, but sooner or later, the adventnrous and uneasy prospectors will return to their first love.

DISAPPEARANCE OF THE DANUBE.—The Swise jonrnals have just reported a strsnge phenomenon which has tsken plsce in the Upper Danube. This river has suddenly disappeared hetween Morhingen and Immindingen, upon the frontier of tbe dacbies of Baden and Wurtemburg. Already for more than half a century it has been observed tbat near this point a portion of the water hss filtered through calcareous rocks to appear once more near the town of Aach in tbe Hohgau between Engen and Stockbach. In soher truth, the wbole mass of tbe river has disspeared in a similar manuer near to Immindiugen, all the locality is deprived of its water-falls and supplies; and it really seems to be a difficult engineering task to attempt the only reparstion by stopping up the holes by which tbe water filters away in the porous and crevassed rocks which form the separation between the Swiss Jura and Suabian Jura.

THE new fly wheel for the Consolidated Virginia mill on the Comstock lode, is perhaps the largest ever made. It weigbs 33,000 pounds, and was manufactured in this city.

SILAERADO, Napa County, contains a botel, three saloous, a butcher shop, a private bosrding houee and a dozen dwellings.

RUNNING.—The mill of the Eherhsrdt & Aurora compsny, at Eherhardt, still continues to run along on full time and on good rock.

SCIENTIFIC PROGRESS.

Photography in the Science and the Arts.

One of the most important applications of chemistry to the arts is seen in photography. Chemistry not only contributes to our physical comforts, but also gratifies our æsthetic nature, when it enables us to fix on glass or paper the shadows by every conceivable form of beauty. Photography and photo-lithography have rendered familiar many of the rarest works of art otherwise inaccessible to the vulgar gaze. On the other hand, photography has spread among us the most perfect delineations of such works as Krupp's, at Essen, as well as of apparatus and machinery. What is more instructive than the photographic pictures which the lecturer is now able, by the aid of a magic lantern, to throw on the screen before his audience. Animalcalæ and infusoria too small to be seen with the naked eye, as well as the great sun, the planets and stars, all come within the range of the photographic camera.

Until chemistry had become a science, photography could not exist, and many of the greatest improvements in the latter have sprung from new discoveries in chemistry. The importance of this branch of applied chemistry has induced us to devote a portion of our space to a record of the improvements reported in photography.

New Photographic Spectroscopical Observations.

Dr. Vogel has observed that not only pure bromide but also iodide and chloride of silver are by far more sensitive to the blue, green, yellow and red rays than hitherto alleged.

If the slit of the spectroscope be opened to 0.25 or 0.3 millimeter, and if the exposure is long enough, the three bodies are indeed sensitive to nearly all the rays of the spectrum, the least to the extreme red rays, and most to the indigo rays.

Pure dry iodide of silver is only slightly sensitive, but under nitrate is more sensitive to ultra violet and indigo than the iodide. The sensitiveness increases from violet to indigo, but near the —G— of Fraunhofer it diminishes suddenly, and the other colors act very forcibly.

Chloride of silver, colored with naphthalin red, gives a curious result. It becomes most sensitive for yellow rays, less for red, and least for blue. If it were possible to make chloride of silver more sensitive, the colored salt would be the very body for taking pictures in colors.

FORMATION OF FLINTS.—The following, extracted from a paper read before the Geologists' Association in England, by Mr. Hawkins Johnson, F. G. S., gives in brief the most advanced theories with reference to these formations: "The nodules are found all to agree in possessing a silicified organic structure, which may be described as a network of fibres, or a mass permeated in every direction by anastomozing canals. This structure was subsequently filled in with other material, such as carbonate of lime, silica, bisulphide of iron, phosphate of lime, carbonate of iron, etc.; the particular substance thus filled in depending upon the relative abundance of the substance dissolved in the interstitial water of the surrounding matrix. The singular groups of concentric, silicious circular bands seen upon many fossils, and known as orbicular silica, or Beckite markings, are also explained. The fossils on which they occur were imbedded in a matrix more porous than themselves, and of irregular constitution, so that the evaporation, to which the consolidation of the dissolved silica in their porea was mainly due, occurred at a number of points on the surface of the fossils, at which points a deposit of silicate took place, forming the central tubercles. The cessation of evaporation was followed by a fresh saturation with the solution, to be again evaporated as before. But as the evaporating points were now plugged up by the previous deposits, the silica last consolidated was deposited around their margins, and upon them internally, appearing outwardly as a ring round the tubercle."

ACCIDENTAL DISCOVERIES IN SCIENCE.—Accident has had much to do with chemical discoveries, more perhaps in former times than now, when researches are undertaken with some definite end in view; but how many of the discoveries which have led to the most brilliant and important results, may not be called accidental? We may question if Davy expected to find potassium when acting on potassa with a voltaic battery, although, having already observed the decomposition of other metallic oxides, he may have had an inkling of the fact. Bunsen did not expect to find two new metals when examining the residue from the Durckheim waters. Crooks, when looking for selenium, accidentally found thallium. Perkins, when he found that aniline, when acted on by chromic acid, gave a fine color, could scarcely have expected the enormous manufacture of those analogous dyes which is carried on at the present day.

DIFFERENCE OF TEMPERATURES OF CITY AND COUNTRY.—The temperature in the city is higher than in the country, where in general it is cooler, especially during clear nights, when the difference may amount to 13° Fahr. Then the extreme temperature for heat is higher in the city, while that for cold is lower in the country; but in the average differences between heat and cold the country surpasses the city, which is more moderate.

The Sum of Tyndall's Life Theory.

The London *Globe* says: "Professor Tyndall's laborious address to the British Association may be readily summed up by the simple restatement of a very old argument. An egg contains all the material necessary to form a chick. It holds also, for a time at least, the force requisite to construct the animal out of its component elements. The only thing needed is to set the formative process in action by the application of another form of force or motion called heat. But this last must be supplied from without. The sum of Professor Tyndall's researches is precisely analogous. He finds in matter 'the promise and potency of every form and quality of life,' just as the naturalist and the organic chemist find the organic materials of a chick, and the promise and potency to form one, within the egg-shell. But neither the philosopher nor the experimentalist can go one step beyond the facts. They are wholly unable to explain the something from without, in whose absence neither an egg ful nor a world of life can be called into palpable existence. This is the point at which philosophy again arrives—the old point at which it has been arriving by various paths ever since the first effort to penetrate an insoluble mystery. The Egyptians symbolized the difficulty, and their inability to surmount it, by offering the mysterious egg reverently to their gods. They laid the unsolved problem of the finite at the feet of the Infinite. Professor Tyndall and the British Association might learn wisdom, without humiliation, from the ancient idolaters, and emulate their not ignoble submission."

SCIENTIFIC BALLOONING—THE BLACKNESS OF THE FIRMAMENT.—The balloon ascent of MM. Croce Spinelli and Sivel has yielded many facts of interest. Among these we may mention the following: The elevation reached was 20,700 feet. They found that the temperature steadily diminished, except when passing through clouds, and finally reached 22° C. At 11,800 feet, crystals of ice were visible floating between them and glistening in the sunshine. The lines in the solar spectrum, indicating the presence of vapor of water, disappeared when they reached the greatest altitude, thus proving that this vapor belongs to our atmosphere, and not to the sun. At 13,100 feet, sensations of discomfort were removed by the respiration of a mixture of 40 parts of oxygen and 60 of nitrogen. At 15,700 feet the oxygen was increased 75 per cent., and in each instance the physical and mental weakness was restored, and the sky, which, previously to the inhalation, was of a dark hue, again became blue. M. Croce Spinelli has thus removed an old error, and has demonstrated that the blackness of the firmament observed at great hights is due solely to the effects of fatigue on the nervous system.

MEASUREMENT OF THE CHEMICAL ACTION OF SOLAR LIGHT.—Dr. T. L. Phipson, F. C. S., in a note to the *Chemical News*, says: Many years ago I made some experiments on this subject in Paris, and described a method which I believe capable of giving more accurate results than any hitherto obtained. Having discovered that a colorless solution of molybdate of ammonia in sulphuric acid became greenish blue when exposed to the sun, and colorless again during the night, and that the amount of chemical action exerted to produce this tint may be accurately determined by a dilute solution of permanganate of potash, it suffices to operate always upon the same quantity of substance, and to expose it to the light for the same period of time, in order to possess a perfectly accurate process by means of which the chemical intensity of solar light may some day be solved in a completely satisfactory manner.

DARWINISM.—There is one objection to Darwinism, says a late writer, to which little, if any attention has been given: For example, the nearest creatures to man in form are not the nearest in intellect. The elephant, and dog and horse, which have no affinity to man, have a far closer intellectual affinity than those pets of Darwinism, the gorilla and chimpanzee. Again, man is omniverous—the stronger races of men, from the Greeks before Troy to the English of to-day, are primarily carniverous. But no monkeys or apes are carniverous. If a man is to be developed from a lower creature, he is nearer to the monkey in form, but to his faithful friend the dog in mind.

THE STUDY OF CHEMISTRY.—We often hear it said, by way of excuse, that the study of chemistry is so dry, and the time required so great that the student must begin young or not at all. Now this is simply nonsense. There is no branch of science so interesting and none more easily acquired. Three or four hours a week for a few months would so open up the eyes and interest the understanding of any ordinary mortal that, without laying any claim to the prophetic mantle, we may safely assert that he who will make the trial shall have provided for life a source of pleasure for himself, and a power to interest and instruct his fellow men.—*Western Photographic News.*

THE AMERICAN ELECTRICAL SOCIETY.—An association to be known under the above name, was recently organized at Chicago, Illinois. The objects are an interchange of knowledge, professional improvement of members, the advancement of electrical and telegraphic science, and the establishment of a central point of reference. General Anson Stager, of Chicago, was elected president, and Mr. C. H. Haskins, of Milwaukee, vice president.

MECHANICAL PROGRESS.

Philosophy of the Welding of Iron.

The science of molecular mechanics is yet in its infancy; and for this very reason it presents a rich field for investigation and experiment. We are already acquainted with iron, for example, in very many physical conditions.

We have learned within a few years how to obtain it melted like steel and cast iron. But how numerous are the things which yet remain for us to learn, in order to understand the properties of even these various states of iron; in order to explain the peculiarities which they present when viewed from the standpoint of construction; in order to establish the relation which should subsist between these molecular states and the resistance of the metal under various strains; in order to have as definite a theory for working iron cold as for working it hot. This knowledge which may be called the physics and the molecular mechanics of iron, is still very rudimentary.

* * * * *

I will attempt to lay before you a sketch of what I foresee in these molecular studies, at present unfortunately too much neglected. I will enter upon the subject through a phenomenon well known to everyone.

It is a matter of common knowledge that iron is capable of being welded; that if two pieces of iron be heated to a temperature, called for this very reason a welding heet, and then be pressed together, either by hemmering or by energetic pressure, the two pieces will be firmly united; *i. e.*, welded together. Why is this? The only explenation which we can find in the best works on chemistry or metallurgy is the following: "At a white heat iron acquires the property of being welded, a property which it shares with the metal platinum only." But obviously there is no evidence here of any mysterious and special property of iron called weldability; there is only the effect of a very general cause, the manifestation of a molecular property elsewhere abundantly active in nature.

Take two pieces of ice, and a temperature just below zero, press them even very gently together; they become at once welded to each other. This is the phenomenon, first observed by Faraday and subsequently investigated in so fascinating a way by Thompson and Tyndall, which has received the name "regelation." Thompson explains it in the following manner: For all bodies, like water, which have the property of diminishing in volume as they liquify, pressure, which tends to bring the molecules closer together, lowers the temperature of fusion. Consequently, when two pieces of ice are rubbed against each other, fusion takes place between the surfaces of contact, at a temperature below zero. Of course, as soon as the pressure ceases, solidification is again produced and the pieces are welded together.

It seems to me that the welding of iron is a phenomenon exactly similar to regelation. [Such cases of actual regelation or welding of iron are sometimes seen in the welding of a spindle to its step when heated by friction, in the absence of any lubricating fluid.—EDS. PRESS.] The two pieces of iron are brought to a white heat, that is to say, more or less *near* to the fusing point. The repeated blows of the hammer, or the pressure of the rolls, lowers the point of fusion and causes a superficial liquefaction of the parts in contact, and thus welds the masses together; and this, because, like water, iron dilates in passing from the liquid to the solid state. Many other metals are similarly endowed; they all, therefore, may be welded like iron, if other conditions do not come in to oppose the manifestation of this property. Platinum welds easily at a white heat because its non-oxidizable surface, like that of ice, takes on a superficial fusion. To weld iron successfully it is necessary that its surface should be clean, that is, free from oxide. Iron containing phosphorous welds more easily than pure iron, because its point of fusion is lower. Steel, which is more fusible still, welds at a lower temperature than iron, but the process is a more delicate one. Silver, too, like iron and platinum, has the property of expanding when it solidifies; but as it melts at a cherry red heat, it is easier to form it by casting than by welding. Bismuth and zinc are also included in the same class; but they are so very brittle near their fusing points that no one would think of attempting to weld them either by hammering or pressure.

Iron, in welding, therefore, only follows the example of water. The careful comparative study of these two bodies, even though at first sight apparently so dissimilar, cannot fail to furnish, for this reason, results of great interest to the metallurgist. M. JORDAN.

NOTE.—The work of the puddler is also based upon the same phenomena as that of welding. When the puddler forms his ball in the furnace, it is done by rolling together or aggregating the crystals of iron as they form in the mass of melted iron and slag. In other words the semi-fused crystals are welded or regelated together by the mechanical action of the puddler.

PAPER FROM PEAT.—M. Bertmeyer has recently exhibited, in the Polytechnic Society of Berlin, specimens of paper and pasteboard obtained from the products of the peat beds about Konigaberg, the quality of which is said to be excellent. The pasteboard was 2.4 inches thick, and sufficiently hard and solid to admit of planing and polishing. The paper made from peat alone was brittle, like that manufactured from straw; but the addition of fifteen per cent. of rags produced the requisite toughness.

Extraordinary Welding.

We were shown on Monday last a very interesting specimen of blacksmith work—a bar of Bessemer steel to which five different kinds of iron and steel were perfectly welded, without changing its shape in the least. The bar was rolled into form at Thompson's steel works, in Jersey City, and is one-half by two and a half inches in the cross section. The welds were all made with Schierloh's Cherry-Heat Welding Compound.

First, a piece of Bessemer steel, cut from the end of the bar, was welded fast to it again, the heating and welding occupying eight minutes.

On the reverse side of the bar a piece of fine cast steel was welded in six minutes. Further along on the bar a piece of blister steel was welded in eight minutes. This same steel cannot be welded with borax, as the high temperature needed with that flux makes it as brittle as cast iron under the hammer. Opposite this a piece of wrought iron was welded in six minutes, and further along on the bar a piece of cast iron was welded in three minutes. This was a piece of the mold board of a plow. The bar, with its additions, was then ground and polished on the edge, so as to show the points at which the welded metals came into contact.

No weld was visible on any one of them, and the difference in the metal could only be told by the color after polishing. This solves a great many important problems in iron manufacture, among others the welding of Bessemer scrap, the re-rolling of Bessemer rails, and the manufacture of iron rails with steel heads. We speak advisedly in this matter, as we have personally determined the strength of the welds made with this compound by careful and thorough mechanical tests.

CURIOUS PROPERTIES OF SAND AND ITS POSSIBLE APPLICATION.—It is said that if a quantity of dry sand be placed in a box of thin sheet iron or even in a canvas bag and subjected to a slight compression, it forms a mass capable of resisting a pressure of fully 60 tons without breaking or even straining the envelope. The sand, however, remains perfectly divisible, so that if a small hole be made in the box or bag it will flow slowly and with such little force that even a small piece of paper pasted over the opening will check the flow, even with the 60 tons weight upon it. M. Beandemonlin, a Frenchman who discovered this singular fact several years ago, has recently suggested several possible applications to which he thinks it may be put; the practicability of which, however, may be considered quite problematical. He thinks it might be applied for building purposes, since the filled bags or boxes need merely be held in place by a framework; while being very thick they would form a protection, in case of being used for dwellings, against variations of temperature. Such walls, beside, would be fireproof. It is also suggested that for lowering heavy weights or even entire buildings, which, by a change of street levels, have become located too high above the roadway, the sand bags could be placed beneath and their contents allowed gradually to escape, thus letting the load slowly settle down.

WELDING INSTEAD OF RIVETING FOR BOILER PLATES.—We understand that the cherry heat welding compound is about to be tested in boiler work. It is proposed to lap weld boiler plates, by putting a ribbon of sheet steel between, and heating the edges with a blow pipe. Should the experiment be successful, riveting may be entirely dispensed with, and better boilers will be produced at a cost much below that of riveted work. We have given this matter editorial notice because of its great practical importance to many branches of the iron and steel manufacturing trades. A welding compound which, of our own knowledge, we can say will perfectly unite wrought iron, cast iron, cast steel, blister steel, chrome steel, Bessemer steel and malleable cast iron, each to any other, at a cost so low as to effect an important economy over borax in such operations as are possible with that substance, is certainly destined to effect a radical change in many departments of metal working.

STEAM NAVIGATION.—When steam navigation began, the wildest speculations were indulged in as to speed; but all of them were doomed to be falsified by the results. With the host of improvements yearly adopted, the original speed of eight miles per hour has scarcely been doubled. On the average it has not; the fastest ocean-going steamers only accomplish fifteen miles. In smooth rivers and in narrow channels much higher rates of speed have been obtained; but the average of all kinds of steamers, river and ocean, is from twelve to sixteen miles an hour, and the problem that still vexes engineers is how to obtain a much higher rate of speed. When that will be solved no one can tell; the ocean is a mighty monster, and will not readily be subdued.

UTILIZING SCRAP STEEL.—At the Delamater Iron Works, New York, the scrap steel which accumulates about the shops is utilized in a very simple and economical manner. A pile of mixed steel is made, with a proper quantity of the welding compound sprinkled between the layers. The pile is then brought to a red heat, and worked into shape under a steam hammer. Mr. Crohns, foreman of the smith shop, says the welding is invariably perfect, and that the only objection to the scrap steel for tools is that, in making the piles, bits of steel of inferior quality sometimes get in, which are not suitable for the edges of cutting tools. With more care in selecting and piling the scrap, this difficulty could be entirely avoided.

Mining Stocks.

The mining share market this week has been quite lively and tranеactions have been large. Pricee as a general thing hаve ruled high and no collepse is yet apparent. The Comstock continues to receive the most attention, and the mines outside of that district are at a disconnt. The summing up of the profits of the mines dealt in at the Stock Board for this year is qnite satisfactory. The assessments levied duriug the year amount to $6,777,000 and the dividends foot up $11,625,000. The Crown Point mino hes paid this yeer, $3,400,000 in dividends, making a total of $10,860 000 for the past fonr years. Belcher has paid $5,304,000 this year, making $14,248,000 for the past three yeare. This makes a total of over $25,000,000 distributed by theso two minee in four yeare.

With respect to the developments on the Comstock, the *News* of last Saturday says: Ae to the great new bonanza of the Consolidated Virginia and Ophir it continues looking better and better as further developed. A full realization of ite actual worth seems impossible and wild and unreasonable as the preseut estimates appear, they may not be dcemed so at all in a few months from now. In Consolideted Virginia the great ore body wideus out greatly as it goes toward the California. The eouthermost cross-cut east, at the 1500-foot level of the Consolidated—232 feet from the Californie line—hae reached the east wall, aud ehowe the ore body at that point to he 150 feet wide, and generally rich throughout. The next cross-cut east—132 feet from the California line—was iu 225 feet last evening, nearly the entire leugth iu the richest kind of ore, and the face coutiuuing in the same, with no signs of an east wall as yet. The third cross-cut—and the richest of all—ie ouly fourteen feet south of the Californie line, and is in 45 feet this afternoon, ehowing, if possible, richer and richer as it advances. The same may be eaid of the drift south from the Ophir winze, 1465-foot level, which is now runniug into the California at the north end.

Sales at the S. F. Stock Exchange.

Thursday, Dec. 17.

MORNING SESSION.

560	Alpha	24¼@24½
1755	Belcher	44@47
15	...b 30	47
3065	Best & Bel	36½@37½
250	...b 30	37½@38
225	Chollar	77@77½
420	Crown Point	48@48½
20	...b 30	49½
500	Con G Hill	7@7½
810	Confidence	41@42
20	...b 30	42½
1235	Con Vir	332@300
600	California	300@285
30	Exobeo	188@195
885	Empire M	15½@15¾
1060	Gould & C	34@32½
585	Hale & N	62@60
100	...b 30	63
1610	Imperial	17¼@16¼
140	Justice	5@5¾
320	Kentuck	20½@21½
2725	Mexican	27@27½
200	...b 30	28
1050	Overman	71@67
100	...b 30	70½
10	...b 5	72
1445	Ophir	11¾@10
70	...b 5	11¾@11¾
20	...b 30	11¾
375	Savage	120@123
160	...b 30	127@127½
3760	S Nevada	17¼@18¾
150	Seg Bel	11¾@12
10	...b 30	12¾
220	Succor	54@55½
510	Y Jacket	15¾@15¾
100	...b 5	15¾
105	...h 30	15¾@15¾

AFTERNOON SESSION.

880	Belmont	14¼@14¾
175	Am Flag	2¾
130	Piocbe	4
100	Eur Con	13¼
325	Ray & Ely	22½@23
470	Meadow Valley	6
100	Monitor	2¼@2½
400	Wasb & Creole	75c
515	Ryo Patcb	3¼
500	Eldo South	1
100	Eldo Nortb	1¾
850	War Eagle	2
20	St Patrick	1½
100	Eldorado	3
100	G Obariot	35@0
1280	Cberry Creek	1@1½
390	Lady Bryan	3½@4
815	Julia	7¾@8
150	Caleconia	25
110	Knickerbocker	6
420	Globe	1½@1½
810	Baltimorc Con	5½@6½
610	Dayton	4½@4¾
470	Cballenge	12
20	Trench	12@12½
373	Eclipse	13¼@14
600	Gold Hill	10½@11
1270	Utah	7¾@8
150	Dardanelles	19
385	New York	3¾
115	Occidental	4½
518	Am Flat	7¼@7½
250	Tyler	20c
280	R Island	5½@5¾
993	Uniou	60@61
250	Alta	4
350	Senator	15
320	Woodville	3@3¼
800	Mint	25c
600	Lady W	3
490	Kossuth	2¾@3
500	C P Ravine	1
150	Leo	1@1¼

Thursday, December 10.

MORNING SESSION.

880	Ophir	100@95
1515	Mexicau	15@17
1425	G & C	20@27
50	...b 5	27
3400	Best & B	25½@29
100	...b 30	29½
50	...b 5	2½
325	Savage	87@90
210	Cbollar	65@66
30	...b 5	66
335	H & Nor	57@57½
1545	C Point	50@51
10	...b 30	52
50	...b 5	50
65	Jaoket	127@130
40	...b 30	132@133
20	...b 10	130
2835	Imperial	14@14½
150	...b 30	145
575	Empire M	13½@14
755	Keutuck	19¾@20
100	...b 30	20½
810	Alpha	22@23
30	...b 30	23½
73	...b 5	23
27	Eclipse	11@12
1445	Belcber	44@46½
70	...b 5	46½
739	Confidence	40@39
100	...b 5	40
735	Con Vir	222@228
150	...b 30	230
1465	Sierra N	13½@14½
100	...b 30	15
840	California	215@223
250	...b 30	224@227
20	...b 5	223
210	Exobeo	205
170	Seg Bel	125@130
765	Over	70@72
50	...b 5	71
545	Justice	6@60
105	Succor	4¾
369	Lady B	3¾
235	Julia	5¼@5½
600	Caledo	24@25
60	...b 30	25
60	Knicker	6¼@6½
70	Globe	1¾@1¾
445	Balt Con	8½@8¾
140	Bacon	6
250	Button	17
150	Utah	5¾@5½
410	S Hill	10@10¼
150	Trench	10
400	Dayton	6@4½
120	Challenge	11½
200	Dardenelles	18
200	Piotou	50c

AFTERNOON SESSION.

505	M Val	6¼@7
405	R & Ely	22@22
355	Eu Con	13½@13¾
50	Pioche	5
1000	W & Creole	7@7½
635	Am Flag	2¼@2½
535	Belmont	14¾@14¾
440	Newark	1½
575	R ve Patch	3½@4
50	Eldorado S	2
400	N Bel	15c
1424	Eldorado N	1½
250	Prussian	4¾
115	G Obariot	4¼@4½
50	Ida E	1½
100	S Obariot	15c
250	Empire	25c
200	Mammotb	40c
315	New York	3½
505	Occidental	4½
515	Am Flat	7¼@8
25	Tyler	40c
385	Union	38½@39
2019	Woodville	3@2¾
920	Sutro	2¾@3
50	Mint	25
1590	Kossuth	3@3½
100	S R Island	1
280	C P Ravine	1
60	Leo	1¼@1¼
4335	Andes	3½@3¾

COMING DIVIDENNS.—The Virginia *Enterprise* says: There was paid laet week in San Freucisco, $1,000,000 in dividends from mines. Thie ie almost or quite all from Comstock mines. Next year there ought to he, after paying all expenses, a dividend like that every two weeks. The result will hardly he felt in Nevade, but it must eventually tell wonderfully iu our sister State.

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertisements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	Location.	No.	Amt. Levied.	Delinq'nt.	Sale.	Secretary.	Place of Business.
American Flag M & M Co	Ely District	6	50	Nov 10	Dec 14	Jan 11	G R Spinney	320 California st
American Flat M Co	Washoe	4	1 00	Dec 7	Jan 9	Jan 27	C A Sankey	331 Montgomery st
Andes S M Co	Washoe	3	50	Dec 7	Jan 11	Feb 1	M Landers	507 Montgomery st
Arizona & Utah M Co	Washoe	11	75	Dec 10	Jan 14	Feb 2	J Maguire	419 California st
Arizona S M Co	Unionville Nevada	1	1 00	Nov 30	Jan 8	Jan 29	Wm Willis	419 California st
Baltimore Cons M Co	Washoe	7	1 00	Dec 5	Jan 8	Jan 29	D T Bagley	401 California st
Bellevne M Co	Placer Co Cal	10	50	Dec 10	Jan 14	Feb 4	D F Verdenal	409 California st
Bobtail Cons M Co	Ely District	3	20	Dec 15	Jan 23	Feb 28	C E Elliott	419 California st
Buckeye G & S M Co	Nevada	12	1 00	Nov 14	Dec 18	Jan 7	C A Sankey	331 Montgomery st
Cedarberg G M Co	Cal		50	Oct 29	Dec 1	Dec 21	D M Bekee	215 Sansome st
Chollar-Potosi M Co	Wasboe	5	5 00	Nov 14	Dec 18	Jan 7	W E Dean	419 California st
Daney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Dayton G & S M Co	Wasboe	1	1 00	Dec 10	Jan 13	Feb 2	W E Dean	419 California st
Empire M Co	Idaho	8	1 00	Nov 10	Dec 10	Jan 4	William Willis	419 California st
Empire M & M Co	Washoe	16	50	Oct 24	Nov 27	Dec 21	G R Spinney	320 Cal fornia st
Globe M Co	Washoe	9	75	Dec 10	Jan 14	Feb 2	J Maguire	419 California st
Ida Elmore M Co	Idaho	15	1 00	Nov 16	Dec 21	Jan 12	Willia Willis	419 California st
Imperial S M Co	Wasboe	20	1 00	Nov 26	Dec 29	Jan 19	W E Dean	419 California st
Julia G & S M Co	Washoe	20	2 00	Oct 30	Dec 4	Dec 23	A Noel	419 California st
Justice M Co	Washoe	12	3 00	Nov 13	Dec 15	Jan 15	J S Kennedy	Merchants' Ex
Kentnck M Co	Wasboe	12	1 00	Dec 3	Jan 5	Jan 28	F Swift	419 California st
Knickerbocker M Co	Washoe	10	1 50	Oct 30	Dec 5	Dec 24	H Boyle	Stevenson's Bldg
Lady Bryan M Co	Nevada	4	50	Nov 11	Dec 16	Jan 11	F Swift	419 California st
Mahogany G & S M Co	Idaho	14	2 00	Nov 3	Dec 10	Dec 31	C H Higgins	402 Montgomery st
Mint G & S M Co	Wasboe	8	10	Nov 17	Dec 22	Jan 15	D A Joonings	401 California st
Monitor Investment M Co	Nevada		50	Nov 10	Dec 14	Jan 4	W Hopkins	411½ California st
Newark S M Co	Ely District	9	50	Nov 4	Dec 7	Dec 28	Wm Willis	419 California st
New York M Co	Washoe	11	50	Dec 5	Jan 6	Jan 28	H O Kibbe	419 California st
Original Gold Hill G & S M Co	Washoe	2	50	Dec 12	Jan 14	Feb 1	W M Helman	Fireman's Fund Bldg
Original Hidden Treasure	White Pine		1 00	Oct 12	Dec 11	Jan 7	D A Jennings	401 California st
Overman M Co	Washoe	30	3 00	Nov 3	Dec 5	Jan 26	G D Edwards	414 California st
Pauper M Co	Idaho	3	50	Oct 26	Nov 30	Dec 21	D Wilder	Merchants' Ex
Pioche S M Co	Ely District	8	—	Dec 11	Jan 21	Feb 16	C E Elliott	419 California st
Raymond & Ely M Co	Ely District	2	3 00	Nov 3	Dec 10	Jan 7	T W Colburn	418 California st
Rock Island C & S M Co	Washoe	10	1 00	Nov 16	Dec 21	Jan 12	J W Cook	418 California st
Red d'Arcb M Co	Idaho	5	50	Nov 28	Jan 5	Jan 26	Wm Willis	419 California st
Savage M Co	Washoe	16	5 00	Dec 5	Jan 1	Jan 27	E B Holmes	419 California st
Sierra Nevada S M Co	Washoe	30	3 00	Dec 1	Jan 5	Jan 26	G D Edwards	414 California st
Silver Cord M Co	Idaho	6	50	Nov 5	Dec 7	Dec 29	Frank Swift	419 California st
Silver Hill M Co	Washoe	4	2 00	Oct 28	Nov 30	Dec 22	W E Dean	419 California st
South Chariot M Co	Idaho	11	50	Nov 5	Dec 11	Jan 5	O H Bogart	402 Montgomery st
Tyler M Co	Wasnoc	7	50	Nov 19	Dec 22	Jan 13	O D Squire	Stevenson's Bldg
Utah S M Co	Washoe	7	1 00	Nov 25	Dec 30	Jan 20	W E Dean	419 California st
War Eagle M Co	Idaho	8	1 00	Nov 9	Dec 16	Jan 6	L Kaplan	401 California st
Washington & Creole M Co	Ely Dist	13	50	Dec 8	Jan 11	Feb 4	F D Cleary	Merchants' Ex
Woodville G & S M Co	Washoe	8	1 00	Nov 9	Dec 14	Jan 5	W M Helman	401 California st
Yellow Jacket S M Co	Wasboe	19	5 00	Dec 10	Jan 13	Feb 13	G W Hopkins	Gold Hill
Yule Gravel M Co	Placer Co Cal	5	10	Nov 9	Dec 14	Jan 5	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Baltic Cons M Co	Washoe	1	15	Nov 18	Dec 23	Jan 20,	B Burris	507 Montgomery st
Calaveras Hydraulic M Co	Cal		5	Dec 7	Jan 9	Jan 25	A Shear	321 Battery st
Cherry Creek M & M Co	Nevada	1	15	Nov 10	Dec 14	Jan 7	D F Verdenal	409 California st
Cherokee Flat Blue Gravel Co	Cal	33	5	Nov 10	Dec 14	Dec 29	H Pichoir	603 Washington st
El Madre Quicksilver M Co	Cal	2	6	Oct 27	Dec 4	Dec 28	A Helsey	312 Montgomery st
Florence M Co	Humboldt Co Cal	1	10	Dec 5	Jan 8	Feb 3	I E Delavau	220 Montgomery st
Globe Cons M Co	Washoe	4	75	Dec 10	Jan 14	Feb 2	J Maguire	419 California st
Gold Mt G M Co	Holcomb Valley Cal		50	Nov 19	Dec 23	Jan 12	J P Cavalier	513 California st
Gold Run M Co	Nevada Co Cal	9	20	Dec 7	Jan 11	Feb 3	C C Palmer	41 Market st
Golden Rule S M Co	Utah		5	Dec 8	Jan 15	Feb 15	K Wertheimer	530 Clay st
Howard Hill G M Co	Cal		50	Nov 7	Dec 16	Jan 7	F J Hermann	418 Kearny st
Jumata Cons S M Co	Aurora Nev	2	1 00	Dec 16	Jan 21	Feb 10	C S Neal	419 California st
Kennedy M Co	Amador Co Cal	8	1 00	Dec 16	Jan 21	Feb 10	A Wissel	210 California st
Keystone No 1 & 2 M Co	Arizona	4	1 00	Dec 12	Jan 12	Feb 1	W R Townsend	330 Pine st
Lake Tahoe & S F Water Works	Cal	6	25	Nov 18	Dec 23	Jan 18	E Chattin	808 Montgomery st
Martin & Walling M & M Co	Cal	1	50	Dec 7	Jan 8	Jan 23	J W Tripp	408 California st
New York Cons M Co	Washoe		5	Dec 5	Jan 8	Jan 28	H O Kibbe	419 California st
North Bloomfield Gravel M Co	Cal	35	1 00	Dec 1	Jan 4	Jan 25	1 Derby	320 California st
North Fork M Co	Plumas Co Cal	7	75	Dec 5	Jan 4	Jan 19	A Martin	520 Washington st
Oneida M Co	Amador Co Cal	10	1 00	Dec 11	Jan 16	Feb 3	L Kaplan	Merchants' Ex
Owens G & S M Co	San Diego Co Cal	3	1 00	Nov 3	Dec 7	Dec 23	Frank Swift	419 California st
Page Tunnel Co	Utah	1	5	Dec 12	Jan 20	Feb 20	J Hall	418 California st
Poorman G & S M Co	Idaho	1	50	Nov 13	Dec 18	Jan 11	William Willis	419 California st
South Fork M & Canal Co	Cal		5	Dec 7	Jan 10	Feb 1	H Knapp	306 Montgomery st
Star King S M Co	Elko Co Nevada	9	25	Dec 4	Jan 8	Jan 26	L Kaplan	Merchants' Ex
Succor M & M Co	Washoe	10	4 00	Nov27	Jan 4	Jan 25	W H Watson	302 Montgomery st
Table Mt Blue Gravel M Co		4	30	Nov14	Dec 7	Dec 24	W M Helman	401 California st
Thrift G & S M Co	Calaveras Co Cal		50	Nov 24	Dec 26	Jan 16	H R West	240 Montgomery st
Watson M Co	Robinson Dist Nevada	1	1 00	Nov 16	Dec 21	Jan 13	W H Watson	302 Montgomery st
Woodville M & M Co	El Dorado Co Cal	1	25	Nov 10	Dec 19	Jan 6	J Glassman	335 Montgomery st
Zacatero G M Co	Cal		50	Nov 4	Dec 7	Dec 29	L Hermann	330 Pine st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Beach & Paxton G & S M Co		Called by Trustees	507 Montgomery st	Special	Jan 14
Bullion M Co	Washoe	J S Kennedy	Merchants' Ex	Annual	Jan 14
California & Arizona M Co		T Jewell	507 Montgomery st	Annual	Dec 28
Georgia S M Co	Nevada	R Wegener	414 California st	Annual	Dec 23
Geneva Cons S M Co		I T Milliken	302 Montgomery st	Annual	Dec 23
Georgia S M Co		R Wegener	414 California st	Annual	Dec 23
Gould & Curry S M Co	Washoe	A K Durbrow	438 California st	Annual	Dec 28
Gold Cañon Cons M Co	Washoe	A A Pardow	420 California st	Annual	Dec 18
Heckendorn G & S M Co		P J Robert	620 Washington st	Annual	Dec 23
Leo M Co		C J Eaton	Express Building	Annual	Dec 26
Nevada G & S M Co		J G Bloomer	419 California st	Annual	Jan 4
Sierra N		L Hermann	330 Pine st	Annual	Dec 28
Prussian Gold & S M Co		R H Brown	402 California st	Annual	Jan 4
Quintero M Co		H C Kibbe	419 California st	Annual	Dec 21
Sanderson G M Co	Cal	W Stuart	113 Liedesdorff st	Annual	Dec 31
Table Mt Alpha M Co	Cal	T F Cronise	California st	Annual	Dec 23

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Wasboe.	H. C. Kibbe,	419 California st.	3 00	Dec 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Nov 16
Consolidated Virginia M Co	Washoe	D T Bailey	401 California st	3 00	Dec 11
Crown Point M Co	Washoo	C E Elliott	414 California st	2 00	Dec 12
Diana M. Co.		N. C. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	50	Dec 5
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phenix G M Co		Charles E Elliott	419 California st	50	June 30
Rye Patch M Co	Nevada	D F Verdenal	409 California st	50	Dec 5

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco.

SHASTA COAL M. Co. —Dec. 12. Location: Shasta county, California. Directors—Jas A. Pritchard, H. H. Haight, C. T. Wheeler, M. H. Peck and J. C. Kinkead. Capital stock, $5,000,000, divided into 50,000 shares.

SOUTH JEFFERSON M. AND M. CO.—Capital stock $5,000,000, divided into 50,000 shares. Directors—Richard Honefray, A. Rottanzi, C. Steffani, H. Steffani and E. V. Sutter.

COMSTOCK M. Co.—Dec. 14. Location: Virginia District. Capital stock, $10,000,000, in $100,000 shares. Directors—Charles E. Comstock, Henry E. Greene, Charles F. Kirchener, Chas. G. Ewing, and J. Howard Smith.

WESTERN DEVELOPMENT M. Co.—Dec. 15. Object: Carrying on the construction, manufacturing, mining, mercantile, mechanical, banking and commercial business in all their branches. Directors—Frank S. Douty, Edward C. Wright, John Miller, Henry K. White, and Frank C. Ross. Capital stock, $5,000,000.

NEWARK TOWN AND LAND ASSOCIATION.—Dec. 16. Location: Alameda county. Directors—Oliver Eldridge, Henry F. Williams, George A. Worn, John Rosenfeldt, H. W. Byington, Charles R. Peters. J. B. Robertson, James Crank and G. H. Thompson. Capital stock, $750,000, in 25,000 shares.

MILKMEN'S AID AND PROTECTIVE ASSOCIATION.—The purpose of the corporation is "to enable its members to buy feed, stock, and everything they consume; to protect its members from wrong from their employes and the persons with whom they deal; and generally to protect each other in everything relating to their business. Directors—E. H. Knight, J. A. Shepston, J. A. Roy, A. D. Miller, G. C. Smart, and F. L. Such. The Association has no capital stock.

THE coinage of the Carson Miut for November amounted to $462,069.09.

Meetings and Elections.

GOLDEN SUN G. M. Co.—Dec. 14. Trustees—L. S. Henry, A. E. Ball, Dorville Libby, Joseph Pentecost, Wm. B. Lake and Samuel H. Sbeplar. At a subsequent meeting of the Trustees, S. H. Sheplar was elected President, L. J. Henry, Vice-President, Dr. Libby, Treasurer, and Jos. Pentecost, Secretary.

SPRING VALLEY WATER CO.—Directors: Charles Webb Howard, Charles E. McLane, Oliver Eldridge, William Norris, A. B. Forbes, George W. Grannies, D. J. Staples. Charles Webb Howard was elected President, and Charles E. McLane Vice-President of the Board.

EXCELSIOR QUICKSILVER M. Co.—Dec. 14. Trustees—C. D. Morrison, Fred'k Clay, J. Shroufe, R. Von Püster and J. E. Griffiths. The Secretary presented his report, showing that the company did not owe a cent, and that the furnace would be ready to run through ore on the first day of January. The superintendent reported the mine looking splendidly, and that they had about 300 tons of ore out ready for the furnace. Directors—C. D. Morrison, President; J. Shroufe, Vice-President; Fred'k Clay, Treasurer; R. Von Püster, Secretary.

THE new rolling mills at Laramie, Wyoming, will embrace the manufacture of steel as well as iron rails. It is proposed to manufacture all the iron required in Nabraska and Kansae, and all the territories west to the Pacific States.

THE Trinity *Journal* says that the miners of that county are complaining that there hae been no snow on the mountains. They are becoming fearful that there will he a lack of water next year.

THE first engine whistle eounded at Panamint on the 11th inet., and announced the starting up of the steam rock-breaker.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALAMEDA COUNTY.

LIVERMORE COAL.—*Enterprise*, Dec. 12: The work on the Livermore coal mine is progressing slowly but surely, and to the general satisfaction of the owners. The main vein hes not been etruck yet, but it ie expected that it will he withiu the coming week.

COAL AT SUNOL.—Cor. *Enterprise*. There are four men at work on the coal mine, recently discovered about 4½ miles east of this station. About 100 pounds, taken at a depth of twelve feet was sent to San Francisco for the purpose of tostiug its quality. The result is that it hae proveu oue of the best coal discoveries yet made in the State. The approach to thie future mine ie a most excellent one, though over a seriee of hille. We are informed that the vein is now two feet in thicknese and every indication of expanding as the workmen progress in sinking upon it.

CALAVERAS COUNTY.

RICH ROCK.—*Chronicle*, Dec. 12: We saw some very rich quartz, receutly, taken from the Austrian mine at Jeeue Maria. We understand that the entire ledge is gold-bearing and will pay largely. The company owning the mine has a good mill whicb ie to be set at work as soon as practicable.

THE BLAZING COMET.—*Citizen*, Dec. 12: This mine, on the banke of the North Fork, owned by Brigge & Co., had a crushing last week which rumor says, paid $3.50 per cargo.

SANDERSON MINE.—Au 18-inch vein of excellent ore is uow being opened at thie mine. The ceeing of slate is very hard, but the richnese of the ore warrants the opinion that the mine is to contiiue a workiug success.

JOSEPHINE MINE.—A company of capitaliets are in possession of the Josephine and with a superintendent on the premises they propose to satisfy themselves as to the worth of the mine. All necessary arrangements are ahont coompleted for sinking the main shaft and teeting the body of ore which is known to exiet. Formerly this mine was worked and yielded as rich rock as any mine in the district, and if it continues as good ae is anticipated, machinery will be put up in the spring. Both extensions of the mine are being worked and give satisfactory resnlts.

ZACATARA MINE.—We are informed that the new superintendent proposes to make a success of this mine. The embarrassing debt under which it hae rested for eeveral weeks, it ie said will be paid off within a few days, and then active operations will be resumed, both above and helow gronnd.

INYO COUNTY.

ARGUE DISTRICT.—Inyo *Independent*, Dec. 5: Quite a number of recent mining locations of the Argus District have been recorded at the County Clerk'e office during the present week, indicating some activity in that direction. The district is situated south of Coeo and west of Panamint.

PINE MOUNTAIN.—Messrs. Broder & Moffat are in receipt of the news of a valuable etrike in their mines in Pine Mountain District.

THE KEARSARGE.—It is gratifying to announce the fact that, after so long and uncalled for idleness, a force of miners are to be immediately set to work on the Kearsarge, ae a prospecting force, preliminery to the overhauling and etarting up of the mill. During a recent call at thie office, Mr. Gray, the principel owner of the property, assured us of his entire confidence in the extent and richness of the miue.

EXTRAORNINARY SPECIMENS.—In the "Days of Forty-Nine" they doubtless exhibited many fine nuggets or gold specimens of great value, but we fancy there were not many excelling in beauty or size that on exhibition at V. Hoff'e store, in Lone Pine. It is a specimen of solid gold, weighing 11 ouncee. It is flet, about half an inch thick, one and one-half by two inches in breedth, and worth $360. Messrs. Harris and Rhine, of this place, recently shipped to the mint a nugget from the same mine worth $645.60, weight 48 onnces, the value per ounce being nearly $13.50. Several smaller pieces of like character are now in their hands. They are from the placer minee near Gold Mountain, owned hy some Mexicane whoee nemes we were nnable to learn.

PANAMINT ITEMS.—Panamint *News:* J. H. Croesmau, of San Francisco, and J. W. Whitlack, one of the pioneere of Panamint, have purchaeed of Mann & Morgan the Towaude mine, situated on the eonth eide of Marble canyon. Crossman is interested with a uumber of heavy capitaliete of San Francisco, and it is their intention to commence a thorongh development of the several mines they have already seoured, and introduce the latest and best machinery with which to accomplish that object.

THE S. V. M. & W. Co. have about finished laying the long striug of iron pipe from the spring near the company's store down through town to Jacobs' mill, which ie thue to he supplied with water, the pumping machinery for the deep well at the mill not yet heving arrived.

PARTIES have come in during the past two or three days bringing rich specimene and glowing accounts of three new districte discovered, one of which is said to he off to the eouth-east, another to the north, and the third in the

Argns range, on the west side of Panamint valley.

The Jacohs' mill is to bsgin its first run about next Monday. This run will be bnt short, tbs objebt in view in this start being merely to demonstrate the value of Mr. Jacobs' system of concentrating the ores. Some important operations are contingent upon the degree of success attained in this experiment, if it can be called such.

MARIPOSA COUNTY.

Coultexville and Vicinity.—Mariposa *Gazette*: Under date of December, 1st, our Conlterville correspondent, "Waif," writes that the mining interest on that side of the river is steadily improving, and everything connected therewith seems to be progressing finely. The Hasloo and Banderita are both running to their full capacity on good ore, and, judging from former workings, the resnlts are likoly to be satisfactory.

A portion of the machinery for tbe Martin & Walling mine is on the ground, and teams are on the road for tbe balance. The machinery is first-class.

MONTEREY COUNTY.

Coal Discoveries. — Monterey *Democrat*, Dco. 12: In the hills, about 1¼ of a mile due east of the claim of the Monterey Coal Co., further discoveries of coal, or coal signs, are reported. Shales, such as accompany coal, are fonnd in quantity, giving rise, hy their thickness and position to the belief that they indicate the presence of an extonsive body of coal. Upon the basis of this discovery a new company has been formed, and, as we suppose, we may look for speedy development from their action.

NEVADA COUNTY.

Omaha Mine.—Grass Valley *Union*, Dec. 1:0 This mine is not oaly doing well, but yesterday it did better than ever. In the drifts there is a ledge three feet thick, and it shows rich ribbon quartz, free gold being distributed all through the rock. In the shaft there is very fine pay rock.

Bio Wheel.—Yesterday tbo big crown wheel for the Idaho mine arrived in town. It was loaded on one of the strong and broad tired trncks belonging to the Mohawk Lumber Co., the only vehicle in these parts that would bear it np. The wheel weighs about ten tons, and it took 22 animals—10 horses and 12 oxen to draw it over from Colfax.

Magenta Mine.—Work in the Magenta mine is being rapidly prosecnted. The miners are sinking the main shaft for the 400-foot level. Tbe ledge in the shaft is ahout 20 inches thick, and shows free gold. The shaft is down about 365 feet. A crushing will pay the lessees good wages, after deducting the percentage due to the owners of tbe mine. The ledge is well defined and between good walls.

Gold Run Mine.—*Transcript*, Dec. 12: The incline of the Gold Run mine is down 208 feet. The work of sinking is going steadily on, and everything is working like a charm. The formation between walls is 18 inches, and there is 12 inches of solid quartz. It carries a great deal of sulphnrets, and tho rock looks well.

The Omega mining company, we understand, has started to work. The proceeds of that mine the coming year is expected to be immense. It is one of the best in the county.

The Manzanita mine is just a hooming now. The amount of water running down the flume under the Union hotel looks liko a small-sized river.

The California mine is looking its best now. The levels open out well, and the Superintendent, Mr. Holland, informs us the rook is paying splendidly.

Fine Rock.—Grass Valley *Union*, Dec. 11: We saw yesterday some very fine rock from the New York Hill mine. The quartz from that mine has lately and geaerally worked by mill process up to $60 per ton, not including the snlphnrets. The next crushing will be much better. The New York Hill mine is very promising.

The Milton ditch is at last through. The connection was made last Saturday. The source of the ditch is now on the divide between here and the State of Nevada, at a place called Milton, and penetrates the country that has snow on the gronnd ten months ont of the year. By this connection the water snpply ie increased hy 2,000 inchee, and on Saturday last, immediately after the water snpply was turned on, four hydraulic claims that have been compelled to quit washing because of a lack of water, commenced work, and are now getting out the twenty-dol ar pieces. The ditch company expect to be able to supply all demands for water hereafter.

Deanman's Flat.—About two and a-half miles south of Grase Valley the above flat is situated. It has many quartz ledges and some of them have been proven to be very rich. The Pittsburg owned by the Cook Brothers and E. P. Sanford is a newly-worked ledge, yet the profits have been sufficient to pay all the expenses of opening it, and pay a handeome dividend besides. There is no machinery on it except a "whim," worked by horee power. We learn that a "crnshing" is being worked now, at Larrimer's mill, and that it will produce eight or ten thousand dollars. The rock from the flat has all to be hauled two or three miles to he crushed. A qnartz mill on the spot would pay well hy crushing custom rock, and would stimnlate proepectors. It is one of the best fields for the prospector in the county, and will ere long he proven to be a very rich mining section.

PLACER COUNTY.

Goln Run.—Cor. Placer *Herald*, Dec. 12: The miners have all been hard at work for some time past, and even if tbe water shonld dry np now, as the present fine weather indicates, they will be able to make quite a handsome clean-up before Christmas. Mr. J. B. Taylor, I understand, has sold out his claim to the Miner's Ditch company. The big tunnel is still progressing at a rapid pace.

SAN BENITO COUNTY.

Another Mine.—*Advance*, Dec. 12: We are informed that abont two weeks since Mr. Gonld, engineer of tho S. P. R. R. company, passed through Panoche valley en route to a newly discovered quicksilver mine, said to bo located 11 miles south of New Idria. The deposits are said to be rich in mineral ore, and a company of San Francisco men are interested in the prospect and are about to incorporate.

SAN LUIS OBISPO COUNTY.

Cambria Items.—*Tribune*, Dec: 12: The furnace on the Oceanic mine has been completed and the fires started therein to dry the interior preparatory to charging with ore, the reduction of ores will commence in a few days. It is tho calculation to turn out at least 500 flasks of quicksilver per month. Oceanica No. 2. This company has duly consolidated their claims and perfected an organization. Work will be commenced next week and everything bids fair to make it as valuable a property as tho original Oceanic. Oceanic No. 2, comprises the claims immediately adjoining the Oceanic on the east, and is situated on a higher point of the mountain. There are excellent surface indications, the property is in a direct line of the lode as shown in the works of the Oceanic.

North Star. This company intend re-commencing active work, with a view of opening what is considered one of tbe best miaes in the district. The main tunnel is now in 156 feet and directly under the heavy rich surface croppings. Allowing for dip of ledge, it is believed that 40 or 50 feet more will cut the deposit. Fair indications are now perceptible in the tunnel. The Mercury company will issue stock in a few days and commence a systematic attack on what is believed to be a rich mercurial stronghold. The company own 7,500 feet and hold a quit claim of the patentee of the land.

TUOLUMNE COUNTY.

Lany Washington.—Tuolumne *Independent*, Dec. 12: Mr. Fred Grainer, an old experienced qnartz miner, has been appointed superintendent of the Lady Washington mine. The new engine of a ten horse power for the hoisting works has been put in readiness for the work. They have come npon $25 and $30 rock 150 feet from the surface, and if it holds out 300 feet further, the distanço they propose to run it. it will prove a mine of great value without donbt.

The water came in to Columbia on Saturday night, and the miners there and thereabouts went to work on Monday morning. Repairs and hresks along the line of the ditch have been the cause of no water for some time past.

Shaw's Flat.—Mr. J. Potter, of Springfield, has discovered a vein of rich quartz on his ranch, which appears to be well defined, and running in an easterly and westerly direction. He is now sinking a prospecting shaft on the vein, where it crosses the Shaw's Flat road, about one-eight of a mile south of Springfield. He is down on the vein 30 feet from the surface or croppings. At this depth it is three feet in thickness.

New Marble Discovery.—A marble discovery has been made by W. G. Loag and J. P. Dart on Turnback creek, one mile below Roache's camp. It has the appearance in places of being 150 to 200 feet wide. It crops ont in hold relief—the face being a perpendicular bluff 500 feet high from the bottom of the creek, giving an excellent show to work and open a quarry. The color of the marble is white, blue and white and a flesh color, and is susceptible of a high polish.

Nevada.

WASHOE DISTRICT.

Con. Virginia.—Gold Hill *News*, Dec. 10: The north drift, on the lowest level, is advancing rapidly in fine ore. Work has lately been greatly retarded on this level (1550 foot), in consequence of having to retimber a considerable portion of the drift. From this level, the winze to the 1600-foot level, has already been sunk to that depth, and ie still continued in the very finest ore yet disclosed in the mine. This ore is compact, very hard, and contains a little water which seeps through the rock freely. On the 1500-foot level the developments in the ore body are exceedingly encouraging. The ore breaste on the 1300 and 1400-foot levels looks well and are yielding handeomely. No ore has been stoped out yet below the 1400-foot level. All that has yet been taken from below that point is what comes from the prospecting drifts and winzes. It will require several weeks time to complete the opening drifts preparatory to breasting out the ore, by which time the new mill of the company will he in readiness to turn out bullion. This accession to the milling capacity of the company will enable it to make increased returns to the stockholders.

California.—The cross-cut east from the Consolidated Virginia shaft, 14 feet south of the California line, is now in 44 feet, with the face still in the richest kind of black sulphuret ore, which assays up in the thousands. The drift from the Ophir, 35 feet below the 1465-foot level, is into the California ground, and shows ore of asimilar rich character; and at the 1400 and 1500-foot levels cross-cuts are being made which will develop the valne of the ore body in the California, very shortly. Experts continue enthusiastic as to the extent and richness of the great bonanza, and their figures prognostications as to the amount of ore in sight, and what it will yield are simply fabulous.

Ophir.—Daily yield 250 tons of ore, from the 1300 and 1400-foot levels. The ore breasts at and between these two levels show an immense amount of rich ore, and the drifts and cross-cuts of the 1465-foot level, are all in rich ore. The ore body at that point is fully demonstrated to be of great depth also. It evidently is a portion of the great Consolidated Virginia and California ore body, and not only widens, but extends farther north as greater depth is attained. Great expectations are justly indulged in as to what may be developed in cross-cutting at the 1700-foot level. The air connections, by means of winzes from the upper to the lower levels and connecting with the drift running through the California to the 1500-foot level of the Con. Virginia, gives a splendid circulation of air, so that work goes on very comfortably.

Belcher.—Daily yield 450 tons of ore from the old working levels. The ore breasts hold out well, and will for a long time to come. The development of the 1500-foot level is actively going ahead, the cooler weather furnishing better air, and the chances for fining more good ore at that point are very encouraging. The main incline is now down 59 feet below the 1500-foot level, and the drift started from the station to open the level is getting along well.

Lany Bryan.—The main west drift at the 250-foot level is now in 137 feet, and is evidently about catting the vein. This will cut into new unprospected ground, where something good is expected.

Sierra Nevada.—The mill is kept steadily supplied on ore from the mine, principally from the old upper workings. The good ore development found in the north drift from the old tunnel, is showing finely, and the general prospects of the mine are excellent.

Caledonia.—The air winze from the 900 to connect with the 1000-foot level is now down 97 feet, and good progress is now being made, the ground working favorably.

Phil. Sheridan.—Main west drift in 113 feet to-day, with the whole face in clay, quartz and porphyry, which, with a slight increase of water gives indication of closer proximity to the ledge. This mine being located immediatcly adjoining the Sierra Nevada, on the north possesses more than an ordinary interest at the present time, owing to the immensely rich developments made in Ophir, and other mines in its vicinity.

Florida.—The new hoisting machinery has been started into operation and runs splendidly. The building is nearly finished. Drifting west for the ledge is commenced at the 300-foot level, which is 45 feet above the bottom of the shaft. Good stringers of low grade ore already met with in the face of the drift.

Imperial-Empire.—Main south drift, 1850-foot level, still being driven ahead toward the Yellow Jacket line, and the south winze continues in ore. The drift at the 2000-foot level is also driven ahead, but the air in both this drift and the winze above mentioned is hot and not good.

Yellow Jacket.—The main incline is being actively sunk for another level, and is to-day 100 feet below the 1740-foot level, in favorable working ground. The 1740 is the present lowest working level, and from it a drift or cross-cut east is being made, which is now in 150 feet.

Crown Point.—Daily yield, 500 tons of ore from the 1400 and 1500-foot levels. The ore breasts continue looking and yielding well, regardless of the price of stocks. The development of the 1500 and 1600-foot levels is actively going ahead, and new discoveries of ore, in addition to the extensive deposits already existing and being worked, are daily anticipated. It will take years to work out the ore bodies already found in this famous mine.

Daney.—In the main drift west, at the 400-foot level, such a heavy increase of water has been encountered, that work at that point had to be stopped night before last. The ledge is found to be about 190 feet wide.

Knickerbocker.—Everything about the mine going on as usual. Drifting at a rapid rate toward the ledge, both from the 600 and 700-foot stations.

Bullion.—The good ore prospects found in the south drift of the 800-foot level continue, and good assays are obtained from the occasional bunches of quartz met with.

Savage.—The main incline is still progressing deeper, with its bottom in hard blasting rock. The heavy masonry foundations for the new engine are being laid, and the building over it is in process of erection.

Chollar-Potosi.—Daily yield, 45 to 50 tons of ore, which aceays about $28 to the ton. Cross-cutting at the fifth etation level develops nothing new and important as yet.

Leo.—The ore veiu in the face of the main tunnel, continues strong and well defined and carries some very good ore.

Senator.—The west drift of the 400-ft. level has cut into eoft ledge matter a distance of 18 feet, from which assays of from $18 to $35 to the ton are obtained. This goee to show that pay ore ie to be found east of the Comstock.

Succor.—The rock at the bottom of the main sbaft is softer and works better, allowing of better progress being made in siaking.

Rock Island.—Some very fine looking white qnartz, filled with sulphnrets, is coming from the winze in the east vein.

Woonville.—The ore breasts of the 200 and 300-foot levels are yielding the nsnal amount of good ore, keeping the mill running steadily.

Sutro.—The vein of low grade ore cut into last week continues looking better as further developed, and gives assays as high as $20 to the ton.

Hale & Norcross.—The northwest drift at the 2000-foot level is now in 159 feet, the vein matter still continuing, and no east wall as yet.

Baltimore Consolidated.—Water troubles very much, taxing the hoisting tanks to their utmost capacity. The heavy, new pumping and hoisting machinery ordered will be here in a few weeks.

American Flat.—The winze at the 450-foot level is in good ore, which gives high assays, and is estimated to be 50 feet wide.

Mint.—Shaft sinking in good working ground with excellent progress.

Gould & Cuary.—The water is not quite drained sufficient to alllow of explorations at the lower levels to be resumed, but the pumps are working very effectively.

Arizona.

Mining Items.—Arizona *Miner*, December 4: This is splendid weather for mining; water everywhere; weather just right for our heroes of the pick and shovel.

Yesterday, in a trip around town we called at the several stores and were shown gold to the value of $5,000 for which they had traded in a very few days.

In Big Bug district, Jos. Faut and his partners are extracting very rich ore from the Silver Belt mine. Mr. Hitchcock is running arastras with his water wheel and many other miners are placer mining, taking ont ores, etc. Not less than 100 men are at work on the Upper Hassayampa.

Noyes' ten-stamp mill is crushing silver ore.

Bill Smith's ten-stamp mill is crushing the richest Vulture ore ever yet worked.

Lynx creek is alive with miners who are taking ont gold with arastras, slaices, and by the hydraulic process.

The General Crook mine is yieldiag its vast treasnres at the rate of $200 per ton.

A new and rich ledge was recently found near tho Crook hy a Mr. Moore. Hurst & Co. are constructing arastras and a watsr wheel to run drag rocks. This ledge is said to be large and promising.

Idaho.

New Company.—Idaho *Statesman*, Dec. 5: Mr. John L. Tillman, of Rocky Bar, is in town and paid us a visit yesterday. Mr. Tillman is one of the old pioneers of Alturas county, and to use a miner's phrase, "he is a powerful good rustler." He went east about a year ago and formed a mining company in Buffalo N. Y. their superintendent Mr. Cavanah is now at Rocky Bar pushing their work on the mines while Mr. Tillman goes east this winter to procure machinery.

Montana.

Mr. R. McMind, of American Bar designs putting a Little Giant on his mine next season.

Parks, of Butte, has just commenced taking out ore from the Parrott lode under contract of the Helena First National Bank.

P. Brogan, of Yreka has bought out the interests of his late partner Mr. Kentedy, in Elk Creek for $8,000 and now has 5200 feet of ground in the gulch.—*Missoulian, 25th inst.*

J. W. Rankin, with a force of hand is engsged in getting out timbers for the new bridge over the Bitter Root river near Stevensville.

The excitement consequent upon the rich iscovery on Nine-Mile continues nnabated.

Shippino Quartz. — Helena *Independent*, Dec. 4: We are credibly informed that some of the qnartz owners in the vicinity of Bannack, among them the Peck Bros., are now shipping their ores to Utah for reduction. They have heretofore shipped to San Francisco, Newark, Swansea and Omaha, but a recent shipmeat to Salt Lake demonstrated that they could do the best the nearest home. During the coming season there will he several hnndred tons of ore shipped from Bannack to Salt Lake for reduction. By shipping to Utah returns can he had in from 35 to 45 days, while to other points it requiree from three to six months, and the result is that not only those miners who possess considerable capital can afford to ship to a distant point.

Oregon.

Mining Items. — *Oregonian*, Dec. 5: The mines of Eastern Oregon expect a good season next year from tho way the winter has started in.

J. W. Virtue, of Baker City, is preparing a cabinet of minerale for exhibition at the Centennial Exhibition.

A rich deposit of coal has been found on Long Tom, a short time ago.

Our Baker City correspondent thinks there is enough mineral wealth about that place to make a city rich as Palmyra of old. The mining in that county is yet in its infancy.

The Ironetone Quartz mine in Baker county is looking better the further down it is explored. The Virtue mill ie pounding away on good rock. The owners of the Summit mine are taking ont good rock and will continue throngh the winter.

The Jacksonville *Sentinel* says: "Prospecting for cinnabar is the exciting pastime of the loose-footed in thie region. Rich ledges are supposed to he near here as much rich float ore is picked up by miners. The existence of some ledges is demonstrated."

Extensive Gravel Mining Operations.---The North Fork Company's Claim.

In our last week's issue we published a description of the ditch and pipe which have been constructed this season by the North Fork mining company. This week we copy from the Plumas *National* a description of their extensive and valuable claims.

The mining ground consists of the claims known as Cummings' hill, Dutch hill, Barker hill and Owl hill. These mines have been worked more or less during the last twenty years, but the facilities at the command of the owners of these claims were so poor that little was accomplished. Sufficient work was done however, to prove the value of the ground in the different claims. Lying contiguous to, and in such a position that our ditch would cover the ground in each of the claims, the North Fork company, purchased the whole ground from the different owners, and in February last made application to the U. S. Government for a patent to the same, giving the claims thus consolidated the name of the North Fork Placer mine, and claiming in the application, 371 17-100the acres. Since the application for patent the company have taken up and bought claims adjoining their mine to the amount of nearly 500 acres, and have now, in all, about 800 acres of mining land in one body, lying from 200 to 500 feet under their ditch.

The first of these claims that is reached by the ditch is Cummings' hill, which was purchased from Mr. Myron Wagner, the company's present superintendent. This is the highest ground within the boundaries of the North Fork mine, some of the gravel being a hundred feet above the line of the ditch. This, however, will be worked by water pumped from the ditch. For this purpose the pump and engine now at Ohio valley is to be used. The pump is capable of raising one hundred inches of water to the hight of two hundred feet. The gravel at Cummings' hill is very rich. Until the water was brought to the ground by the Ohio creek ditch the claim was worked by drifting, and the dirt hauled in carts to water caught in a reservoir, and fed by a small spring affording only a few inches of water. Even by this slow process as high as $1,000 per day has been made, and our informant has seen $110 washed from a single load of dirt, hauled to the water in a hand-cart. By this mode of working, consequently, very little ground compared with the immense body in the hill, has been worked. Considerable gravel taken from Cummings hill, and not considered sufficiently rich to pay for carting and washing, has been dumped at the face of the works, and will now be washed and pay good wages.

Dutch hill, the next claim on the line of the ditch, was purchased by the company from Julius Catsuna & Co A considerable amount of this claim can be worked by piping, but it is more properly a drifting claim. Three bed rock tunnels have been run on this ground, one of which goes into the hill from the south, and dumps into Barker ravine; the other two enter the hill from the west, and dump into Owl creek. The last tunnel run, one of those dumping into Owl creek, is the main tunnel of the mine. It is now in a distance of 700 feet, and has been run by the North Fork company since they came into possession of the mine. The work on this tunnel was commenced nearly a year ago, and was run a considerable distance by hand drilling, the miners making about two feet per day in bed-rock; but one of Wood's steam drills has been used during the past summer, which averaged five feet per day. The motive power used was Ericsson's new air condensing engine, the only one, we believe, on the coast. The main drifting ground in the Dutch hill claim is about 1,400 feet wide, and ten feet deep between the lava-cap and the bed rock. Where the gravel has been reached and worked, it has proved exceedingly rich, paying as high as an ounce per day to the hand. This gravel is capped with lava, and the tunnel is through solid bed-rock its entire length, tapping the gravel at what is supposed to be the lowest point in the channel.

Barker hill, to the east of Dutch hill, is the last point reached by the ditch. This is a fine body of gravel, similar to that in the Badger, Gopher and Hungarian Hill mines, near Quincy, and was purchased by the company from Mecklin & Co. This ground is easily worked, and is very rich. On the greater part of Barker hill a pressure from the ditch of 200 feet and over can be used. The old Ohio creek ditch reached this claim, and while water lasted in it—which was only about 200 inches for a month or so in the spring—the claim was worked. Last spring the present proprietors laid a flume up Barker ravine to bed rock in this claim, and, using a Little Giant machine, worked off considerable ground with such good results that they feel confident of cleaning up $1,000 per day with proper machinery, and the water which will be rendered available from the new ditch. Besides the ground within the boundaries of the old Barker hill claims, about two hundred acres of a gravel flat lies below it, which the company has already located or otherwise secured, and which is now, with this new water privilege, rendered very valuable, and will be worth thousands of dollars per acre.

Owl Hill lies off the line of the ditch a short distance, and a branch ditch to cover the ground will have to be dug. The company at present do not intend doing anything with this claim, having sufficient ground immediately below the ditch to keep them busy for years to come.

With this immense body of splendid gravel, and with all the modern improvements in hydraulic mining to aid them, it takes but little wisdom to predict that the North Fork company will realize a very handsome profit for their investment. The work already described is not the sum total of their outlay, as it was found necessary to construct roads to bring in their freight, and with this and other expenditures, their expenses have been enormous. A new road has been constructed from Bidwell's bridge, in the Meadows by way of Ohio valley, to Dutch Hill and a new road also from Dutch Hill to Butt valley. Freight from below now comes by Humbug valley, thence to Butt valley and from there to Dutch Hill. The old road is by way of Prattville, and the new one saves some ten miles of travel. The company have also put up a store at Dutch Hill and stocked it for the accommodation of their miners.

We neglected to mention last week that the surveys for the line of ditch and pipe were made by our County Surveyor and townsman, Mr. A. W. Keddie. The line was so difficult to establish that it required over two month's labor with a full surveyor's "crew" to do the work. Good judges of such matters inform us that Mr. Keddie's work is as fine a piece of civil engineering as was ever done in the State, and shows plainly that he is thoroughly posted in his business.

In conclusion we would say that the North Fork company certainly deserve success. Their capital has been invested with a lavish hand, and now, as they draw near to the completion of their labors we are glad that they can safely count on being liberally remunerated.

Juvenile Criminals.

Those who have read the recent criminal records of San Francisco must have been shocked at the accounts published in the city papers a few days since, of fourteen juvenile criminals being under arrest at the city prison on one night; their ages ranging from eight to fourteen years. One of the youngest of these had secreted about his person stolen jewelry amounting to over $150 in value. Among these youthful criminals were juvenile burglars and pickpockets; other departments of crime were also well represented. The "resources of California" in criminal matters are now being developed to that extent that our city prisons are crowded beyond their lodging capacity, and age having precedence here—not out of respect but as a matter of safety—these youngsters were denied ordinary cell accommodations, and were compelled to lie upon the benches out side.

A gentleman connected with one of the morning papers, and who was on duty as night police reporter, in his conversation with us on the subject, characterized the scenes as "sickening in the extreme." It is indeed a sad and sickening sight, and would be appalling did we not know that the capacity for good in human nature is equal to its success in crime; and if people would be satisfied in any case in thanking God that they and their children are not as other people and *their* children, this would furnish as justifiable an instance as could be found. But social Pharaseism is getting to be at about as great a discount as that which formerly went about dressed in a religious garb.

We protest against the scene described above being accepted as a representative picture of juvenile life in San Francisco. Our large and numerous schools are as crowded with bright, pure and diligent searchers after knowledge, as are our city prisons with the graduates of criminal education, and scores of boys of the ages of these youthful criminals, are working regularly at various occupations in large and small establishments, earning money that is judiciously used by worthy families. But this, like much other true merit that is blooming in our midst, is allowed to go without any newspaper record. Suppose, just for a change, that one of our enterprising dailies were to have a school reporter and a workshop reporter, who were required to search for merit in our excellent schools and thriving shops and manufactories, as indefatigably as their brother reporters ferret out vice in its "dives" and other hiding places. Should we not obtain a more accurate picture of the times and the city! in which we live than is given us at present? The popular press is just about as faithful a "mirror of the times" as is the stage; and we all know how the latter has failed in obeying the injunction of the great master to "show virtue in its true image," and has only shown "vice its own deformity."

Great injustice is also done to the girls of San Francisco. There are hundreds of fresh, blooming, promising girls, going and coming to and from their work every morning and evening, receiving fair wages and respectful treatment from their employers, there being nothing in their conduct that would warrant us in classing them below the girls of any city or rural district. But the Simon pure in our midst can see nothing good in them, and the residents of the rural districts and people of the East, seem to possess an insatiable appetite for anything derogatory to "the girls of San Francisco;" and as the press is bound to tell the public what it wants to hear, whether it is strictly true or not, disparaging false impressions continue to prevail.

The broad level of middle life is never traversed by the newspaper reporter. The Stanley's of the press are sent to Africa, and expeditions are fitted out to explore the Polar region, but the vast, prosperous, progressive country lying between these two extremes, is scarcely looked into except to furnish means to sustain these gigantic exploring enterprises. One class of reporters go about like Chinese rag-pickers, hooking filthy scraps from the gutters and dirt piles of society, emptying their huge baskets morning and evening at the doors of a disgusted community. The higher grade of the reportorial corps is commissioned to devote unlimited space to chronicling the movements and describing the trappings of "upstart fortune;" while the only newspaper employees who visit the decent, non-sensational, every-day homes of middle life, where the only reliable representation of the social condition of the country is to be obtained, are the carrier and the bill collector.

Probably this seeming neglect will find an excuse in the very fact that there is nothing sensational in the latter place to write about; but is this expansive mirror only expected to reflect the sensational points of the times? Should it not show us the graceful courses and sweet dimples of society, as well as the unsightly warts and tumors with which it is afflicted, or the untasteful frills with which it bedecks itself? Possibly, too, it is better for the broad land of social life that it thus remains unvisited; but this will hardly be accepted as the reason why it has remained unvisited.

Still there is no denying that these striking points in this sad picture are, in the main, correctly given, though the background is not there; and we could furnish additional facts from our own observation which would make the above sketch of youthful crime still more striking, and we believe that if the subject were carefully studied—divested of its sensationalism—it would result in a conviction that these youthful criminals—and many also of a larger growth—are impelled in their wild doings more by the romance of brigandage than by the desire of pecuniary gain. We believe further that a very large portion of the crimes, as well as the follies that are chronicled so conspicuously in the press of the day, are committed with a view to be so chronicled; and that the American mania for getting its name into print is crowding the criminal departments of American journalism, as uncomfortably as it does the poet's corner, and the columns appropriated to prose fiction and to science. Thus sensational journalism, like jealousy, may be credited with making the meat it feeds upon.

A NOTABLE MINING ENTERPRISE.—Among the many mining enterprises inaugurated in this vicinity during the past year, none excels in importance the re-opening of the old "Red Hill claim," for which preparations are now being made. The claim mentioned is known to be rich, it having been profitably worked for several years by former owners. The great drawback was, however, that water could not be got to the ground, under pressure sufficient for hydraulic purposes, without laying down an iron pipe from the ditch to the claim, a distance of about 4,000 feet. The former owners of the ground were not prepared to go to the necessary expense, and the claim has for some time lain idle in consequence. Quite recently the ground has been purchased by Mr. W. W. Cook of this place, an experienced miner, who is making preparations for working the claim upon an extensive scale. Water is to be conducted to the mine, from the main ditch on Stockton hill, through a 10-inch iron pipe, the distance being nearly a mile. By this means a pressure of 200 feet will be obtained—sufficient to establish a powerful hydraulic. Before washing is commenced the claim will also be put in proper shape for working to advantage, and supplied with all the paraphernalia known to modern hydraulicing. The enterprise involves a large expenditure, but the known richness and extent of the ground to be worked are amply sufficient to warrant that it will be a profitable one. The iron pipe is now being made by Mr. Horace Ray, of this town.—*Calaveras Chronicle.*

O. M. EVANS is working an antimony mine, near Unionville, and making it pay. The mine is situated in the foothills, about one mile from town, in a quartzite formation. It has been developed by a tunnel 300 feet in length. At the face of the tunnel some very rich silver ore is found in connection with a vein of antimony from two to four feet thick. The ledge runs into the mountain in a northwesterly direction, and the ground adjoining is so soft that it costs but four dollars a foot to run the tunnel. From 10 to 15 tons of antimony is shipped from the mine weekly to Starr's smelting works, San Francisco.

THE prospects of the quartz mines in the Salmon country, says the Yreka *Union*, were never more flattering than at present. At the Black Bear there are 32 stamps running, at the Klamath 32, and at the Evening Star 4. The Morning Star Company, whose mine and mill are on Jackass Gulch, expect to start their mill shortly. There is probably not another quartz district in the State in which so large a proportion of the ledges pay.

The Sacramento Beet Sugar Company.

The Board of Directors are H. G. Smith, Phillip Scheld, Samuel Lavenson, W. E. Brown, and Julius Wetzlar. The officers are: President and Treasurer, Julius Wetzlar; Secretary, A. J. Wetzlar. The location of the works is two miles from Sacramento, at the intersection of J street and the levee. The land owned by the company comprises about 700 acres, added to which is 600 acres of leased land, making a total of land operated by the company 1,300 acres. The capacity of the works is 80 ton per day, (24 hours); the yield of Beets, per acre, average 12 tons; the varieties of Beets grown are the White, Sicilian and Imperial. The percentage of saccharine matter averages 12½ per cent, and of first quality Sugar, 5⅝ per cent. The capital invested is $300,000. The cost of machinery was $140,000, that of buildings $40,000, and that of teams, tools, etc., $20,000, making a total of $200,000. The buildings consist of a frame factory 100 by 45 feet; a frame Sugar storehouse 30 by 40 feet; a frame Superintendent's dwelling 20 by 35 feet, 2 stories; a frame boading house 35 by 45 feet; eight frame dwellings 24 by 30 feet; one frame Chinese quarters 50 by 30 feet; a blacksmith shop 30 by 20 feet; three frame granaries, the first 85 by 30 feet, the second 20 by 40 feet, and the third 10 by 15 feet; three large frame cattle stables 100 by 40 feet each; one large frame tool and implement storehouse-shed 20 by 30 feet; and four large frame stables, the first 60 by 30, second 30 by 40, third 35 by 20, and the fourth 60 by 25 feet. They raised their own seed this year, at a saving of $4,500. They formerly imported 10,000 pounds. The cash business for 1873 equalled $190,000, and that for 1874, $300,000. Of the land operated, 385 acres are located in Davisville, Yolo County, Cal. The number of white men employed is 150, and that of Chinese, 500. The company owns its own barrel machinery. The works were in operation in 1873 for five months, and in 1874 for nine months. The machinery consists of five steam engines: No. 1—30-horsepower, square beam, and drives eight pumps; water, vacuum and feed pumps for boilers, gas pumps for carbonic acid gas, and hot water pumps. No. 2—15-horsepower, drives Beet washing machine, elevators and Beet cutters. No. 3—8-horsepower, drives the centrifugal machines, Sugar grinders and the Sugar packing machines. No. 4—5-horsepower, and works the washing machines, elevators and drawing machines. The water is obtained from wells, and the fuel used is wood, of which from 11 to 12 cords every 24 hours are consumed. So carefully has these works been managed, that but one small accident has occurred in two years. These engine works require all the steam that can be generated in three tubular boilers, 48 feet in diameter. A diffusion battery is used to extract juice in this establishment. The process of manufacture is as follows: The Beets are taken out of the ground by a two-tined fork, the heads or green part of the Beet is then chopped off with a large cleaver knife, the Beets are loaded on a wagon, transferred to the cars, hauled to the Beet factory storehouse, thrown into a washer, and at the same time assorted (that is, bad or damaged Beets thrown out), passed from there by an an endless belt with cups to the chopper, chopped into ribbon strips and dumped into the batteries, where steam is inserted; the juice is then forced by water and steam into the bottom of the battery and carried through pipes into a steam drum, forced thence through lime and bone coal into the filterers, returned from there purified into the copper boiler, boiled down to a crystalization point, drawn out from there into tanks, allowed to cool and stand, and then introduced into the centrifugals, from which they come out as pure Sugar, leaving a refuse which is again boiled down and worked over. The Sugar is then taken to the crusher room, either ground or crushed, boxed or barrelled; is then loaded on cars and sent to a ready market.—*Journal of Commerce.*

COPARTNERSHIP NOTICES.—The Healdsburg *Flag* publishes the following, which may prove valuable to litigants: The law of this State is that no firm or company not incorporated, doing business in the State shall have a standing in Court until there shall have been a four weeks' publication of the full name of all the members of the concern. Some weeks ago Walker & Davis, of Cloverdale, had a car-load of hay burned. They sued the railroad company for the value of the hay, and were nonsuited, on the ground that they had not made the publication of partnership required by law. Whether the law is a just one or not, it is on the statute book, and all firms to protect themselves should follow its direction.

PANAMINT BULLION TRADE.—A dispatch from Baker-field, Kern county, says: A large force of Chinamen are being placed at work opening a new wagon-road from the end of the S.P.R.R. near Allen's camp, to a point east of Tehachipa Pass. This is a preliminary step toward a project which is about being made to bring all the Panamint and Cerro Gordo bullion trade to the S P.R.R. Parties possessed of ample means are connected with this enterprise, which is calculated to enhance the developments of the mining regions of our eastern boundary.

THE San Benito *Advance* is informed that a quicksilver mine has been located about eleven miles south of New Idria. The deposits are reported to be rich in mineral ore, and a company of San Francisco men are interested in prospect, and are about to incorporate.

MINERS are leaving Utah for Panamint.

Good Health.

Imaginative Medicine.

Charms, amulets, talismans and phylacteries all belong to the list of articles which produce imaginative cures; seeing that the persons who trust to them believe in some good obtainable from them, in purse or in person, in health or in welfare; and if the good does come, more assuredly the imagination is the channel through which it approaches. Two or three years ago, at a town in Worcestershire, after the inquest on the body of a man drowned in the Severn, a woman applied to the chief constable for permission to draw the hand of her son, a boy eight or nine years of age, nine times across the dead man's throat, in order to bring about the removal of a wen from the boy's neck. In another instance, in the same county, this was actually done, with fatal results; for the man had died of typhoid fever, which was in this way communicated to several living persons. A ring made of the hinge of a coffin, and a rusty old sword hung by the bedside, are (in some districts) charms against the cramp; headache is removed by the halter that has hung a criminal, and also by a snuff made from moss that has grown on a human skull in a graveyard. A dead man's hand, and especially the hand of a man who had been cut down while hanging, dispels tumors. Warts may be removed by rubbing them with a bit of stolen beef; the chips of a gallows, worn in a little bag round the neck, will cure the ague; a stone with a hole in it, suspended at the bed's head, will prevent nightmare. Many verses are known, which if repeated aloud, are credited with curing cramp, burns, and other bodily troubles. When you have the whooping-cough, apply for a remedy to the first person you meet with riding on a piebald horse—a ceremony that Dr. Lettsom, the physician, was fated more than once to become acquainted with.—*All the Year Round*

How Poor Eyes are Made.—I have, during the past two months, seen lace veils drawn tight over the face in church, both morning and evening. I have seen ladies teaching in Sunday-school and in sewing-schools, where the expression of face has so much to do with claiming and retaining the scholars' attention, with the inevitable veil covering like a mask both faces and expression. Ladies were seen at the evening receptions at the Metropolitan museum of art, looking at pictures and porcelain through lace veils, which in one or two instances were beaded. I myself saw a lady at the Astor library procure the seventh volume of Froude's History of England, which she proceeded to read through a dotted lace veil. And last, but not least, I am told by a friend who attends the art school at the National Academy of Design, that young ladies go there and draw from plaster casts for hours at a time without lifting their black lace veils.—*Cor. New York Evening Post.*

A Word About the Lungs.—In nearly all cases the natural capacity and area of the chest are sufficient for all the uses of respiration. But the capacity of the chest may be diminished by the habit of stooping, or by the abominable practice of tight-lacing. The false grace of the wasp form in woman is almost always gained at the expense of the lungs. The tight belt and the armour above it fatally compress the air-cells, and forbid all easy union of the oxygen of the air with the currents of the blood. The lungs cannot well spare one square inch of the space which they naturally fill. Consumption is the sequel of corsets. The war of hygiene upon tight waists must be positive and unceasing, for fashion is in nothing more destructive to human life than in this. The lungs are also injured by being over-worked, strained, or made to do more than any reasonable estimate of their powers would allow.

Walking as an Exercise.—There is no exercise so fine as walking, if one knows how to take it. When a disease in one part of the body becomes incurable, the physician will sometimes attack some other part with the design of diverting the sickness from its stronghold. So a man who uses his head till his brain is weary needs to tire his legs. One complains that he cannot walk. It is because he does not observe the rules. Walk easily. Take time and do not hurry yourself into exhaustion. By walking a short distance at first, and gradually increasing it, one soon is able to walk eight or ten miles without fatigue, and with good results to health. "At the end of a mile," says an old pedestrian, "walking is delightful. You wouldn't ride if you could." The road to health is too narrow for wheels.

Dyspepsia.—"Dyspepsia is the demon of America," says the Philadelphia *Bulletin*. "Making haste to get rich, America has neglected her stomach; she has forgotten to learn how to enjoy her riches, and her generations of sallow, nervous, unstrung men and women will not be reconstructed in the sturdiness of their forefathers until men and women reach a point where they can take time to dine."

To Stop Nose Bleeding.—Two small arteries branching up from the main arteries on each side of the neck, and passing over the outside of the jawbone, supply the face with blood. If the nose bleeds from the right nostril, for instance, pass the finger along the edge of the right jaw till the beating of the artery is felt. Press hard upon it for five minutes, and the bleeding will cease.

Glycerine.—When it is necessary to give castor oil to children it can be mixed with an equal part of glycerine and two drops of cinnamon to the dose, and will not be recognized.

In typhoid fever and other diseases in which turpentine is indicated, patients often object very much to its taste. The addition of a half an ounce of glycerine to a six-ounce emulsion disguises almost completely the turpentine, especially if a drop of oil of gaultheria or other volatile oil, be added for each dose.

No doubt the principle is capable of wide extension. It is said that cod-liver oil may be disguised with glycerine and whisky. Dr. Snow writes to the *British Medical Journal* that an addition of a small amount of glycerine (about half an ounce to an eight-ounce mixture) will altogether obviate the sensation of astringency produced by the chloride of iron dissolved in syrup.

Consumption.—Dr. McCormack, of London, advances the theory that consumption, or tubercular disease, is caused solely by breathing air that has already been breathed. Vienna is a healthier city than Petersburg, because in the last named city close streets are in universal use, and fresh air is carefully excluded from the room. Eating the flesh of tuberculous creatures will not produce tubercle in healthy animals to whom it is fed. Fats counteract the tendency to consumption. Observation shows that persons who in early life show a taste for fat meat seldom fall a victim to this disease, and, *vice versa*, that consumptives have early shown a repugnance to such food. It is suggested that if the appetite for it is wanting it should, if possible, be created by tonics and abundant exercise in the open air.

Better than Doctors.—An invalid girl in Philadelphia was, it is said, cured of a nervous affection of the spine, which from childhood prevented her from walking, by attending the entertainment of negro minstrels every night for two years. She soon became stronger, and in less than a year could walk home from the theater. She never received any benefit from the best medical advice, and her friends give the minstrels the credit of her recovery.

Useful Information.

Economic Consumption of Smoke.—The operation, at Glasgow, of a patent self-stoking smokeless furnace, is thus spoken of in the Glasgow *Herald:* It meets the case more thoroughly than any invention of a similar kind that has hitherto come under notice, and is as simple in construction as it is efficient in operation. The coal is placed in a hopper, over the front part of the furnace, into which it drops in small quantities through a couple of apertures. It is not necessary to open the front door of the furnace, except to see how the fire is getting on, for by a simple mechanical readjustment, the man in charge of the furnace may regulate the quantity almost to an ounce. As it is added to from above, the coal sinks down and slides slowly until it reaches the bars from the bottom of the furnace. These bars are acted upon by plungers, which carry them forward together, with their layer of coal on top, and then, an eccentric being applied, every third bar in the series is brought back to receive a fresh supply. In this systematic and continuous way the furnace is fed with coal, which passes right through in slow and easy stages, the same quantity of fuel being at all times in exactly the same state. Combustion is, therefore, perfect.

How to Sharpen Steel Drills.—It is not generally known that steel can be made so hard that it will pierce any known substance but a diamond. Many jewelers and lapidaries have great trouble in getting the points of their drills hard enough to pierce an amethyst. For the benefit of miners and others using drills that require a hard point we recommend the following manner of manipulation. The drills should be held, if small, by hot pinchers or tongs, while tempering. First heat the tool to a white heat and then press it into a stick of sealing wax, leave it but a second there, and then stick it into the wax in another place. This operation is rapidly repeated until the graver is too cool to enter the wax. In turning or drilling the tool is moistened with oil of turpentine.

A Long Continued Fire.—The longest blast of a charcoal furnace yet announced is that of the Shelby Iron company's furnace, at Shelby, Alabama. It has now been working continuously for three years and seven months, and has made an average of 100 tons per week since it blew in. The greater part of the production has been an excellent iron for car wheel purposes, and its quality ranks it among our very best American irons. The ores used are limonites, yielding, when roasted, about 53 to 54 per cent. in the furnace. The consumption of charcoal has been 130 bushels (of 18½ lb.) per ton of pig iron produce. The lining of the furnace is of fire brick, made at the works from clay found in the neighborhood.

What Coal Loses by Being Made Into Coke.—From an exchange we learn that Connelsville coal, which may be taken as the standard of coking coals, weighs 80 pounds to the bushel. When properly coked, 100 bushels of coal yield 125 bushels of coke, weighing 40 pounds to the bushel; that is, 8,000 pounds of coal produce 5,000 pounds of coke, or, in other words, the coal gains 25 per cent. in bulk and loses 35⅓ per cent. in weight.

How a Feather Grows.—In the skin of a bird where a new feather is to grow, there is a little pit, and at the bottom of this an elevation or pyramid; extending up one side of this pyramid is a groove or furrow, deepest at the base, and gradually growing shallower until it disappears, near the top; from this furrow a great many smaller grooves extend around to the other side of the pyramid, and these also decrease in depth and at last disappear just as they are about to meet on the side opposite the large furrow. The whole pyramid is covered with skin, and the surface is made on the same scales, or flattened cells that are made over the rest of the surface of the body, but, instead of falling off when they are pushed out by the new ones below them, they become united or welded to each other, so as to form a horn coat over the surface of the pyramid, with ridges on its lower or inner surface corresponding to the grooves on the pyramid; and as new cells grow at the base, this coat or cast of the surface is pushed upward till it breaks at its thinnest part which, is of course, the smooth part without ridges opposite the large furrow; and then as it is pushed onward and flattened, it assumes the form of a feather, the ridge formed in the main furrow being the shaft, while the casts of the side grooves form the separate barbs of the vane. When all of the vane has been formed and pushed forward, the pyramid looses its grooves and becomes smooth, and the wall now formed on its surface, being of the same thickness in all parts, does not break, but remains tubular, and forms the quill, which is attached to what is left of the pyramid. A finger-nail or a hair is formed from the same kind of scales in the same way, the process differing only in those features which give to each organ its special character. Feathers, scales, hair, claws, all are made alike from the dead, flattened cells crowded to the surface by the process of growth.

Durable Soap Bubbles.—To obtain soap bubbles that will show the changing colors of the rainbow the directions are as follows: Take half a pint of water that has been boiled and become cold, and put into it a quarter of an ounce of Castile soap, cut up fine. Put this in a pint bottle, and set it in hot water in a saucepan, on the fire; there let it remain an hour or so, now and then give it a good shaking till the soap is disolved. Let the fluid stand quiet for the impurities and coloring matter of the soap to settle; then pour off the fluid and add to it three or four ounces of glycerine, and your soap-bubble solution is ready. In an ordinary way you may blow the bubbles easy with a tobbaco pipe, but if you wish to attain scientific perfection, you had better employ a glass pipe. By adding a larger quantity of glycerine you may make these bubbles so strong that you can play battledore with them.

Making Animal Hair.—A method of treating animal hair for the use of the hatter, which has been kept secret for a long time, is now found to consist in the application of a solution of the nitrate of mercury, for the purpose of preventing the putrefaction of the fibre. This substance, however, is very deleterious, it is said, both to the health of the workmen and to the implements of the trade, and recently carbolic acid or creosote has been used to great advantage as a substitute. This has the property not only of preserving the animal matter, but of causing the hairs to contract, thus rendering them more apt to felt. The subsequent treatment of the fibre is according to the process usually pursued in this industry, and the carbolic acid may be added to the oleaginous or astringent elements used by hat manufacturers.

Casting Ingots.—Mr. Leffler, of Sheffield, iron merchant, has patented some improvements in moulding for casting ingots. The novelty of these improvements consists in forming a central mold, and in surrounding it with moulds in such a manner that each side of the central mould shall form a side or end of one or more of the surrounding moulds by means of hollow iron pieces or iron plate linings, fitted closely into holes or apertures made in the lower parts of the sides of the central mould and covering the surrounding moulds with a stopper, having a hole for the escape of air and gasses, and in forming the moulds by preference open at the bottom, and piecing them, during the process of casting, upon a bottom plate.

Hardening Steel.—Instead of hardening steel by plunging it into cold water and afterward lowering the temper, which is thus made too high, Captain Carson recommends the use of water which is warm enough to produce just the desired hardness. The temperature of the water will depend not only on the temper desired but also on the size of the article, and is easily ascertained by trial. For the springs in the needle gun he used water about 130 degrees F.; for some kinds of steel boiling water is preferable. The effect of cooling in hot water on soft steel containing 0.2 0.4 per cent. carbon is to increase its tenacity and elasticity without much change of hardness.

Your Own Mason.—Small holes in white walls can be easily repaired without sending for the mason. Equal parts of plaster of Paris and white sand—such as is used in most families for scouring purposes—mixed with water to a paste applied immediately, and smoothed with a knife or a flat piece of wood, will make the broken place as good as new. The mixture hardens very quickly, so it is best to prepare but a small quantity at a time.

It is said that a rifle bullet cannot penetrate thirty sheets of paper,

Domestic Economy.

The Christmas Pudding.

BY "JEANNETTE AND JEANNOT."

If you wish to make a pudding in which every one delights,
Of a dozen new-laid eggs you must take the yolks and whites;
Beat them well up in a basin till they thoroughly combine,
And shred and chop some suet particularly fine.

Take a pound of well stoned raisins and a pound of currants dried,
A pound of powdered sugar and a pound of peel beside;
Stir them all well up together with a pound of wheaten flour,
And let them stand and settle for a quarter of an hour.

Then tie the pudding in a cloth, and put it in the pot,
Some people like the water cold, and some prefer it hot;
But though I don't know which of these two methods I should praise,
I know it ought to boil an hour for every pound it weighs.

Oh! if I were Queen of France, or, better still, Pope of Rome,
I'd have a Christmas pudding every day I dined at home;
And as for other puddings, whatever they might be,
Why, those who like the nasty things should eat them all for me.

Unfermented Wine.—This article is coming quite extensively into use for church purposes and when mixed with water it also forms a very refreshing summer drink. In order to prepare it the grapes should be allowed to thoroughly ripen. They are then picked and the stems and all green and rotten grapes removed. The grapes are then crushed and pressed in the usual manner. The juice may be put directly into bottles, or it may be first concentrated somewhat by boiling, and then bottled; in either case the bottles are put into hot water and brought to the boiling point, where they are maintained for half an hour. At the end of this time remove them from the fire and cork them tightly, while still hot, wiring in the corks. Then replace them and continue the boiling another hour. Glass bottles are better for this purpose than tin cans, though the latter may be used. An analysis of a specimen prepared in New Jersey gave the following result: alcohol, none; sugar and extract, 23.00; ash, .40; water, 76.60; total 100.00. This had probably been concentrated somewhat before bottling. The flavor was fine. Some acid tartrate of potassium had crystallized out.

Home Made Candy.—Use a new tin basin; put into it four tablespoons of water, one pound of coffee sugar, one teaspoonful of good cream tartar; boil, stirring constantly to avoid burning. After it begins to have a sappy appearance try it often by dropping a little in cold water and if done it will at once become brittle. Butter an earthen dish and pour the hot candy into it, that it may cool just enough to handle. Flavor to taste with oil of peppermint, wintergreen, sassafras or lemon. Two drops of oil will flavor it strong. For variety, divide into three or four parts and flavor differently by touching one kind of oil to each. Work in the hands at once; the more it is pulled the whiter it will get.

How I Made My Catsup.—I selected fair ripe tomatoes, cut out all blemishes, also the hard parts about the stem end, then slice them into a porcelain kettle, filling it full; added a red pepper and put the kettle over a slow fire to stew gradually stirring to prevent burning. When reduced to half the original quantity I strain the whole through a common wire sieve. To five pounds of the pulp I added one and one-half pounds of sugar, one pint of cider vinegar, one tablespoonful of cloves, one of allspice, two of cinnamon, one of salt. I put the mixture back over the fire and boiled until the thickness suited. When mine was tested the only fault found was that it was too good to last.

Scotch Broth.—Put a teacupful of pearl barley into 4 quarts of cold water and let it boil; add 2 pounds of scrag of mutton or thin flank of beef, 2 onions, 2 turnips, 2 carrots cut in dice, and 1 carrot grated; boil slowly for three hours; add salt and pepper to taste before removing from the fire.

To Sweeten Salt Pork.—Cut as many slices as will be required for breakfast the evening previous, and soak till morning in sweet milk and water; then rinse till the water is clear, and fry. The pork will be found very near as good as fresh.

German Toast.—To one egg, beaten well, add one cup sweet milk or cream, season with a little salt and pepper. Cut in slices stale bread, and dip in the milk to moisten, and fry in butter on griddle. This we think is an extra nice dish for breakfast.

Nice French Cake.—Two cups of sugar, one half cup of butter, four eggs, one cup of milk, three cups of flour, one teaspoonful of soda, and two teaspoonsful of cream of tartar. This makes two loaves.

To Disguise Castor Oil.—Rub up two drops of oil of cinnamon with an ounce of glycerine and add an ounce of castor oil. Children will take it as a luxury, and ask for more.

MINING AND SCIENTIFIC PRESS.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:
Saturday Morning, Dec. 19, 1874.

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THE Commissioner of the Land Office has rejected the adverse claims of the Utah lode and City Rock lode versus the King of the West mine, Utah Territory, because the Utah adverse olaim was not sworn to by the adverse olaimant himself, and the City Rock adveree olaimant did not properly allege ownership and the premises described in the adverse claim did not conform to the location notice.

PANAMINT has etarted in with its first mining suit, in which property to the value of $100,000 is involved, The suit is brought by D. S. Tipton against J. Scobie, John P. Jones, and the Snrpriee Vallev Mill and Water company. The suit; as affeoting Joues and the milling company is simply to recover of them $10,000, the value of one-sixth of the Wyoming as sold to them by Scobie.

THE daily yield of ore from the principal Comstock mines, last week, was as to-lows: Crown Point, 500 tons; Belcher, 450 tous; Coneolidated Virginia, 400 tons; Ophir, 250 tous; Dayton, 65 tone; Chollar, 50 tons; making a total of 1715 tons. The Sierra Nevada and Woodville are aleo taking out considerable quantities of ore.

A CAR loed of ore bronght to the Humboldt reduction works last week, from the Defiance mine, Lewis district, yielded as follows: No. 1, first-clase assorted ore, $509.65 per ton; No. 2, average assorted ore, $136.86 per ton. The ore was taken from droppings on the surface, and it is said that there is plenty of it.

College of Mines, University of California.

The College of Mines in the University of California, is being rapidly organized, so that full opportunities may be afforded for the training up of mining engineers and metallurgists on this coast. This department of the University is not yet in full running order, although courses of lectures on subjects connected with mining are now being delivered. It is not proposed to orgenize a special class in the College of Mines until next year. Those who are now sophomores or freshmen may expect to have the college open to them after they have completed the preliminary two yeare of instruction which are required of all scientific etudents. The faculty of the College of Mines ie as follows: D. C. Gilman, President; William Ashbnrner, professor of mining; John Le Conte, professor of physios and mechanics; Joseph Le Conte, professor of geology; Wm. T. Welcker, professor of mathematics; Frank Soule, professor of engraving; Willard P. Rising, professor of chemistry and metallurgy; Geo. F. Becker, lecturer on metallurgy for the current year. Mr. Ashburner, the well-known mining engineer, has charge of thie department, and is now engaged in deviesing methods of work and plans of instruction. Preliminary steps have been taken by the regents of the University for the appointment of a special profeesor of mechanics, and also to secure the services of a mineralogist. As soon ae the mineralogist is appointed steps will be taken to errange and olassify

The Collections of the University.

These collectione include: 1, all the materials of the geological survey of Californiа, brought together by Prof. J. D. Whitney, State geologist; 2, the valuable mineralogioel collection of Mr. H. G. Hanks, given to the university by James R. Keene, Esq.; 3, the collection of ores, rocks, fossils, etc., collected by Mr. C. D. Voy, and presented by Mr. D. O. Mills; 4, the cabinet of the late Mr. F. L. A. Pioche; and, 5, numerous gifts of individals. The university also owne a large collection of the Ward geological casts. At present these valuable collections are of but little use, as they are not all classified and arranged. The Hanks collectiou is all arranged, and the specimens identified and labeled; but that of the geological survey is in a state of confnsion. It will take npwards of a year to arrange these collections ae they ehould he.

In addition to the above named ecientific professors the literary professore of the university give instruction in their various departments, so that the students of this course have the opportunity of acquiring French, Germau and Spanish, and also Italian if they desire to do so. The study of the English language, literature and history, is also pursued with thoroughness.

The Course of Instruction

Occupies four yeare, leading to the degree of Bachelor of Philosophy in the College or Couree of Mines. Studente who desire to receive the degree of Mining Engineer muet continue their studies for two years more, and must exhibit to the Faculty satisfactory evidence of their power to apply in actual work the knowledge they have acquired.

During the first two years of undergraduate work, the studies of the course are the same as those of the other ecientific colleges in the University of California. During the last two years the atteation is directed chiefly to chemistry, metallurgy, geology, mineralogy and engineering, though the study of modern languages is also kept up. The scientific studies are taught, as far as possible, with reference to tbeir applications in mining, and the entire work of the last two years is superintended by the Profeseor of Mining, under whoso special guidance the mining stndents learn. Opportunitiee will be afforded to that class to visit some of the industrial establishments of San Francisco, and they will be encouraged to extend their visits to mining and metallurgical worke at a distance. A prize of fifty dollars is offered for proficiency in this department of study.

The Laboratories

For chemistry and metallurgy are new, extensive and well furnished. They afford excellent opportunities for becoming proficient in assaying and analytical chemistry. The engineering instruments and the physical apparatus are also of the best kind.

Terms of Admission.

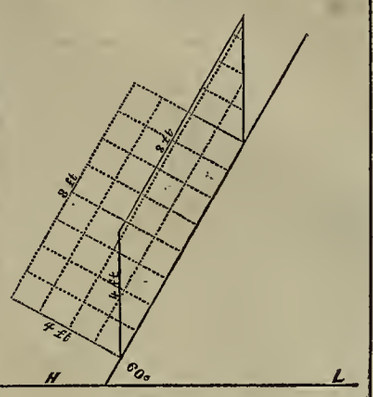
The next year of instruction begins August 12, 1875. Examinations for admission, June 7th. and again August 11th, at either of which times the candidates may apply. On application a circular will be eent to those desiring information or those who propose to enter the University. Tuition is free to students from any place within or without the State.

A numb r of lectures have been delivered withiu the past two months on subjects connected with mining, one of which, by the Professor of Miuing, will be found in another column. We shall endeavor to obtain as many of these lectures as possible for the benefit of those unable to hear them. We are glad to note that a good start has been made in the direction of mining educat on on this coast where the facilities are so great for practical illustration and instruction.

Piling Wood on a Side Hill.

We have received the following letter from a correspondent in Auburn: "Will you please answer this question:—a man buys a quantity of wood, and the seller hauls end pilee it on a smooth, steep side hill. The wood is piled between two stakee, just eight feet apart, and four feet high. The stakes stand perpendicular, but one is raised high above the other, as the hill side raiees, the pile of wood lying up and down the hill. The hill rises at an angle of 45 degrees. The wood wae piled up to the full hight of the stakes in a satisfactory manner. Now, tho wood man claime that there is a cord of wood in the pile while the other party saye there is not a cord. Admitting thet the

Fig. IV.



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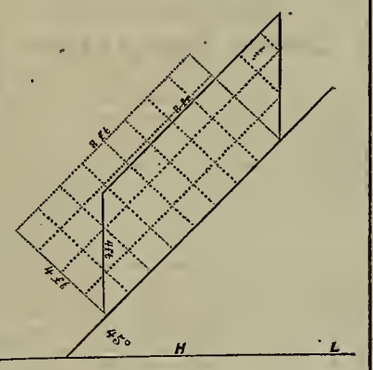

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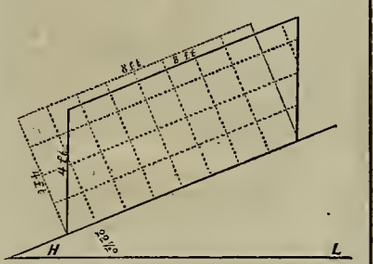
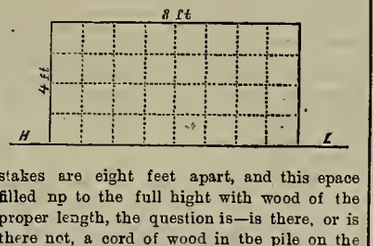


Fig. I.



stakes are eight feet apart, and this epace filled np to the full hight with wood of the proper length, the question is—is there, or is there not, a cord of wood in the pile on the side hill. The subject has become one for general discussion here, and many of us are interested to know who is right."

A cord of wood measures eight feet in length, four feet in hight, and four feet in width Piled on level ground, it contains 128 cubic fee of wood. But when piled on a hill at an angle of 45 degrees with the eame measurements, in the way it ie usually piled, there would be only 90.56 cubic feet in the pile. Therefore when piled on a hill rising at an angle of 45 degrees, the buyer would lose 37.44 cubic feet of wood.

This does not seem apparent at first glance, we have heard some warm arguments over the question, but a little investigation showe it to be true. We have prepared a few diagrams to illustrate the decrease in cubical contents in a simple way. Figure 1 ehowe a cord of wood eight feet long, four feet high and four feet wide. Figure 2 shows how it would appear at an angle of 22½, representing the true cord by dotted lines and what is nsually considered a cord by wood-choppere, by the etraight black lines. *H L*, is a horizontal line. Figure 3 shows it piled at an angle of 45 degrees, end the loss of wood mey be easily seen to be more than a quarter. Figure 4 shows it piled at 60 degreee, in which instance, although the outside measurements are the same, more than a half cord is lost. The usuel method of measnring the wood is the seme in each case. The stakes are perpendiculer end the pile measures four feet in hight by the stakee and eight feet in length. Nevertheless, ae the angle increases the cubical contents decreaee in proportion. While the stekee would not decrease in length and the measurements would remain the same, by increasing the angle, there would not be any wood at all.

Any one can illustrate this for himself by taking a small piece of board and inserting two pieces of wire, each say four inchee long and two inchee high. These can be pleced upright in the board as if enclosing a pile of wood of certain dimensions. Now cut a number of small pieces of wood of equal length and fit them in between the wires. After that remove the pieces of wood, set the board at an angle of 45 degrees, end bend the wires so as to stand perfectly upright. Then pile the pieces in again end you will find that you have more wood than you can get in between the wiree. This will illustrate the question practically to those who fail to see it themselves.

Although people do not alwaye buy wood piled on hills of 45 degrees, they ofteu buy it on hills nearly es steep, and perhape few have thought it made any difference ee long as the pile measured the same at both ends and wae of proper length and width. Our diagrams will ehow that they do not get as much wood ae ie coming to them. Our wood-choppers may not relish the idea of always having to cord the wood on level ground, but if purchasere desire full measure they ought to insiet upon it. The "practical man" who is skeptical and doee not believe "but that there is ae much in each pilee, had better pile a cord upon a level and then pile it between bis stakes as usually set on a side hill, and he will find that his wood goee up over the top of the stakes.

Hydraulicing for Quicksilver.

Some of the quicksilver mines recently opened in this State are commencing to work ore of a very low grade, and are making a good profit from it. The high price of quickeilver enablos them to handle poor ores which were formerly useless. In some of our mines, however, the quicksilver is found in a native state in small quantities and may be gathered without paesing through any roasting process. At the Rattlesnake miue for instance, considerable quicksilver was taken out by meane of ordinary rockers. At the Yellow Jacket mine a new syetem ie to be adopted for getting out the metal. The *Russian River Flag* states that a reservoir 310 feet above the mine hae been built, 1,000 feet of hose and 2,000 feet of sluice boxes have been obtained, and the new work of chiseling down the hill will open next week. They expect to handle 3,500 tone of earth and rock, and do the work of 200 Chinamen a day. It is believed that ore that will yield one-tenth of one per cent will pay for reduction, as the water can be made to reduce the bulk of earth and rock eo that the result will be two or three per cent ore.

This seems to be a common-sense way of handling large quantities of poor dirt, ae it ie simply a procese of concentration on an economical system. With an abundance of water under a good pressure they might do coneiderable execution. Of couree all cinnabar deposits could not be worked in this manner, and it ie only where native quicksilver is scattered through dirt and debris that it could be made to pay at all.

AN immense vein of copper, said to be traceable for the distance of a mile has been discovered in the Babbit Hole range in Humboldt county. The locality was formerly an Indian stronghold, and one Pat Belle wae guided thereto by an Indian deputized for the purpose by the Princess Sarah Winnemucca. The *Silver State* says the ore carries a large per centage of copper and probably silver.

THE old Imperial mill in Gold Hill, which was built in 1860, and the second on the lode that crushed ore, after having its machinery taken out and standing dismantled and deserted for some time, yielded, a few evenings since to the ravages of time and a whopping Washoe zephyr and tumbled to the ground.

A NUMBER of men are enxiously waiting for the expiration of the time allowed hy law, that they may locate ledges on which a failure to do the necessary work will be the signal of abandonment of the same.

SIXTEEN and a half million ponnde of crude bullion hae been shipped from Eureka in the last twelve months. Some of it has been sent to San Francisco, some to Omaha, and some further east.

PIOCHE miners are anxiously awaiting for the result of explorations below the water level in the Raymond & Ely mine. That exploration cannot be made until the machinery for pumping the water is in motion.

Jones' Heel Trimming Machine.

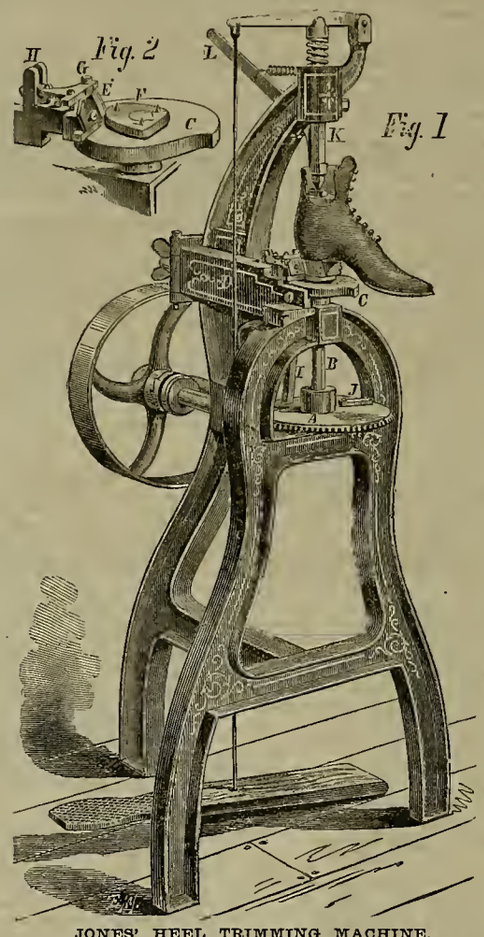
In the invention represented in our illustration are combined a variety of novel devices which, together, form an improved machine for trimming shoe heels. The motive power may be steam, in connection with a pulley, or hand labor, employed through a crank. Upon a horizontal shaft is a bevel gear wheel, *A*, which rotates the vertical shaft, *B*. At the upper end of the latter is a double cam plate, *C*, the edge of which is suitably shaped to allow the arm which carries the knife to move onward at the proper time. The *D* or arm is hinged to a plate attached to the rear part of the frame. Upon its inner side is formed a socket to receive the knife bar, into which is adjusted a screw rod (operated by a thumb nut, shown at the rear) which limits the movement of the knife, and also serves as a guide for a coiled spring, by which the latter is held out to its work.

In Fig. 2 the cam plate and cutting mechanism are represented on a larger scale. *E* is the knife, in front of the right hand lower corner of which projects a finger, which rests against the guide, *F*. The latter is secured detachably to the shaft, *B*, above the cam plate, as shown. It is of the exact form of the required heel, and must be changed for differing sizes of the same. On the upper side of the knife bar, at *G*, is a gage, which presses against the contour, and, projecting a little in front of the edge of the knife, keeps the same evenly around the seat of the heel. It may be raised or lowered to suit various hights of heels, and may be moved nearer to or further from the work by means of the screw operating in the slotted projection, H. There is also a washer under the guide, *F*, which raises the same so that the knife may rest against it for a distance of an eighth of an inch or more, as desired.

To the forward end of the arm is attached a hook rod, which enters a groove under the cam plate. This portion of the device is necessarily hidden by other parts in the engraving. The object, however, is to cause the knife to move forward quickly to cut the elongated sides of the heel, and slowly while cutting the short curve of the real portion of the same. At *I* is shown the lower extremity of a drop or clutch, which is hinged to the frame at or near its middle, so that its upper end enters a socket in the under side of the arm. At a certain point of the revolution of the gear wheel, *A*, a stud, *J*, thereon comes in contact with the drop and carries the same partially around, thereby relieving the strain on the hook pin when it enters the short curve of the slot of the cam plate, at the same time serving as a brake.

The rear leg of the frame projects upward and curves forward, so that its upper extremity is directly over the vertical shaft, *B*. Through this upper end passes a shaft, *K*, which connects with a spring lever above. The latter is operated by the treadle shown, and the device serves to hold the shoe down upon the guide. Near the lower end of the shaft, *K*, is a joint worked by the lever, *L*, the object of which is to trip the shoe when it becomes necessary to give one part of the heel more bevel than another. The knife bar has a spring upon its under side which will allow of its conforming to all ordinary styles of heels without requiring the employment of the tripping lever.

The mode of adjusting the shoe to be operated upon is already shown in Fig. 1. The pulley is operated over about 2½ revolutions to trim the shoe, and the speed required is some fifty revolutions per minute. For further particulars relative to sale of rights, etc., address the inventor, E. U. Jones, Woodhaven, Queens county, N. Y.



JONES' HEEL TRIMMING MACHINE.

The Franklin Institute of Philadelphia, encouraged by the success of its late Industrial Exposition, at which it cleared $56,000, proposes to purchase the lot on which its exhibition was held, being the square bounded by Thirteenth, Market and Juniper streets, and erect on it a building for the purpose of a permanent display, which will not only be a show, but a technical and art school, something after the Kensington Museum, in London. The estimated cost is $2,000,000.

The Silver *State* says that the mines in all sections of the county are turning out well, and great numbers are paying. We seem to be entering upon a new era in this branch of industry. Nearly every mining district is shipping more or less bullion.

A company has been formed at Salem, Oregon, to build a canal around the Cascades on the Columbia river. Surveys have been made, and the estimated cost is $250,000 It will probably cost considerably more than that.

The Victoria claim, at Cariboo, B. C., is taking out a thousand ounces weekly. The Vulcan comes second. All the claims on Lightning creek are doing better than ever.

Accident at the Mint.—Martin Bulger, chief engineer at the new mint, has received serious injuries by the falling of a heavy piece of metal on his foot.

The New Belcher Air Shaft.—The new air shaft is down nearly 110 feet, and the upraise started from the 850-foot level, to connect with it, is progressing upward at a lively rate.

Venus and her Secret.

The observations of the transit of Venus appear to have been very successful at most of the stations which were in telegraph communication with the rest of the world. Reports to this effect have already been received from many widely separated points. So closely was the little planet watched in her shadowy journey across the sun, and so many eyes were kept upon her every movement, that the great secret—that wonderful secret which she has kept ever since the morning stars together sang their first chorus, will no doubt be fairly and fully drawn out from her blushing, radiant face.

It is now fully 150 years since it became well known that Venus possessed this secret, but how to wrest it from her has been the riddle. The opportunities of finding her in the mood have been rare, and hitherto the ingenuity of men has not been sufficient to devise the ways and means. But study and skill it is supposed have at length put such appliances into the hands of our scientific detectives, that when the case is fully worked up, the secret will be fairly won.

Those whose early hours of rising have given them the opportunity of late, to study her merry twinkles as she peeps up over the hills in the early morning twilight assure us that she gives every indication of a knowledge that her secret is out, and that the astronomer may hereafter make his calculations with such unerring certainty that the paths and distances and motions of the celestial bodies may hereafter be determined with such a degree of accuracy that the sailor as he pursues his trackless way across the ocean may henceforth have no forebodings lest an error in his chart or lunar may precipitate his ship upon some dangerous or inhospitable rock, which science had erroneously told him was far to the leeward or the windward of the point where that same science had told him he then was.

This great and important secret, which has been so long and so well kept, is nothing less than the parallactic angle of the sun. Upon the accuracy with which this angle is measured, depends the calculation of all astronomical distances—that of the sun itself from the earth and the distances, not only of the planets but of the fixed stars also. Indeed it is impossible to fully appreciate the real value of this secret when once in possession of the scientific world. All honor to the governments of the earth which have fitted out so many expeditions as to leave no possibility of failure either from unfavorable weather or the dangers of the sea. The thanks of the world, and particularly of the sailor, is also due and should be freely rendered to the skilled artizans whose delicate and scientific manipulations have wrought out instruments so infinitely superior to any which have heretofore been constructed, and which superiority, alone, is the means by which the great expected end is to be produced.

The Rewards of Perseverance.

In the mining regions of California may be found perhaps the best illustrations of what perseverance and energy will do, that it is possible to get. Hundreds of cases might be cited where poor but energetic and hopeful miners have worked for years to strike a lead, knowing when they started work about how long it would take them to accomplish their object. In the face of all obstacles, however, they persevere, and are generally rewarded in the end. In the gravel mining regions of the State, where the miners often have to run long tunnels under the mountains to tap the auriferous gravel, these instances are quite common. Here four men own an interest in the prospect, and while one or two work on the claim, the others work for wages, and keep the pot boiling for the crowd.

It requires considerable pluck to start a hole in a hill when you know that work as hard as you may it will be four, five or six years before you can get any return for your labor. Most men would falter at the prospect, even if they were guaranteed a certain sum at the end of that time. In these cases, however, there is no such real certainty, for the gravel when struck may be poorer than was expected. Still, in most cases, when they do strike the old channels, they get pretty well paid for their labor. There are at the present time hundreds of miners engaged in just such undertakings as we refer to, and every few months we hear of some one who "has tapped the lead," and made a "home stake."

The latest instance of this is in the Empire gravel mine, at Table mountain, opposite the Illinois ranch, Tuolumne county. The tunnel was completed a few weeks since, and the Tuolumne *Independent* says they have struck the channel with a good bed of gravel which prospects very fair. They have already passed through 25 feet of gravel in this front channel, and intend to run across, and thence over the high ledge to the back channel, where the boys say there is gold enough "to enrich every male and female citizen in Tuolumne county." This back channel, they affirm, is the old Caldwell or Whimtown gravel lead. Over seven years ago this ground was taken up by Felix Ohar and Mons. Bonnefoi, of Sonora, the former having worked alone, and scarcely without intermission ever since. They ran a tunnel over 800 feet, the whole distance through basaltic rock heavily impregnated with cube sulphurets. To string out the length of fuse and candles burned during the construction of this tunnel would reach many miles. We doubt if there are many men who would, with such tenacious perseverance, have completed this enterprise under such adverse circumstances.

The School Ship.

Now that a school training ship for this port has become a thing of certainty in the early future, it is desirable that no mistake should be made in the inception of the enterprise or in the mode of its management. We presume that it is understood that the main object shall be to give to street boys, otherwise unprovided for, an education that will fit them for the sea, and make of them respectable and useful members of society. In selecting candidates for the school we further presume that such persons will be selected as may be considered more or less in need of reformatory training. It is intended not only to educate them as sailors, but to correct any evil habits they may have contracted or tendency to crime they may have exhibited. Of course confirmed criminals or notoriously bad persons should not be received. This, we believe is substantially the course pursued in selecting candidates for school ships at the ports of New York and Boston. The school ship enterprise, we believe, has proven decidedly successful in both the cities named.

At New York over 2,000 boys have entered the ship, the greater portion of whom were entirely destitute of homes or friends, and more or less incorrigible—so much so that without such intervention, the most of them would, in all probability, have eventually found their way to the house of correction or the states prison. A large portion of them have passed from the school ship into honorable positions in life. Some 500 of the 2,000 have shipped as a superior class of sailors, and have done credit to themselves and their training. Many have been fully reclaimed and taken back by their parents to enter upon other avocations than those connected with the sea. The New York *Herald*, from which we glean these facts, says that 90 per cent. of all those discharged have turned from their evil habits and become steady, useful men. The schoolship has saved the boys from vagabondism, and society from the cost of the crimes and punishment inseperable from such life.

It is to be hoped that a similar course may be pursued in the case of the San Francisco school ship, and that the work may be attended with equally good results. We have a class of boys here, naturally good enough, and as smart and capable as any set of boys in Christendom. They are going to the bad more from the force of circumstances than from any innate desire to lead a life of vagabondism. Let a helping hand be extended towards them; let there be some honorable occupation devised upon which these boys can enter, and the question of "What shall we do with our boys?" will be fully settled, at least for the great majority of them. We trust that the schoolship will be held for the benefit of just that class of boys which we have pointed out.

Commender Glass has prepared a plan by which the training ship may be regulated and maintained, which appears to be wise and judicious, and we see no reason why it would not be applicable to the particular class of boys to which we have alluded. The ship must be principally maintained at the expense of the city; and if so the city should have the benefit of it—not a few parents and boys merely who are abundantly able to take care of themselves and what belongs to them.

Big Work.—The Virginia *Independent*, of Dec. 11th, in speaking of work at the Sutro tunnel, says: During the week ending Dec. 8th, the heading has been advanced 90 feet, and is at the distance of 7,752 feet from the mouth. During the first four days of the week four drills were used, but during the last three days only two were in operation. Only 45 men are employed, and of them three are foremen. The work is not only the greatest yet done on the tunnel, but is the greatest yet done in the world's history of tunnel making, when the force is considered. It lacks only one foot in the entire week's work of averaging 13 feet per day. There are 11 inches of water running in the tunnel.

The Los Angeles *Express* has been shown a specimen of cinnabar, taken from the croppings of a lead about fifty miles north of that place. It is believed that this is a continuation of the veins discovered near Cambria, San Luis Obispo county, and which have been traced down the coast to the Santa Ynez discoveries, in Santa Barbara county.

Beach Mining.—The Crescent City *Courier* is informed that the recent storm was the occasion of the reaping of a golden harvest by the two mining companies on the beach at Gold Bluff. The Lower Bluff company took out of one retort last week 132 ounces of dust. Another day of the same week they made a clean-up of 28 pounds of amalgam.

Pine Mountain Cinnabar District is situated in San Luis Obispo county. It is from 12 to 15 miles north of Cambria, and extends from the San Simeon creek six or seven miles in a northerly course along the summit of Pine mountain.

The weather has been very mild so far this winter in Utah, and miners generally are actively engaged in the mountains.

The Profession of Mining Engineering.

We make the following extracts from a lecture "On the Profession of Mining Engineering," recently delivered by Wm. Ashburner, Professor of Mining in the University of California:

Mining engineering, in its most general sense, is the application of science to the discovery and working of mines, and to the subsequent treatment of ores. Civil and mechanical engineering would teach us in this connection, surveying, the use of instruments, the resistance of materials, and the construction and erection of all mining machinery.

The more special branches of study which are followed in forming the mining engineer are those which relate directly to the mineral kingdom. Through geology we learn of the structure of the globe, of its mineral constituents, and the causes of its physical features.

Mineralogy teaches us more in detail the properties of all mineral substances, and to distinguish, characterize, and classify them. Inorganic chemistry teaches us the nature and composition of all mineral bodies, whether simple or complex; how to combine and how to separate them.

Metallurgy is an art eminently industrial in its nature, and requiring for its successful accomplishment, whenever a new path is to be followed, a man well versed in principles, with a practical turn of mind. "It is the art," says Professor Lesoinne, of the Liége School of Mines, "of making money by treating all ores." The effect of the pun is lost in translating, but under this play upon words the professor expressed a profound truth. Although metallurgy is based upon chemistry, and the metallurgist must be a good chemist, yon can rarely succeed in forming the first out of the latter. The conditions under which the two pursuits are followed are essentially different. It matters little to the chemist in what portion of the globe he is pursuing his experiments, or what may be his physical surroundings, he has always the same elements to manipulate, and his reactions are always the same. With the chemist the final result is all important and it matters not to him how much it costs, he deals in small quantities, and the success of an experiment in adding to his knowledge is incomparably greater than the mere money expenditure required to bring it about. With metallurgy, on the contrary, money is the final result, and no process of treating ores, however beautiful in theory, or ingenious in execution, can ever be other than failure if it costs more than it comes to. This is the fundamental principle of the art, and before attempting to decide whether a process is likely to prove successful, or even possible, it is always necessary that the local conditions should be carefully studied and thoroughly investigated.

The Field for the Application of Science in Metallurgy.

In no branch of the profession is there so much room for improvement, and so wide a field for the successful application of science as in metallurgy. During the past 40 years, or since technical schools have been established in all industrial countries, the progress has already been enormous, and mines are now worked, and ores of so low a grade successfully treated, as would have been impossible a few years ago. Much yet remains to be done, and he who through inspiration has the talent to conceive, and through experience the skill to carry into effect, a process by which the cost of any article of universal demand may be reduced, will be sure of a large earthly reward.

There is probably no subject, when its high importance is duly considered, on which there are entertained so many erroneous notions as on that of mines. Nor is it extraordinary that this should be the case, for many persons otherwise well educated have never had their attention directed, either specially or generally, to this matter. It is rare that we find a cultivated person who does not possess some knowledge of agriculture, of buildings and of manufactures, for, from his earliest childhood, he has seen fields in process of cultivation, and crops growing, houses being erected, and manufacturing establishments in full activity. But his life may and very likely has been passed at a distance from a mining center, where, had he so desired, it would not have been possible to have visited underground works, and nothing but a stronger sentiment than that of mere curiosity or even the desire to gain general information would prompt a person to visit mine after mine and undergo the labor, danger and fatigue necessary to acquire even a superficial knowledge of this subject. Consequently we see the most extraordinary misconception of the nature and value of mines, particularly those of the precious metals, entertained by men who, from their official or social position, ought to be better informed. We have within the last few years seen a Commissioner of the General Land Office expressing himself in his annual report as being anxious to make a conservative estimate of the gold fields of California, yet assuming that one hundredth of the Sierra Nevadas was composed of auriferous quartz, capable of paying large profits, and which only needed to be worked to do so. Still later we have seen the strange spectacle of a bishop so overcome, by what he saw during a visit to the mines of Montana and Nevada, that through the columns of the press he recommended that they should be devoted to the payment of the national debt; and the description he gave of all this wealth appealed so strongly to the imagination that in comparison the Arabian tales seem tame.

Principles in a Professional Career.

From this almost universal ignorance on the part of the public arise numerous blunders and mistakes which are only too frequently disastrous in their consequences. The average American prides himself upon being eminently practical, and seeks to cultivate a habit of thought which induces him to pay very little attention to principles and a great deal of attention to results—a state of mind which finds him an easy prey to the designing and a ready dupe of the charlatan. It is, however, with principles that you will be brought into close contact in any professional career you may choose to adopt. In mining and the branches of study that are immediately connected with it, it is particularly important that you should, from the very outset, form correct notions and be guided, whenever possible, by sound principles. Unfortunately, science and study have done little that lead us toward positive conclusions with regard to the discovery of new and valuable mines and deposits of ore, and these, when found, appear to be more the result of accident than scientific research. In fact, it is pretty well recognized that all surface indications are of but doubtful value and that the only thing that can assure one of the value or even of the existence of a mine is its actual discovery and successful working. It is not so however, with the negative information to be obtained by application of known principles and the importance of this, if Franklin's maxim that a "penny saved is a penny earned" be true, cannot be too highly estimated. In this connection science has been applied most successfully, and wonderful progress has been made, within the last 50 years. From being a wild, reckless, gambling pursuit, in which fortunes were more frequently lost than won, coal mining has been raised almost to the level of an exact science. Thanks to that much-abused branch of human knowledge, paleontology, geology limits unerringly the area under which coal cannot be found. With almost equal certainty it tells us where we may look for it, and what our chances may be that it will be found. If found, chemistry and metallurgy direct us toward the means of ascertaining its value for fuel—whether it will do for ocean steamers, for smelting ores, for forging iron, for steam-boilers, or for domestic purposes. The mission of the geologist, the chemist and the metallurgist is now ended as far as this subject is concerned; and, provided the coal is pronounced a merchantable article, the miner takes up the question and views it from an entirely different stand-point. It is his duty to ascertain the market for this coal, and to what extent it can be used advantageously; he must make himself acquainted with the extent of the coal-field, and, whenever possible, the extent to which the seam may have been faulted or dislocated; he must know the cost of opening the mine, and of establishing permanent works of exploitation; he must know the cost of mining the coal, of getting it to market, and of selling it; he must also decide how, when and to what extent the mine should be opened in order to supply a present demand and be ready to meet the exigencies of the future. As your judgment on these points is correct or false, so will you in your profession stand or fall, and you can easily see that it is only by special training that you can master all the questions that in this one instance would be submitted to the consideration of a mining engineer.

Importance of Mining Interests.

The relations of the Government of the United States toward mines and the mining industry are very different from those of most European Governments. Here mining is free to all, and anybody is at perfect liberty to discover, prospect, and work a mine in such a manner as he pleases. In Europe, however, the case is otherwise, for there the Government either owns and works the mines itself, or else reserves the right to grant or refuse permission to have them worked by others, and in nearly or quite all cases exercises over them a general supervision and prescribes the manner of working. Accustomed as we are in this new country to complete freedom from all Government control in whatever we are pleased to deem our private affairs, this state of things seems strange to us, and at first sight is regarded by many as an unwarrantable exercise of power on the part of a despotic Government, and an interference with one of the "natural rights of man." When, however, in the progress of your studies, you learn how intimately connected the prosperity of many people is with the existence and success of the mines, you will see that in general this state of affairs is the result of absolute necessity, and frequently the expression of a high political wisdom. Such being the case, it was early a matter of importance for Governments to establish technical schools, where the different methods of mining and the principles which govern the administration of mines should be taught, and thus preserve by science and skill an industry so important to the welfare of the State.

Nearly all of these mining schools, whether conducted under the auspices of government or by private enterprise, have obtained a conspicuous celebrity from having graduated so many young men who have in after-life attained eminence in the annals of pure and applied science. To them it is that we are indebted for the great progress during the last 30 or 40 years in the art of metallurgy. The owners of large industrial establishments find it absolutely necessary to employ them if they would compete successfully with their rivals in business. In the sciences of chemistry, geology, and mineralogy, their influence is also felt, whether as professors imparting knowledge, or as original investigators in pursuit of new truths.

In this new connection, and for the purpose of giving an idea of what constitutes the course of study for a mining engineer, the professor gave a brief account of the system followed in two leading mining schools of Europe.

Sudden Stopping of Railroad Trains.—It is claimed that the Westinghouse brake is capable of bringing any ordinary train, moving at from 30 to 35 miles per hour, to a dead halt within the space of 30 feet or in five or six seconds of time; in fact that it is capable of doing anything that is theoretically attainable. The only question is that of inconvenience to passengers from too sudden a stop. It is also asserted that the effects of sudden stops are too much exaggerated, and in proof this is stated that if the feet be placed against the seat in front, with the face to the engine, the train when going 30 miles an hour may be stopped in 30 feet without throwing a greater pressure on our feet than they sustain in walking. Hence, as we may safely trust our knees and boots under double that load, the train might be stopped in 10 or 12 feet, without serious inconvenience. The question then of bringing a train to rest in 10, rather than 20 seconds is perfectly immaterial so far as concerns passengers' comfort, while it may be a vital one so far as their safety is involved.

Mining Property Exempt from Execution.—Few miners are perhaps aware of the provisions of the amended exemption law, passed by the legislature during the session of 1871-2. The fifth subdivision of said law contained in the statute of that term, page 865 reads as follows:

[Exempt.]—The claim or dwelling of a miner, not exceeding in value the sum of $500; also the sluices, pipes, hose, windlass, derrick, cars, pumps, tools, implements and appliances necessary for carrying on any mining operation, not exceeding in value the aggregate sum of $500, and two horses, mules or oxen, with their harness, and food for such horses, mules or oxen, for one month, when necessary to be used in any whim, windlass, derrick, car, pump or hoisting gear; and also his mining claim, actually worked by him, not exceeding in value the sum of $1,000.

Treasure Hill.—Mine Superintendent Maxwell informs us that everything about the Eberhard & Aurora company's property on the hill looks better than has been the case for many months. If the present pleasant weather continues we shall have the 30-stamp mill at Eberhardt constantly supplied with ore and work progressing through the winter. The Ward Beecher company's mine—the Edgar—is improving constantly, and will rank among the best next spring. But little work is being done on other locations there, and it would seem that but little hope exists of any more life being added to them during the coming winter months.—*White Pine News.*

Applied Science—Preparation of Aluminum.—Gerneri of London prepares this metal by placing a mixture of 100 parts of alumina, obtained in the usual way from kaolin, etc., with 40 parts of charcoal, heated to redness, in retorts at a dark red heat, and leading chlorine into them from an iron gasometer lined with lead, and closed with gas tar covered with hydrochloric acid. The volatilized chloride of aluminum formed is condensed in vessels of sheet iron, glazed internally, and is decomposed by an electrical current produced by a magneto-electric machine. The liberated chloride is returned to the gasometer.

To Restore Burnt Steel.—A correspondent of the *Scientific Manufacturer* says: To restore the burnt steel point of a pick, drill, or any similar tool, do not touch it with a hammer, but while it still emits sparks plunge it into cold water and let it remain there until cold. Then reheat to the proper degree and work it. It will then be found as good as before it was burnt.

A New Fossil Plant.—Prof. Schimper has discovered a fossil plant in protogine, a rock hitherto considered as of igneous origin, and found in the form of erratic blocks in the sides of Mont Blanc. The plant is of aquatic nature, and hence the aqueous nature of the rock is rendered probable.

Bessemer Steel is, in some countries, numbered according to the per centage of carbon it contains. Koppmayer finds that each increase of carbon corresponds to a decrease of specific gravity. If this is regular it may serve as a mode of rating the steel.

It is said that experiments recently made indicate that wagons are most easily drawn, on all kinds of roads, when the fore and hind wheels are of the same size, and when the pole is lower than the axle.

Testing Milk for Starch.—Lacto-protein substances have the property of forming a colorless compound with iodine, and not until these are all in combination does starch show the usual blue color.

Blast Furnaces in the United States.—The *American Manufacturer* has reports from 677 blast furnaces of this country; 382 were in blast, and 203 out, on Nov. 1st.

Railroad District.—Smelting Ores,

A correspondent of the Eureka *Sentinel* writing from Railroad district says: Railroad district is located in Elko county, on the eastern slope of the Inskip mountain. It is accessible from several points on the line of both the Central Pacific and the Eureka and Palisade Narrow-Gauge railroads; its basis of supplies, however, is Elko, distant 28 miles from the town of Bullion, the business center of the district. The principal mines are located in a crescent line around the miners' camp, called Highland, two miles to the southwest of the first named place. They may be classified in

Lead and Copper Mines.

The latter contain principally silicate of copper, comparatively speaking a poor copper ore, yet desirable for fluxing purposes, with subordinate quantities of the different carbonates and oxides of copper, and hardly any precious metals. The ores occur in segregated veins or deposits in a dolomitic limestone, and form sometimes networks of considerable extent, as in the instance of the Ella mine, once the most noted of the district. It seems, however, that the working of the copper mines has not been attended by very gratifying results, for the shipping of copper ores has ceased entirely, and but few of the mines are being developed now.

At the present time, miners and operators have concentrated their attention upon the development of the lead mines, and, it is to be hoped, with better success.

The ores of the lead mines form lenticular masses, at or near the contact of the crystalline limestone with a dioritic porphyry and consists of carbonate of lead, and of galena which occurs either in solid blocks or

Disseminated in Ribbons

Throughout the country rock. Their other mineral associates are silicate of copper, red copper ore, brown and calcareous spar, which give the ore a refractory character. Of the precious metals only silver is found in the ore in great varying quantities, ranging from 15 to 150 ounces per ton. The principal mines worked are the Last Chance and Elko Tunnel, belonging to the Empire city company, of New York, and the Webfoot and Tripoli, owned by A. J. Roulstone & Co., of San Francisco. Both companies own smelting works in the town of Bullion, with furnaces similar in pattern to those of this place, only smaller, so as to adopt them to the lesser productivity of the mines.

As before stated the ores of Railroad district bear a refractory character on account of the copper and the carbonate of lime and magnesia they contain. For a successful reduction by smelting it is therefore necessary to introduce: Firstly, the proper quantities of sulphur bearing ingredients into the ore to effect a complete separation of the copper from the lead; and, secondly, silica and oxide of iron to form, with the limestone of the ore, a slag of the required fluidity.

During the Thirty-one Days' Run

Of the Empire City Co's furnace, from October 19th, till November 18th, the first of these conditions could only be partially met at the expense of a large portion of the lead which was consequently lost in the slag. As there is no want of quartz and iron ore in the district, the fulfillment of the second condition did not present any difficulties. Although the furnace of the Empire City Co. is a small one, with three tuyeres and a hearth-area of six square feet only, it melted with the aid of a Root's blower, No. 4, 28 tons of ore and 13 tons of fluxes, equal to 41 tons of material, in twenty-four hours.

In all, there were smelted in the course of 31 days, 23.5 tons of assorted galena, 199.1 tons of second-class ore, 642.8 tons of screenings, from the company's mines; in conjunction with 33.3 tons of quartzose carbonate of lead ore, 8.5 tons trachitic rock in lieu of quartz, 2.8 tons carbonate ore rich in iron, 128.1 tons hematite or red iron ore, 240.7 tons impure slag, and with a consumption of 23,262 bushels of charcoal, and 56,557 pounds of coke.

The result therefrom was 127.8 tons of lead bullion, 27 tons of skimmings—alloy of copper with lead—and 16.3 tons of matte containing 24 per cent. lead, 48 per cent. copper and 58 ounces of silver. This was

The Only Run

The Empire City Co. made during the year. The furnace will be provided with water boxes, and next spring started up again, with coke only as a fuel.

The Webfoot company made but one small run of eight or ten days, during which 120 tons of ore were reduced, yielding 32½ tons of bullion of an alleged silver value of $220 per ton. It is the intention of this company to make another run as soon as iron pyrites can be produced to reduce the skimmings accumulated.

Planetary Distances.—An Armstrong gun throws shot at the rate of 400 yards a second, at its initial discharge. If it should continue on at this rate it would take it 13 years to reach the sun. The rate of motion at which the earth travels in space would take our planet to the sun in 125 days.

The New York *Times* cites the fact that 7,000 mechanics and 2 000 laborers have abandoned the Trades Unions during the last year, as evidence of the declining power of such organizations.

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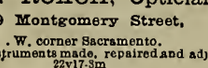

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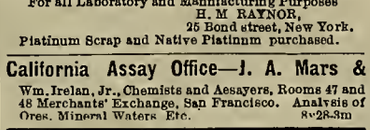

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There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company) Having resolved not to sell any rights unless upon a *basis* of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard that the dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

Payments to be made in U. S. gold coin on delivery of machine, as may be indicated by agreement.

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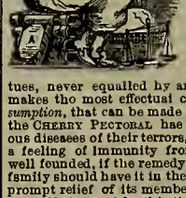

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General News Items.

Earthquake at New York.—The staid Gothomites were pretty severely shaken up on Thursday night of last week. At Washington Heights it sounded like a prolonged roll of thunder. At Spuyten Tuyvel the people kept lights burning all night, fearing a repetition. The alarm was general in these districts. A rocking and rumbling sensation was felt at West Mount Vernon, White Plains, Mt. Kisco Knisco and Kalanah. Houses shook, windows rattled, and several instances are reported where persons fell out of bed, ceilings cracked and fears were entertained that houses would topple over. Many agree in describing the sound as resembling a terrific explosion. At Dobbs' Ferry houses were violently shaken, and at Bellsrung the concussion lasted five or six seconds. At Mount Vernon the whole town turned out in alarm. Several occupants at the hotel were thrown out of bed. The proprietors were frightened and rung a general alarm. In Rockland much damage was done in broken ceilings and glassware, and many people rushed into the streets in their night clothes. Many persons are seriously indisposed through fear. Cslifornia bide fair to be beaten in what it has heretofore considered one of its special sensationals.

The Back Salary Business.—The aggregate sum voted for back pay by the Forty-second Congress was $1,180,000, of which the opponents of the measure and those who repented of their mistake in drawing it paid back into the National Treasury $240,000. There were 185 members in the House of Representatives who pocketed the back pay, and just 17 of the number have succeeded in being chosen to the Forty-fourth Congress. Forty-nine of those who drew the pay contributed it to the "Conscience Fund." Thie act redeemed some of them in the estimation of their constituents, and 18 of the number were re-elected. Nine of the offenders devoted the amounts drawn to charitable and educational purposes. Five of these were returned. Thus we find that the votere discriminated between the degrees of offense committed, and rewarded or punished the parties implicated, according to surrounding circumstances.

Count Von Arnim.—The evidence in this case is all in. The trial has been the seneation of the hour in Europe. The Count was charged with having abstracted from the Parie Embassy certain State papers which belonged to the public vouchers; but the real offense for which he has been so closely followed by Prince Bismarck is the higher one of disloyalty to that prince minister. The defense of the Count is based on technicalities. He denies his guilt, pleads want of jurisdiction by the Court; also that the powers of the Foreign Office over him had lapsed, because he was placed on the retired list. The first point was overruled by the Court, and the second was decided against him, witnesses being produced who testified that it was an Ambassador's duty to hand over the archives of the Legation to his successor. The final result is looked for by Europeans with much interest and anxiety.

Arbitration.—The libel case of Miss Proctor *vs.* Mr. Moulton, of Beecher notoriety, has been settled by arbitration, without recourse to the Courts. Mr. Moulton admits that he was wrong, and voluntarily purposes to pay damages; while Miss Proctor accepts his apology, and refuses to accept a dollar above costs. The settlement is alike honorable to both parties, and furnishes another step toward the abolition of the uncertain and expensive machinery of courts in favor of a common sense settlement of all personal disputes by arbitration. Probably a large portion of the cases that drag their slow length along our courts could be settled by a three-hours' conference before a Judge capable of expounding the law, if such a tribunal existed.

The International Postage Treaty, about which so much is said and so little known, has for its object the consolidation of all Christendom into one territory for postal purposes, making postage on international letters uniform at five cents, and on postal cards two and a half cents, with an additional charge for long sea voyages. The only hitch in the proposition to pass books from one country to another through the mails at two cents per ounce. This would be free trade in literature, whereat the politicians are alarmed. The Senate will be called to express an opinion upon the subject at the present session, in the exercise of its treaty-making powers.

"Who will be the Next."—Great Britain has made another addition to her empire—this time Grigaa Land has been annexed to her—South African territories. England is spreading out her arms, looking like Victor Hugo's devil fish, and what she gets she keeps. The United States has got land enough; but would it not be well to secure a few more outlying ports as places of refuge for our mercantile and war marine. The time may come, when all or nearly all the ports of the world shall be closed against us; then, if not before, we shall see our mistake in neglecting opportunities.

Mechanics Out of Employment. — Over 30,000 mechanics are said to be out of employment in New York city. This is exclusive of several thousand that are idle on account of strikes among the trade unions. The number of laborers out of employment would swell the grand total to nearly or quite 100,000. The present promises to be a winter of terrible suffering in New York.

Terrific Wind Storm.—Janesville, Lssen county, was recently treated to a terrific wind storm, which tore up trees, prostrated miles of fence, lifted the tops from hay stacks, and blew down barns.

Another rumor is in circulation of more territory for Mexico. This time it is a slice of country between the Rio Grande and the ridge to the south of that river.

Fire.—The house of L. L. Robinson, at Belmont, was destroyed by fire on Thursday morning, of last week, the work of an incendiary. Loss $60,000; insurance, $25,000.

Indicted.—The Napa Grand Jury have indicted E. J. Muybridge, the slayer of Major Larkins, for murder.

Artesian Well in San Joaquin Valley.—The Kentucky artesian well, fifteen miles south of Merced City, in the San Joaquin valley, throws up a volume of water that forms a creek, which runs across the plains ten miles to the San Joaquin river. In summer this stream affords water to five thousand head of cattle, and nearly an equal number of sheep. Its cost was only $1,000.

Indigenous Tobacco.—The tobacco plant is said to grow wild in some parts of Nevada, the stalke attaining a hight of three or four feet. The Winnemucca *Silver State* thinks the spontaneous growth of tobacco in that vicinity indicates that ite cultivation would be practicable there. Some enterprising farmer there should try the experiment. Tobacco is a profitable crop wherever it can be successfully raised.

Immense Coinage.—The coining operations at the new mint in this city are going on with great rapidity. On Tuesday of last week, $800,000 in double eaglee were turned out as a single day's work; $1,600,000 were turned out during Thursday, Friday and Saturday. Friday's work was probably the largest day's work ever done at any mint in the world. The San Francisco mint is a great institution.

A Rattlesnake with 28 Rattles.—Mr. J. H. Lynch, of the American Exchange saloon, in this city, has the rattles of a snake killed in Shasta county about two years ago, which shows twenty-eight rattles and a button. This enake was 31 years old, and seven and a half feet long. A rattlesnake was killed near Marysville, a short time since, with twentty seven rattles.

A company has been formed to work the St. Helena quicksilver mine, consisting of Messrs. Kettlewell, Kenworthy, Van Tassell, Cliff and Tonolla, of St. Helena, and Mr. George Beach of San Francisco. This is the nearest mine to St. Helena.

Two queer fishes, resembling a flounder, but without fins, save two appendagee reeembling hands, as a caudal appendage, were picked up a few daye since on the ocean beach near Mendocino City. It was three feet long, two inches wide, had no scales, and the mouth was merely a gristly tube some two inches in length, been like a parrot's beak.

Railway Cars for Australia.—They are building cars for the Australian market at Troy, N. Y. Propositions have also been received for engines and railroad bridges. How is it that our San Francisco mechanics allow such business to step by them to the other side of the continent?

An Immense Hammer.—What is said to be the largest trip-hammer in the United States has just been completed at Nashua, N. H., at an expense of $75,000. The weight of iron in this mammoth machine is about two hundred tons. The ram weighs twelve tons; its striking force is about one hundred tons.

The Tallest Steeple.—Cincinnati is striking out for the tallest and finest steeple on this continent. It is to ornament a Catholic church in that city; ie to cost, aside from the church edifice, $50,000, and will be 320 feet high.

Duties on Wines.—A large delegation of California wine dealers, whose offices are in New York, is in Washington, to urge the passage of a tariff of 40 cents per gallon on the importation of still wines in caske, and $1.50 on wines in cases.

Apples East of the Sierras.—Applee have been raised at Honey Lake of good eize and well flavored, notwithstanding the assertion that fine fruit cannot be brought to maturity on the east side of the Sierra Nevada.

They have found more coal in Monterey county a few miles east of the claim of the Monterey Coal company.

J. M. Murphy has been elected Recorder of Panamint mining district; 963 votes were polled.

The Vallejo Foundry is working on machinery for a quicksilver mine in Santa Barbara county.

George C. Langtry, superintendent of the Lyon Mill and Mining company, died at Dayton on Saturday.

Fruit to Mexico.—Lusk & Co have recently shipped to Mexico ten tons of fruit from Santa Clara county.

Mining discoveries have been made near Camp Scott, at the head of Paradise valley, Nev.

Street Mining. The truetees of the city of Sonoma, Tuolumne county, having granted J. T. McLean the privilege to mine on Holden street, operstions were commenced on Wednesday back of the Sonora hotel. The Sonora *Democrat* grumbles about it as follows: "We like to seeenterprise make money in mining, but ask ie it proper to allow our streets to be torn up that have cost so much to improve and get in their present condition."

Seene by Mail.—Seeds and cuttings in packagee se large ae four pounde now pass through the mails and post-officee at a comparatively low rate of poetage. A bushel of orchard grass seed weighs 14 pounds, which may be mailed in four packages for 32 cents to any part of the United States.

Agricultural Machinery.—The farmers of the United States annually expend $20,000,000 in reaping and mowing machines. The annual production is estimated at about 125,000 machines.

The mines dealt in at the Stock Board have levied in assessments $29,366,110. They have paid in dividends a total of $56,014,500, leaving a profit of $26,648,399. Who says mining is a delusion and a snare?

Work on the McGlew furnace in Peavine is progressing rapidly. The Masons will be through in a day or two, and then it will take but a short time to get the furnace in complete running order.

Olive Oil.—The olive oil refinery at San Fernando, Loe Angeles county, has commenced operations. Several thousand gallons of oil will be mannfactured this season.

The next annual eession of the State Grange of the Patrone of Husbandry of Colorado will be held in Denver city, commencing on Tuesday, January 13th, 1875.

A rich strike has been made in the Grove mine, at Austin, Nev. The ore body is from twelve to sixteen inches in width, carrying ore of a very high grade.

The Consolidated Virginia and Opbir minee have been obliged to refuse to allow visitors to enter the mines as they greatly interfere with work.

At the Keyetone mine, San Luis Obispo county, they are putting up a new quicksilver furnace and condensers. The worke will be ready to run in about two months.

The Marin county paper mill, owned by S. P. Taylor, is said to be one of the most prosperous manufacturing institutions on this coast.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Dec. 15th, 1874.

For Week Endino Dec. 1st, 1874.*

Step ann Bearino For Mill Spindles.—D. Matthew, Portland, Oregon.

Cuttino Attachment for Sewing Machines.—Marcellus A. Graham, San Francisco, Cal.

Wagon Brake.—John Grider, Milton, Cal.

Blind Bridle.—Francis Schwalm, Clarksville, Cal.

Standing Irrigator ann Revolving Fountain.—Frank J. Shafer, San Francisco, Cal.

Endless Rope Traction Railway—William Eppelsheimer, San Francisco, Cal.

Whip Holder.—John H. Pitts, San Francisco, Cal.

Cesspool Cover and Trap Combined.—John P. Schwartz, San Francisco, Cal.

Trade Mark.

For Sheet and Plate Iron.—Brittan, Holbrooke & Co., San Francisco, Cal.

*The patents are not ready for delivery by the Patent Office until some 14 days after the date of issue.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest time possible.

"I am the last of six".—One rainy forenoon something less than a year ago, a pale cadaverous, youth walked into the store of C. N. Crittenton, No. 6 Sixth Avenue, and in weak, husky tones, interrupted frequently by a dry, hacking cough, stated that he wanted a couple of bottles of *Hale's Honey of Horehound and Tar*. "I am the last of six," he said, "the others all died of consumption, and I am going fast. I will try this new remedy, but I have no hope." He did try it and to some purpose. He took, in all, twelve bottles, and is to-day in perfect health—lungs sound, cough gone, and not a sign of pulmonary disease remaining.

Pike's Tooth-Ache Drops—Cure in one minute

Woodward's Gardens embraces an Aquarium, Museum, Art Gallery, Conservatories, Tropical Houses, Menagerie Seal Ponds, and Skating Rink. Admission, 25 cents; children, 10 cents.

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S. F. Gold and Silver Plating Works, 655 Mission St, advertisement appears first Saturday of every month.

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OFFICE, 224 SANSOME STREET, S. F.

PATENTS obtained promptly; Caveats filed expeditiously; Patent reissues taken out; Assignments made and recorded in legal form; Copies of Patents and Assignments procured; Examinations of Patents made here and at Washington; Examinations made of Assignments recorded in Washington; Examinations ordered and reported by Telegraph; Rejected cases taken up and Patents obtained; Interferences Prosecuted; Opinions rendered regarding the validity of Patents and Assignments; every legitimate branch of Patent Agency Business promptly and thoroughly conducted.

Our intimate knowledge of the various inventions of this coast, and long practice in patent business, enable us to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most steadfast friends and patrons, who fully appreciate our advantages in bringing valuable inventions to the notice of the public through the columns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity.

Foreign Patents.

In addition to American Patents, we secures with the assistance of co-operative agents, claims in all foreign countries which grant Patents, including Great Britain, France, Belgium, Prussia, Austria, Victoria, Peru, Russia, Spain, British India, Saxony, Britieh Columbia, Canada, Norway, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cuba, Roman States, Wurtemberg, New Zealand, New South Wales, Queensland, Tasmania, Brazil, New Grenada, Chile, Argentine Republic, AND EVERY COUNTRY IN THE WORLD where Patente are obtainable.

No models are required in European countries, but the drawings and specifications should be prepared with thoroughness, by able persons who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

Our schedule prices for obtaining foreign patents, in all cases, will alwaye be as low, and in some instances lower, than those of any other responsible ageucy.

We *can and do* get foreign patents for inventors in the Pacific States from two to six months (according to the location of the country sooner than any other agents.

Home Counsel.

Our long experience in obtaining patents for Inventors on this Coast has familiarized us with the character of most of the inventions already patented; hence we are frequently able to save our patrons the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are always free to advise applicants of any knowledge we have of previous applicatione which will interfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventions and patent right business, believing that the mutual conference of legitimate business and professional men is mutual gain. Parties in doubt in regard to their rights as assignees of patents, or purchasere of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, sometimes miscarry, and it has repeatedly happened that applicants have not only lost their money, but their inventione also, from this cause and consequent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of this coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventione discovered here than any other agents.

Situated so remote from the seat of government, delays are even more dangerous to the inventore of the Pacific Coast than to applicants in the Eastern States. Valuable patents may be lost by the extra time consumed in transmitting specificatione from Eastern agencies back to this coast for the signature of the inventor.

Confidential.

We take great pains to preserve secrecy in all confidential matters, and applicants for patents can rest assured that their communicatione and business transactions will be held strictly confidential by ue. Circulars free.

Engravings.

We have superior artists in our own office, and all facilitiee for producing fine and satisfactory illustrations of inventions and machinery, for newspaper, book, circular and other printed illustratione, and are always ready to assist patrons in bringing their valuable iscooveries into practical and profitable use.

DEWEY & CO.,

United States and Foreign Patent Agents, publishers Mining and Scientific Press and the Pacific Rural Press, 224 Sansome St., S. F.

METALS.

WEDNESDAY M., Dec. 16, 1874.

American Pig Iron, ₱ ton	—	@	46 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig, ₱ ton	—	@	46 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ lb	—	@	— 3½
Refined Bar, good assortment, ₱ lb	—	@	— 4
Boiler, No. 1 to 4	—	@	— 5½
Plate, No. 5 to 9	—	@	— 5½
Sheet, No. 10 to 13	—	@	— 5½
Sheet, No. 14 to 20	—	@	— 5½
Sheet, No. 24 to 27	08	@	— 09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	9½	@	— —
Norway Iron	—	@	— —
Rolled Iron	—	@	— —
Other Irons for Blacksmiths, Miners, etc.	—	@	— 4½
COPPER.—			
Braziers'	31	@	— 32
Copper Tin'd	45	@	— —
O. Nail's Pat	50	@	— —
Sheathing, ₱ lb	—	@	— 24
Sheathing, Yellow	—	@	— 23
Sheathing, Old Yellow	—	@	— 12½
Composition Nails	24	@	— —
Composition Bolts	21	@	— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ hox	13 00	@	15 00
Plates, I C Charcoal	13 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ lb	—	@	— 33
STEEL.—English Cast, ₱ lb	20	@	— 25
Anderson & Woods' American Cast	—	@	— 16½
Drill	—	@	— 16½
Flat Bar	18	@	— 22
Plough Steel	8 50	@	10 00
ZINC	—	@	— 11
Zinc, Sheet	—	@	— 11½
NAILS—Assorted sizes	4 25	@	8 00
QUICKSILVER, per lb	—	@	1 55

GENERAL MERCHANDISE.

WEDNESDAY M., Dec. 16, 1874.

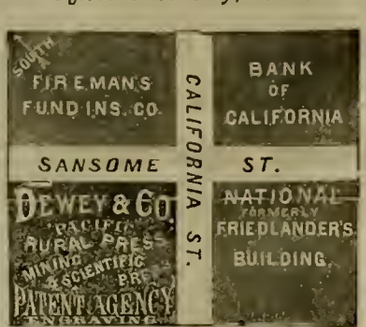
BAGS.			
Eng. Stand Wht	—	@	12
Detrick's Machine			
Sawed, 22x36, E. 12	—	@	12½
do 22x36, do E W	—	@	13½
do 20x40, do A	—	@	13½
Flour Sacks ½s	9½	@	11½
" " ¼s	6	@	7
Stand. Gunnies			
double seam	13	@	14
single seam	13½	@	14
" Wool Sacks	60	@	67½
Barley Bags 24x38	13	@	14
do 22x40		@	11½
do 24x40		@	15
do 28x36		@	16
Oat Bags, 24x40	10	@	16½
do 28x36	—	@	17
Hessian 10-in. gds	9½	@	9¾
do 45	10½	@	11
do 60	—	@	16
CANNED GOODS.			
Asst'd Pie Fruits			
in 2½ lb cans	2 50	@	2 75
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles ½ gl	3 50	@	3 50
Sardines, qr box	80	@	—
do hf boxes	3 20	@	—
COAL—Jobbing.			
Australian, ₱ ton	10 50	@	12 50
Coos Bay	—	@	10 00
Bellingham Bay	—	@	8 50
Seattle	—	@	11—
Oumberl'd, cks	—	@	18 00
do bulk	16 00	@	17 50
Mt. Diablo	8 25	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 50
West Hartley	—	@	14 00
Scotch	10 00	@	11 00
Scranton	—	@	13 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ sk	75	@	—
Ooke, ₱ hbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Central Amaric'n	20	@	22
Costa Rica per lb	23		24
Guatemala	20	@	22
Java	—	@	26½
Manilla	19	@	20
Ground in cs	—	@	27
Chicory	9	@	10
FISH.			
Pac. Dry Cod, new	5	@	6
cases	6	@	7
do boneless	11	@	12
Eastern Cod	8	@	8½
Salmon in bbls	9 00	@	9 50
do ½ bbls	4 50	@	5 50
do 2½ lb cans	—	@	2 80
do 2 lb cans	2 65	@	2 75
do 1 lb cans	1 75	@	—
Do Oil, ½ lb	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No. 1, ½ bbls	9 00	@	11 00
" Extra	—	@	12 00
" in kits	2 00	@	2 50
" Ex mess	3 00	@	3 50
" Ex mess, ½ hs	—	@	13 00
Pic'd Herr'g, hx	3 00	@	3 50
NAILS.			
Assorted size, lb	5 37½	@	7 50
OILS.			
Pacific Glue Co.			
Neat Ft to No. 1	—	@	90
Pure	—	@	—
Castor Oil, No. 1	—	@	1 25
do do No. 2	—	@	1 12½
Oocoanut	1 47½	@	1 50
Olive Flaxmiol	—	@	—
do Possel	—	@	—
Palm lb	9	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in cs	77½	@	82½
Sperm, crude	—	@	1 40
do bleached	1 90	@	2 25
Coast Whales	45	@	—
Polar, refined	50	@	52½
Lard	1 15	@	1 30
Coal, refined Pat	37½	@	—
Olaophina	21	@	24
Devoe's Bril't	25	@	28
Long Island	21	@	24
Eureka	—	@	—
Devoe's Petro'm	21	@	24
Barrel kerosene	21	@	24
Olive	4 20	@	9 25
Downer Kerose'e	—	@	37
Gas Light Oil	—	@	26
PAINTS.			
Atlan. W. Lead	6	@	10
Whiting	—	@	2
Putty	4	@	5½
Chalk	—	@	2½
Paris White	2½	@	—
Ochra	2	@	5
Venetian Red	3½	@	5
Red Load	7	@	11
Litharge	9	@	9
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ₱ lb	6½	@	6¾
do 2, do	5½	@	6
Japan	6	@	7
Siam Cleaned	7	@	—
Patna	6	@	6½
Hawaiian	7¼	@	8
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	24 00
do coarse	18 00	@	—
SOAP.			
Castile ₱ lb	10	@	11
Local brands	5	@	8
SPICES.			
Cloves	50	@	55
Cassia	26	@	27
Citron	33	@	35
Nutmeg	1 20	@	1 30
Whole Pepper	21	@	23
Pimento	—	@	15½
Gr'nd Allsp'ce	—	@	12½
do Cassia	—	@	1 50
do Cloves	—	@	1 50
do Mustard	—	@	1 20
do Ginger	—	@	1 00
do Pepper	—	@	1 00
do Mace	—	@	2 10
SUGAR, ETC.			
Cal. Cube per lb	11½	@	—
Partz' Pro. Cuba			
bbl or 100 lb hrs	—	@	11¾
do in 50 lb hrs	—	@	12
do in 25 lb hrs	—	@	12¼
Circle A crushed	—	@	11½
Powdered	—	@	11¾
Fina crushed	—	@	11½
Granulated	—	@	11
Golden C	—	@	10¾
Hawaiian	8	@	11¼
California Beet	10¾	@	11½
Cal. Syrup in oils	—	@	87½
do in ½ bls	—	@	70
do in kegs	—	@	75
Hawaiian Molasses	25	@	30
TEA.			
Oolong, Canton, ₱ lb	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	1 00
Gnnpo'der, Cant	30	@	42½
do Pingsuey	50	@	90
do Moynnc	65	@	1 25
Y'ng Hy., Canton	28	@	40
do Pingsuey	40	@	70
do Moynna	65	@	85
Japan, ½ chests, bulk	30	@	75
Japan, lacquered bxs, 4½ and 5 lbs	45	@	67
Japan do, 3 lb bxs	45	@	90
do pl'n hx, 4½ lb	35	@	65
do ½ & 1 lb paper	30	@	55
TOBACCO—Jobbing.			
Bright Navys	50	@	50
Dark do	50	@	55
Dwarf Twist	70	@	72½
12 inch do	60	@	70
Light Pressed	70	@	80
Hard do	50	@	60
Coon. Wrap'r	35	@	40
Penn. Wrapper	20	@	45
Ohio do	15	@	20
Virgi'a Smok'g	45	@	75
Fine cut ohe'g, gr	8 50	@	9 25
Fina cut chawing, buc'ts, ₱ lb	75	@	90
Banner fine cut	8 00	@	9 25
Eureka Cala	—	@	9 00
TURPENTINE.			
Eastern	55	@	60

LEATHER.

WEDNESDAY M., Dec. 16, 1874.

City Tanned Lesther, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@29
Country Leather, ₱ lb			24@28
Stockton Leather, ₱ lb			25@29
Jodot, 8 Kil., per doz	86 00	@	54 00
Jodot, 11 to 13 Kil., per doz	86 00	@	90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55 00	@	72 00
Dornalhan, 12 to 16 Ko	57 00	@	67 00
Cornellian Females, 12 to 13	63 00	@	67 00
Cornallian Females, 14 to 16 Kil	71 00	@	76 50
Simon Ulmo Females, 12 to 13, Kil	60 00	@	64 00
Simon Ulmo Females, 14 to 15, Kil	70 00	@	72 00
Simon Ulmo Females, 16 to 17, Kil	73 00	@	75 00
Simon, 18 Kil., ₱ doz	61 00	@	63 00
Simon, 20 Kil. ₱ doz	67 00	@	67 00
Simon, 24 Kil. ₱ doz	72 00	@	74 00
Kohart Calf, 7 and 9 Kil	35 00	@	40 00
Franch Kips, ₱ lb	1 00	@	1 35
California Kip, ₱ doz	40 00	@	50 00
French Sheep, all colors, ₱ doz	8 00	@	15 00
Eastern Calf for Bar, ₱ lb	1 00	@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00	@	13 00
Sheep Roans for Linings, ₱ doz	5 50	@	10 50
California Russett Sheep Linings	1 75	@	4 50
Best Jonah Calf Boot Legs, ₱ pair	5 00	@	5 25
Good Franch Calf Boot Legs, ₱ pair	4 00	@	4 75
French Calf Boot Legs, ₱ pair	4 00	@	—
Harness Leather, ₱ lb	30	@	37½
Fair Bridle Leather, ₱ doz	48 00	@	72 00
Skirting Leather, ₱ lb	33	@	37½
Welt Leathar, ₱ doz	30 00	@	50 00
Buff Leather, ₱ foot	17	@	—
Wax Side Leather, ₱ foot	17	@	—
Eastern Wax Leather	—	@	—

Location of Dewey & Co.'s New Offices since July, 1874.



Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Chas. T. Bell—Alsmeda, Santa Clara and Santa Cruz Counties.

J. W. Anderson—Orange and Santa Ana, in Los Angeles County, Cal.

J. G. Kelley—For Washington Territory.

B. W. Crowell—California.

F. B. Alderson—City agent, San Francisco.

George Decker—Solano County.

J. L. Thart—Southern California.

O. H. Wheeler—Southern California.

A. C. Champion—Tulare, Fresno and Inyo Counties.

D. J. James—Australian Colonies.

J. O. Ewing—Contra Costa County.

John Rostran—Sonoma County.

Don't Stop the Press.—A subscriber in Tulare county, in sending us the renewal of his subscription, adds the following: "Don't stop the Press; I'd just as soon you would stop a portion of my bread. It is a welcome friend to our fireside. Wife is just as deeply interested as I am, and would sooner sacrifice her tea than forego the pleasure of reading the Press. The young Grangers in our family, with sparkling eyes and swift coming feet, gather around to look at the ever new and unfolding wonders to be found in the Press. I repeat it, *dont stop the* Press." D. W.

Visalia, Nov. 3d, 1874.

J. D. Yost, San Francisco. H. S. Crocker, Sacramento

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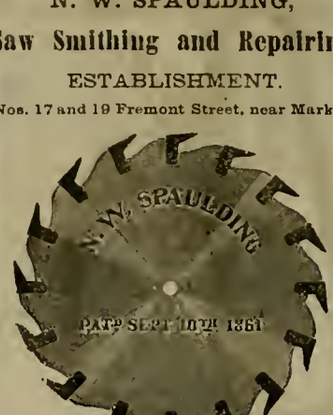

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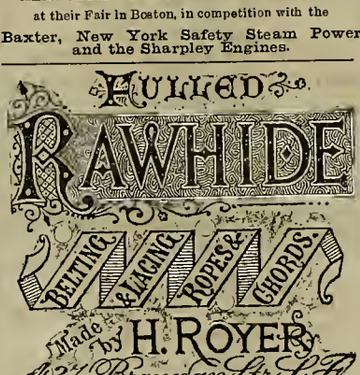


19v27-eow-16p

Mining and Other Companies.

Calaveras Hydraulic Mining Company.

Principal place of business, San Francisco, California. Location of works, Calaveras county, State of California.

Notice is hereby given, that at a meeting of the Trustees of said Company held on the 7th day of December, 1874, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary of the Company in the office of the United States Internal Collector, No. 321 Battery street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Saturday, the ninth day of January, 1875, shall be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the twenty-fifth (25th) day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale. ABRAM SHEAR, Secretary.

Office, No. 321 Battery street, San Francisco, California. (Over the U. S. Internal Revenue Collector,) San Francisco, Cal. dec19-4t

Electric Mining Company—Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 25th day of November, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, in San Francisco.

Any stock upon which this assessment shall remain unpaid on the fourth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday the 25th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

T. B. WINOARD, Secretary.

Office—Room 13, No. 318 California street, San Francisco, Cal.

"Golden Rule" Silver Mining Company—

Principal place of business, San Francisco, California. Location of works, Ophir Mining District, Utah Territory.

Notice Is hereby given, that at a meeting of the Board of Directors, held on the 8th day of December, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin to the Secretary, No. 530 Clay street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the fifteenth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment be made before, will be sold on Monday, the fifteenth day of February, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

K. WERTHEIMER, Secretary.

Office, 530 Clay street, San Francisco, Cal.

Land Purchaser's Association— Office

No. 331 Montgomery street, room 7, San Francisco, California.

Notice.—There are delinquent upon the following described stock, on account of assessment, (Installment No. 42) levied on the 28th day of October, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John A Callison	20	1	$10 00
D S Hutchinson	65	1	10 00
M A Hutchinson	105	1	10 00
Otis Jackson	180	2	20
W E Maybew	205	3	
Mrs N McCarty	147	1	10

And in accordance with law, and an order of the Board of Directors, made on the 28th day of October, 1874, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the office of the Secretary, 331 Montgomery street, room 7, San Francisco, California, on Thursday, the 24th day of December, 1874, at the hour of 12 o'clock, M. of said day, to paysald delinquent assessmont thereon, together with costs of advertising and expenses of the sale.

O. S. WRIGHT, Secretary.

Martin and Walling Mill and Mining Com-

pany. Principal place of business, San Francisco, Cal. Location of works, Coulterville District, Mariposa County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 7th day of December, 1874, an assessment (No. 1) of fifty (50) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company in San Fransisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 8th day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Saturday, the 23d day of January, 1875, to pay the delinquent assessment together with costs of advertising and expenses of sale.

A. W. TRIPP, Secretary.

Office.—Room 6, 408 California street, San Francisco.

Mansfield Gold Mining Company—In

accordance with a resolution adopted at a meeting of the Board of Directors of the Mansfield Gold Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, to be held at the office of said company, in San Francisco, No. 531 California treat, room 1, on Monday, the 21st day of December, 1874, at 1 o'clock P. M., to take into consideration and act upon the proposition to increase the capital stock of said company from nine hundred and ninety thousand dollars, divided into thirty-three thousand shares, of the par value of thirty dollars each, to one million, nine hundred and eighty thousand dollars, divided into sixty-six thousand shares, of the par value of thirty dollars each. Also for the transaction of any other business that may properly come before the meeting.

R. OOULSON, President.
J. HISHFELD,
J. E. HILL,
F. W. VOLL,
J. L. SMITH
} Directors,

San Francisco, Nov. 20, 1874. no28-4t

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, Cal. Location of Works, Julian Mining District, San Diego County, Cal.

Notice—There are delinquent upon the following described stock, on account of assessment, (No. 3.) levied on the second day of November, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Joseph Storey	1	10	$10 00
J O Lytle	2	10	10 00
A Pauly & Sons	4	10	10 00
Jas D Lynch	22	10	10 00
W R De Frees	28	300	300 00
W R De Frees	50	150	160 00

And in accordance with law, and an order of the Board of Directors, made on the second day of November, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by the Secretary at the office of the Company, Room No. 4, Hayward's Building, 419 California street, San Francisco, on Monday, the 28th day of December, 1874, at the hour of one o'clock, P. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

FRANK SWIFT, Secretary.

Office, 419 California street, San Francisco, Cal.

Page Tunnel Company.—Location of

principal place of business, San Francisco, California. Location of works, Big Cottonwood District, Salt Lake County, Utah.

Notice is hereby given, that at a meeting of the Directors, held on the 12th day of December, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 2, No. 408 California street, San Francisco California.

Any stock upon which this assessment shall remain unpaid on the 20th day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 9th day of February, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

JAQUB HARDY, Secretary.

Office, Room 2, No. 408 California street, San Francisco, California. dec19-4t

Theresa Mill and Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Coulterville District, Mariposa county, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the twenty-fifth (25th) day of November, 1874, an assessment (No. 1) of fifty (50) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, room 16, 408 California street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on Wednesday the thirteenth (30th) day of December 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 15th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale. A. W. TRIPP, Secretary.

Office, Room 16, 408 California street, San Francisco, Cal

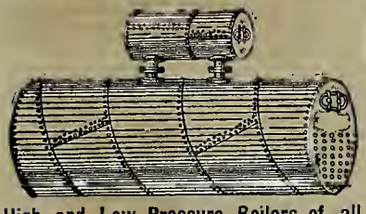
Iron and Machine Works.

San Francisco Boiler Works,

123 and 125 Beale Street.....SAN FRANCISCO

E. I. CURRY.

Late Foreman of the Vulcan Iron Works,) Proprietor



High and Low Pressure Boilers of all Descriptions.

SOLE MANUFACTURERS OF THE CELEBRATED

SPIRAL BOILER.

SHEET IRON WORK of every description done at the Shortest Notice.

All kinds of JOBBING and REPAIRING promptly attended to. 17v25-3m

THE RISDON

Iron and Locomotive Works,

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:

Corner of Beale and Howard Streets,

SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Joseph Moore, Jesse Holladay, C. E. McLane,
Wm. Norris, Wm. H. Taylor, J. B. Haggin,
James D. Walker.

WM. H. TAYLOR.....President
JOSEPH MOORE...Vice-President and Superintendent
LEWIS R. MEAD.....Secretary
24v17-qy

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

N. E. corner of Tehama and Fremont streets, above Howstreet, San Francisco. 3-qy

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

Standard sizes of railroad Car Wheels, with special patterns for Mining Cars. These small wheels are made of the best Car Wheel Iron, properly chilled, and can be fitted up with the improved axle and box—introduced by this company, and guaranteed to outlast any other wheels made in this State.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

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Sacramento.

ROOT, NEILSON & CO.,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

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McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st., between Fremont and Beale, San Francisco

STEAM ENGINES AND BOILERS

Of all sizes—from 2 to 60-Horse power. Also, Quartz Mills, Mining Pumps, Hoisting Machinery, Shafting, Iron Tanks, etc. For sale at the lowest prices by

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PARKE & LACY,

SOLE AGENTS FOR THE

Burleigh Rock Drill Company.

—MANUFACTURERS OF—

PNEUMATIC DRILLING MACHINES,

AIR COMPRESSORS AND OTHER MACHINERY.

Also, Farmers' Dynamic Electric Machine and Hill's Explodere for Blasting, Putnam Machine Company's Tools, Wright's Steam Pumps and Haskin's Engines.

Address

PARKE & LACY,

21v28-3m-hd 108½ Leidesdorff St., S. F.

DATA OF CAMERON'S PATENT STEAM PUMPS, REGULAR SIZES.

DAVID STODDART, Agent. 114 BEALE ST., SAN FRANCISCO.

NUMBERS.	0	1	2	3	3½	4	4½	5	6	7	8
Diameter of Steam Cylinder, in inches.	4	5	5	7	8	10	10	12	14	15	18
Diameter of Pump Cylinder, in inches.	2½	2½	3	3½	4	5	6	7	9	10½	12
Stroke of Piston, in inches.	5	6	7	10	10	12	12	14¼	15	15	18
Capacity per double Stroke, in gallons.	1-6	¾	1	2	2½	3	4	5	6	7	8
Capacity at ordinary Speed, per minute.	10	15	25	50	80	120	180	270	360	450	600
Maximum Capacity.....	20	30	50	100	150	225	300	405	540	675	900
Boilers of Steam power they will supply.	¾	1	1½	2½	3½	5	6½	8	10	12	16
Size of Steam Pipe, in inches.	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Size of Exhaust Pipe, in inches.	1	1¼	1½	2	2½	3	3½	4	5	6	8
Size of Suction Pipe, in inches.	1	1¼	1½	2	2½	3	3½	4	5	6	8
Size of Discharge Pipe, in inches.	1	1¼	1½	2	2½	3	3½	4	5	6	8
Weight of Pump, in pounds.	185	235	400	810	875	1180	1500	2450	3375	4800	
Length over all, in feet and inches.	3-4	3-4	3-10	4-11	4-11	5-6	5-6	5-10	6-7	6-7	
Height over all, in feet and inches.	1-9	1-9	2-3	3-1	3-1	3-7	4-3	4-7	2-9	2-9	
Width over all, in feet and inches.	1-6	1-9	1-1	1-3	1-4	1-6	1-10	2-1			
	$	$	$	$	$	$	$	$	$	$	$
PRICE.....	9	10	1-1	1-3	1-4	1-6	1-10	2-1	2-9	6-7	2-10

The above data apply to the Regular sizes only. All these pumps have *Brass Valve Seats and Brass Water Pistons.* Pumps when lined with brass cost extra. We have many supplementary sizes.

LONG STROKE PUMPS. (No. 4, 24-in. Stroke, $
(No. 5, 24-in. " $
No. 6, 30-in. Stroke, $
No. 7, 30-in. Stroke, $
No. 8, 36-in. " $

These Long Stroke Pumps have large free openings, and are highly esteemed *for draining mines.*

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY, P. O. box 2032, San Francisco, Cal., will receive prompt attention.

☞ The highest price paid for Scrap Iron.

OCCIDENTAL FOUNDRY,

137 and 139 First street.....SAN FRANCISCO.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice. Sole manufacturers of the **Hepburn Rolling Pan** and **Callahan Grate Bare,** suitable for Burning Screenings.

NOTICE.—Particular attention paid to making Superior Shoes and Dies. 20v26.3m

The Phelps' Manufacturing Co.,

(Late S. F. Screw Bolt Works.

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13, 15 and 17 Drumm Street, San Francisco. 4v24ly

California Machine Works,

119 BEALE STREET, SAN FRANCISCO.

BIRCH, ARGALL & CO.,

Builders of QUARTZ, SAW AND FLOUR MILLS

Keating's Sack Printing Presses,

THE ECONOMY HYDRAULIC HOIST FOR STONES,

And General Machinists. 25v28-8m

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Knees, Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

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G. W. PRESCOTT. | W. R. ECKART.

Marysville Foundry,

MARYSVILLE, - - - - - - - - - - - - - CAL.

PRESCOTT & ECKART,

Manufacturers of Quartz and Amalgamating Machinery. Hoisting Machinery, Saw and Grist Mill Irons, House Fronts, Car Wheels, and Castings of every description made to order.

Steam Engines constantly on hand for sale. 9v28-1y

Vallejo Foundry and Machine Works,

VALLEJO, CAL.

JOHN L. HEALD, Proprietor.

Manufacturer of Flour and Saw Mills, Stationary and Portable Steam Engines, Pumps, etc. Boilers built and repaired, and all kinds of Iron and Brass Castings furnished at short notice. 18v29-3m

THEODORE KALLENBERG.

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, San Francisco

Machinery and Castings of all kinds.

THOMPSON BROTHERS,

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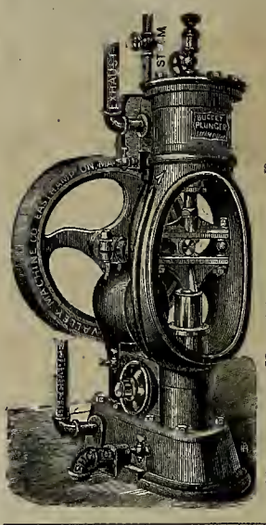
129 and 131 Beale street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description. Manufactured. 2av16qr

Steam Engines and Pumps.



PARKE & LACY,

Sole Agents for

WRIGHT'S

BUCKET-PLUNGER

Steam Pump

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ALWAYS RELIABLE

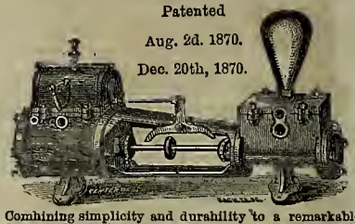
29v19-tf

THE SELDEN

DIRECT-ACTING STEAM PUMP,

A. CARR, Manufacturer & Proprietor.

Patented
Aug. 2d. 1870.
Dec. 20th, 1870.



Combining simplicity and durability to a remarkable degree. Its parts are easy of access, and it is adapted to all purposes for which Steam Pumps are used.

As a Mining Pump it is Unsurpassed.

—ALSO—

STEAM, GAS & WATER PIPE, BRASS WORK STEAM & WATER GAUGES, FITTINGS, ETC.

CARR PATENT STEAM RADIATOR.

Send for Price List and Circulars. Address,

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BLACK DIAMOND FILE WORKS.

TRADE MARK

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Manufacturers of Files of every Description

Nos. 39, 41 and 43 Richmond street,

Philadelphia, Pa.

Sold by all the principal hardware stores on the Pacific Coast. 18v25.1y

Froiseth's New Sectional, Topographical and Mineral

MAP OF UTAH.

SIZE, 40 BY 56 INCHES; SCALE, 8 MILES TO AN INCH.

Handsomely engraved on stone, colored in counties and mounted on cloth, showing the Counties, Towns, Rivers, Lakes, Railroads, Mines and Mining Districts throughout the Territory, and all GOVERNMENT SURVEYS made to date. Price, mounted, $8; Pocket form, $5.

—ALSO—

New Mining Map of Utah,

Showing the boundaries of the principal mining districts, some 30 in number, adjacent to Salt Lake City. Price, pocket form, $2.50.

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Froiseth's New Map of Little Cottonwood Mining District and Vicinity.

Showing the location of some 400 mines and tunnel sites, together with the mines surveyed for U. S. Patent. Price $3. For sale and mailed to any part of the globe, on receipt of price, by A. L. BANCROFT & CO., A. ROMAN & CO., and LECOUNT BROS. & MANSUR, San Francisco. 10v25-tf

NONPAREIL OIL.

140 Degree Fire Test, for Family Use.

OWNERS OF MILLS AND MANUFACTORIES, your attention is particularly called to this beautiful and safe ILLUMINATING OIL. Its use is urgently recommended by the New York Fire Commissioners and Insurance Companies. For sale to the trade in lots to suit. A. HAYWARD, 224 California St. 19v28-3m

New Inventions!

Of real merit, if brought plainly before the public when fresh, are most likely to become profitable to the patentee. For this reason, patentees (of worthy devices) should have the best of Engravings Made, and published in the PRESS. Superior Engravings Made, at reasonable rates, by artists in this office. bp-tf

California Planers and Matchers, and Wood Working Machinery of all Kinds,

For Sale at TREADWELL & Co. Machinery Depot, San Francisco.

The CALIFORNIA PLANER AND MATCHER is got ten up from new patterns specially for this Coast. It has Cast Steel Slotted Cylinder Head, running in patent self oiling boxes; Matcher Spindles also of the best cast steel. The Gears are all protected with iron covers. Will plane 24 in. wide and 6 in. thick, and tongue and groove 14 in. wide. Will make rustic and stick gutters, or heavy mouldings, etc., and is the best Job Machine ever built.

☞We have always on hand a large assortment of Planing Mill Machinery, all of the latest improvements, including Planers, Moulding, Morticing and Tenoning Machines, Band and Jig Saws, &c., &c. Send for Catalogues and prices.

TREADWELL & CO.,
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Adjustable Saw Guage.

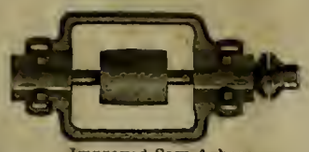
Moulding and Planing Heads of all Kinds.

Iron Working Machinery.

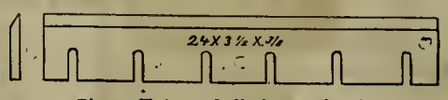
Foot Power

Jig Saws.

Improved Band Saws.



Improved Saw Arbors.



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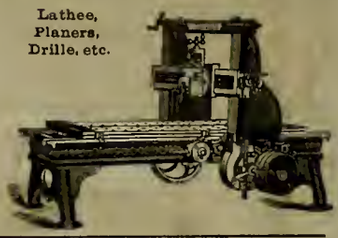
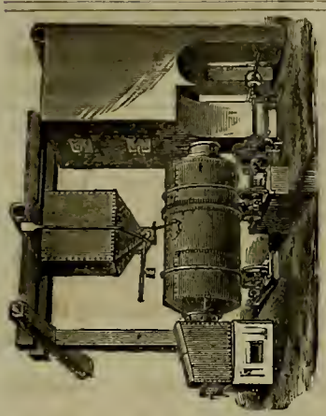


Mining Machinery.



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For Roasting, Deculphurizing, Chloridizing and Oxidizing Ores, etc. For the reduction of Gold, Silver, Lead and other ores, saving a larger percentage, at less cost, than any other invention now in use. Chloridizing Silver ore more thoroughly, in less time, with less fuel, salt and labor; also roasting Lead ore preparatory to smelting, better and cheaper than any other invention. The Furnace is so constructed that one man, of ordinary ability, tends five or more furnaces; controls them with ease; adding heat or air; stopping or starting at will; charging and discharging with case. Also, Patent "Conveying Cooler," for conveying and cooling roasted ores, heating the water for amalgamation and the boilers at the same time. Saving the large space in mill (covered with brick or iron), and the labor of two men per day, exposed to the poisonous chlorine gases. Also, Patent Air Blast "Dry Kiln," for drying ores direct from the mine or breaker, saving fuel and labor heretofore necessary in drying ores for dry pulverizing. For description refer to MINING AND SCIENTIFIC PRESS, No. 18, October 31, 1874. For particulars address

TEATS & BREED,
No. 12 West Eighth Street, Cincinnati, Ohio

Circulars, &c., will be furnished, if required.
18v29-3m

THE AMERICAN TURBINE WATER WHEEL

Recently improved and submitted to thorough scientific tests by James Emerson, showing the following useful effect of the power of the water utilized, being

THE HIGHEST RESULTS EVER KNOWN.

Percentage of part gate, ¼ 50.08; ⅜ 69.64; ½ 78.73 ¾ 82.53; ⅞ 82.90. Percentage of whole gate, 83.14.

Mr. Emerson says: **"These are the best average results ever given by any Turbine Wheel in my experience."**

A splendidly illustrated descriptive catalogue, or any further information desired, furnished on application to

TREADWELL & CO.,
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Sole Agents for the Pacific States and Territories.
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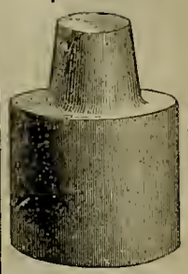
Improved Cast and Forged Steel Shoes and Dies for Quartz Mills.



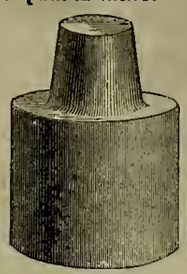
[PATENTED MAY 26TH, 1874.]

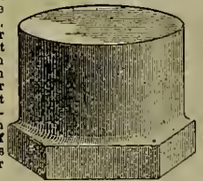
Price Reduced to 16 Cents Per Pound.

SAN FRANCISCO, November 10th, 1874.

To Supts. of Quartz Mills and Mining Men generally:

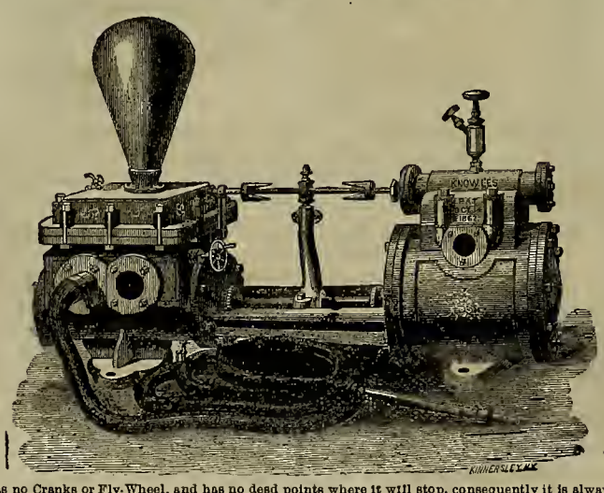
We take pleasure in stating that owing to the rapid increase in our orders, our Pittsburg Manufacturers have been compelled to add largely to their works—a new gas furnace and heavier trip hammer—and are thus enabled to reduce the cost of steel and at the same time produce SHOES AND DIES superior to any yet manufactured. We have consequently reduced the price to 16 cents per pound and solicit a trial order, guaranteeing that you will find them at least 10 per cent. cheaper than the best iron. There are no STEEL SHOES AND DIES made excepting under our patent and sold at this office, or by our authorized agents, though certain Eastern manufacturers advertise STEEL SHOES AND DIES which are only cast iron hardened by the addition of a composition. They will not out-wear two sets of common iron, though called steel. They are very brittle and are not capable of being tempered, flying from under the hammer like cast iron. Our STEEL SHOES AND DIES are in use in many of the largest mills on the Pacific Coast, and all who have tried them pronounce them cheaper and far superior to iron in every respect, even at the old price of 20 cents per pound. Their advantages over iron are cheapness on first cost, increased crushing capacity, time saved in changing and in setting tappets, increased value of amalgam by absence of iron dust and chippings, and a saving of 75 per cent. in freight. It takes 50 days to fill orders from the manufactory East. Price 16 cents per pound shipped at San Francisco. Terms liberal.





Address all orders, with dimensions, to
1v29-3m CAST STEEL SHOE & DIE CO., Room 1, Academy Building, S. F

KNOWLES' PATENT STEAM PUMP.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
SACRAMENTO, Cal., January 14, 1873.

A. L. FISH, ESQ., Agent of the Knowles Steam Pump—Dear Sir: In reply to your inquiry as to the merits of the Knowles Steam Pump, in use upon this road, I will say that it gives me great pleasure to report that they have performed their work well whenever called upon. In no instance have they failed. We have now over 30 of them in use on the road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other. Yours, truly, A. J. STEVENS, General Master Mechanic.

A. L. FISH, Agent Knowles' Steam Pump—Dear Sir: In answer to your inquiries, we state that the highest award for Steam Pumps at the Eighth or last Mechanics' Fair in San Francisco, was a FIRST PREMIUM and Diploma, awarded to Knowles' Patent Steam Pump, as published in the Official List September 23d, 1871.

A. S. HALLIDIE, President Board of Managers.
W. H. WILLIAMS, Sec'y Board of Managers Eighth Industrial Exhibition, M. I.

WE BUILD AND HAVE CONSTANTLY ON HAND

The Largest Stock of Pumps in the World,

And for Every Conceivable Purpose.

SOLE AGENT ON THE PACIFIC COAST FOR THE

CLAPP & JONES SUPERIOR STEAM FIRE ENGINE,

Challenging the World!

THE CELEBRATED BOOMER PRESS,

For Wine, Cider, Lard, Paper, Wool, Hops, Hides, Tobacco, Rags, etc.—the Most Powerful in Use.

A. L. Fish, Agent,
Nos. 9 and 11 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machinery on hand.
4v29-1am-bp-3m

STEEL SHOES AND DIES FOR QUARTZ MILLS,

Made by our improved process. After many years of patient research and experiment we have succeeded in producing STEEL SHOES AND DIES for QUARTZ MILLS, which are unequalled for *Strength, Durability,* and *Economy*

Die.

Shoe.

Will wear three times longer than any iron Shoes

BUILDERS AND CONTRACTORS

Of Quartz Mills, Pans, Separators, Concentrators, Jigs, Hydraulic Rock Breakers, Furnaces, Engines, Boilers and Shafting, and general Mining Machinery in all its details and furnishers of Mining Supplies.

All orders promptly filled.

MOREY & SPERRY,
88 Liberty street, N. Y.
Examination solicited. 9v28-1y

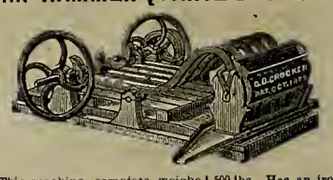
EAGLE IMPROVED CHLORINIZING AND DESULPHURIZING FURNACE.

(Patented July, 1873.)

The Cheapest and Most effective Furnace now in use Parties desirous of building above furnace, or for any information on same, address,

I. T. MILLIKEN,
a31 No. 302 Montgomery st., room No. 14, S. F.

CROCKER'S PATENT TRIP HAMMER QUARTZ BATTERY.



This machine, complete, weighs 1,500 lbs. Has an iron rame, five steel arms with stamps weighing 17 lbs. each, which strike 2,000 blows per minute, in a mortar provided with screens on both sides, and crushes FINE 600 lbs. per hour, requiring one-horse power to drive it. Has been thoroughly tested, and is guaranteed to give good satisfaction. PRICE, $600.

G. D. CROCKER,
17v26-tf 316 California street, San Francisco.

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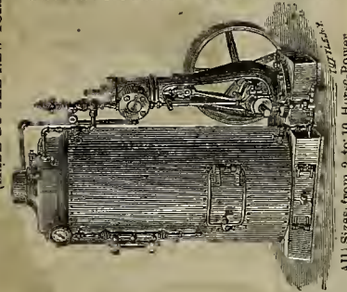

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From 3 to 40 Horse Power.

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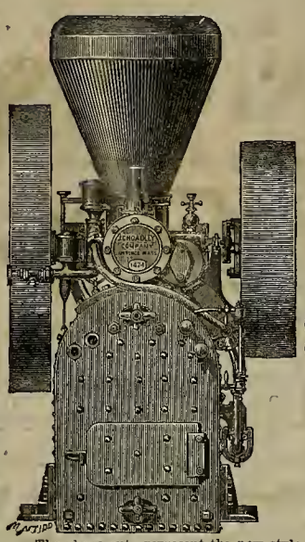

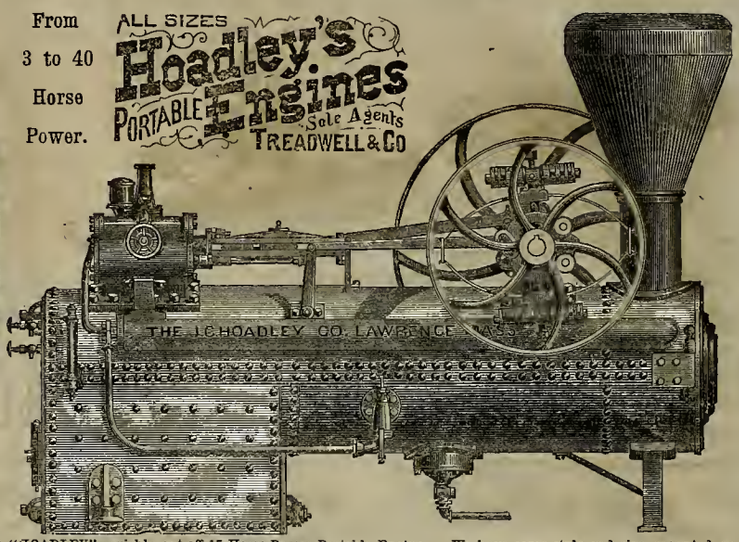

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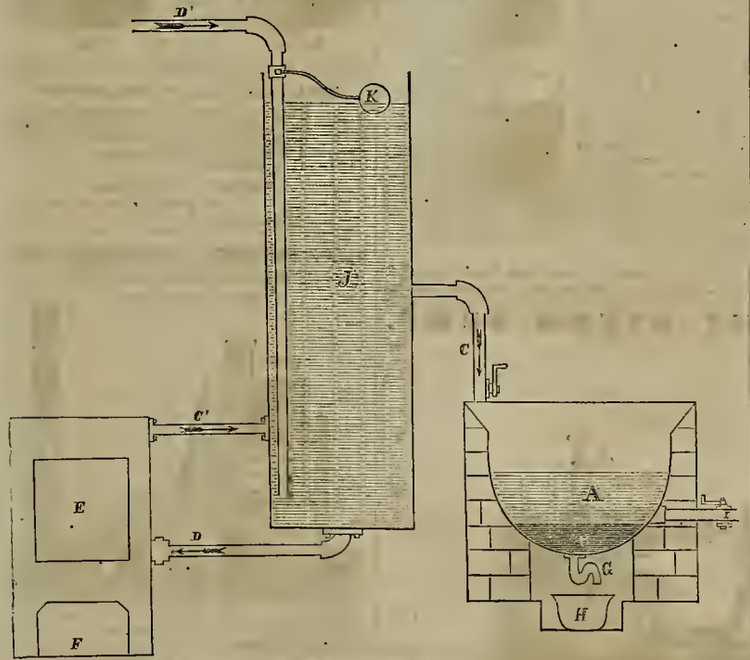
Randol and Wright's Quicksilver Purifying Apparatus.

For Description see MINING AND SCIENTIFIC PRESS, November 7th, 1874.



PATENTED NOVEMBER 25th, 1873.

RANDOL AND FIEDLER'S QUICKSILVER CONDENSERS,
MADE OF WOOD AND GLASS.

Patented July 28th, 1874. See MINING AND SCIENTIFIC PRESS, September 19th, 1874.

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THE ONLY SAFE BLASTING POWDER IN USE.

GIANT POWDER, NO. 1,
For hard and wet Rock, Iron, Copper, etc., and Submarine Blasting.

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[Covered by Letters Patent of July 2d, 1872, and recent applications.]

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MINING AND SCIENTIFIC PRESS.

An Illustrated Journal of Mining, Popular Science and General News.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, DECEMBER 26, 1874.

VOLUME XXIX Number 26.

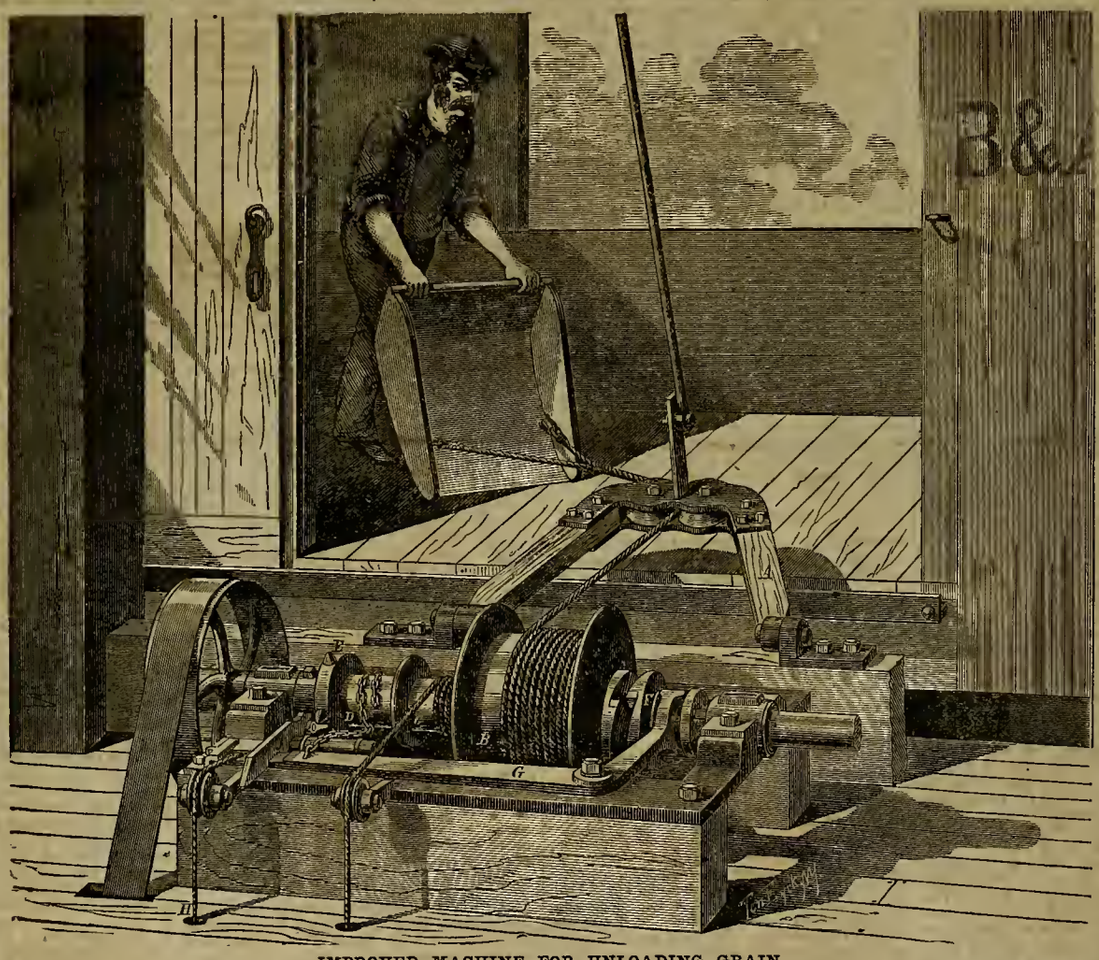
Improved Machine for Unloading Grain.

The apparatns illustrated in the annexed engraving is designed for use in connection with grain elevators or warehouses, and its object is to afford a speedy means of removing the grain from the cars in which the staple is transported. The device is claimed to effect a aaving of from three to four-fifths of the labor incident to nnloading. The large scoop or shovel shown in the hands of the workmen in the oar is provided near its lnwer edge with hooks, to whioh is attached the rope leading from the machine. The rope passes between the sheaves of a fair leader, A, the arms of which are hinged to a beam on the floor of the warehouse, so that when the apparatns is not in nse, the portion, A, may be placed in a vertical position, or tnraed back ont of the way. When the car comes alongside, the fair leader is turned down horizontally, as shown in the illnstration.

B is a drnm to which are connected the barrels on which wind the cord, C, and chain, D, and also the tappet disk, E, the whole being loose on the shaft to which power is applied by means of the belt pnlley. To the right of the drum is a clntch, F, feathered to and revolving with the shaft. G is a pivoted bell crank lever, one arm of which embraces the clutch, F, while to the other arm the chain, D, and a rope, H, are secured; the latter passes over a pulley and down through the floor, and carries a weight. The cord, C, is also similarly arranged. As represented in the illnstration, the operator is drawing back the shovel, the clutch, F, is now disengsged, the drnm, B, revolves freely on the shaft, so as to pay ont the rope thereon, and the cord, C, is thus wonnd aronnd its barrel; the chain, D, by the same motion, is unwonnd, while the tappets on the disk, E, striking from below against the pallet, I, on the latch, J, lift the former as each tappet passes. When the workman has drawn the shovel back to any desired distance, he pushes the edge of the shovel into the grain, aad slightly slacks the drag rope. This allows the drum immediately to be rotated in the opposite direction, by the action of the weight on the cord, C. The resnlt is that as the tappets on the disk, E, strike the pallet, I, from above, the latter no longer yields, but is carried down, thereby lifting the pivoted latch, J, and freeing the end of the lever, G; at the seme time the chain, D, being nnwonnd from its barrel, allows the weight attached to rope, H, to pull the end of the lever, G, outward; thns, as is evident, throwing the clntch, F, into gear with the drum, B. The drum now rotated by the belt wheel winds np its rope, and in so doing, drags the scoop, gaided by the workman, toward the edge of the oar, and thus hauls a large quantity of grain out through the door. Mesnwhile the chain, D, is being wound np, and its length is so adjusted that when the shovel has reached the door of the car, the tightening of the chain pulls the end of the lever, G, inward, thus throwing the olutch ont of gear. At the same time the latch, J, falls over the lever as before, holding it in place, when the parts are once more in the position noted in the beginning of the description, and the same operation is repeated.

The main drnm makes, we are informed, about fifty-five revolutions, and winds np one hnndred and forty-five feet of rope per minnte, so that the nnloading is accomplished very rapidly, and with no other labor than that of the single hand gniding the scoop.

In large grain honses several mschines may be employed upon one line shaft extending



IMPROVED MACHINE FOR UNLOADING GRAIN.

past a nnmber of elevators, and where necessary the apparatus may be arranged overhead. Single machines, like the one illustrated, may be used; or double machines, enabling two workmen to operate in one car at the same time, as circumstances may require.

The device is in use in the largest elevators of Chicago, Milwaukee, East St. Louis, Peoria, Detroit and Indianapolis; and has recently been introduced into the Grand Junction elevator of the Boston and Albany railroad, at East Boston, Massachnsetts, and also into the elevators of the Interaational Navigation Co., at Philadelphia, and the Baltimore and Ohio Railroad Company, at Baltimore. For fnrther partionlars, address T. L. Clark, Newark, Licking connty, Ohio.

The acid and blaostone factory at Carson, lately destroyed by fire, is to be rebailt. The dimensioas of the new building will be 140 feet loug, 24 feet wide and 24 feet high. All that part conteining engines, crusher and tanks will be of brick.

The new air shaft on the Belcher mine ie now down 127 feet, and the upraise to connect with it is progressing rapidly.

Academy of Sciences.

The regular meeting of the California Academy of Sciences was held last Monday evening. Among the donations were three jars of specimens obtained ia the deep sea sonndings. The lattter were left at Mare Island by Captain Belknap of the "Tuscarora", and sent to the Society by Admiral Rodgers with a letter of explanation. The specimens will be examined by Dr. Harkness of the Microscopical Society. T. J. Lowry read a short hnt interesting paper on the "Astronomical Clock," which is referred to at length in another colnmn. A large and valuable collection of lithographic engrevings and books was received from the Smithsonian Institate. The oommittee appointed to nominate a ticket for officers to be voted for at the annnal election reported. The regular nominations are as follows: President, Prof. George Davidson; First Vice-President, Henry Edward; second Vice-President, Henry Gibbons, Sr.; Recording Secretary, Charles G. Yale; Corresponding Secretery, Henry G. Hanks; Treasurer, Elisha Brooke; Librarian, Wm. G. Fisher; Director of Maseum, Albert Kellogg; Trnstees, David D. Colton, George E. Gray, Robert E. C. Stearns, John Heweton, Jr., Ralph C. Harrison, Wm. Ashburner.

Jersey district, Nevada, which has been almost abandoned for two or three months past, begins to exhibit symptoms of reanimation. Captain Taylor, of Galena, one of the locators of the Jersey mine, has sold his interest to J. A. Blossom, of Bsttle Monntain, for $8,000, and negotiations are pending for the sale of the balance of the mine.

Mining in the Southern Counties.

The sonthern part of the State of California has never been a favorite locality for prospectors. Unfortnnately, what few mines were fonnd, lacked the necessary capital to be put on a good footing, and it has been difficult to sell any mining property located there, no matter how good. People have an idea that mines of valne are seldom fonnd except in inhospitable regions, and that as the southern part of the State had such great climatic advantages, it was hardly possible that anything worth much would be found. In San Diego, San Bernardino and Inyo connties, good mines have been worked for several years, bnt the mining districts were, as a general thing, not very prosperous.

A new era of prosperity is now opening, however, for the miners in the southern counties, and the Penamint excitement will do mnch to help it. Already we hear of new discoveries having been made, and the overflow of prospectors at Panamint in the spring will canse others to be made. Heretofore it has been difficult to get any capitalist to invest in the southern counties. If miners were able to get anyone with money to put up a simple ten-stamp mill for half a mine, etc., the mine owners were considered in very good luck. Most of the miners down that way are hard np, as miners in all quartz camps are, unless capital is with them, and in many cases have given up really good mines in pure disgust at the apathy of capitalists. At present, however, the feeling in the mining districts of the southern counties is a cheerful one, as a prominent capitalist has invested in the region and others will be likely to follow his example. Many of the miners who have gone to Panamint will probably prefer prospecting to working for wages in the spring, and the mountain will be pretty thoroughly searched daring the snmmer months. Heretofore it really has not been worth much to any poor miner to find even a first-class ledge in the southern counties, nnless the rock was rich enough to be pounded ont in a hand mortar, for he could get no one to help him out in working it. Now, with a few flourishing districts neer at hand, they will have a better opportunity to place their properties before capitelists, and will go to work prospecting with renewed vigor and hope.

Bro Work.—The progress made in the main header of the Sutro tunnel for the week endiag December 19th, under the able management of Assistant Superintendent Jackson, with *four* Burleigh drills, was 106 feet. The header ie 8x8. This is the quickest work of the kind ever done on this coast. They expect soon to be able to make 450 feet per month in the header with the four drills. If they keep on at this rate it will not take long to reach the Comstock lode.

The new and principal machinery ordered for the Baltimore mine, on the Cometock, is arriving at its destination.

CORRESPONDENCE.

Tybo---Its Mines and Mineral Resources.

EDITORS PRESS:—Having in your last week's issue glanced at a few of the surrounding camps, and described some of the improvements which have been brought here since last April, under the direction of Mr. McGeo, I will now try and convey to your numerous readers some idea of the condition of the mines, the geological formation of the country, town, location, etc. But first it will be necessary for our purpose that we have something to say in connection with the much needed and

Costly Improvements

Which have been for some time past projected, and which are to be completed by the 1st of next May. The first and by far the most important of these, is a new 20-stamp mill, with a 150 horse-power engine, boilers, etc., which is to cost $60,000. The mill and machinery are already contracted for, and some of their ponderous appendages are already in transit, and will be here in a short while. Its site is fixed upon, and the grading for it commences at an early day. It is to be a wet crusher, and will add much to the value of the company's property.

The next most important undertaking on the tapis is the immediate erection of a 60-ton cupola, to the east of and adjoining the present structure. There is also a calcining pan in place, which is to be utilized as soon as there arrives in the camp lumber enough to cover it in from the elements. Here the impurities will be removed from the crude bullion, and when thus cleansed of the foreign substances, it will then be ready for the manipulations of the refiner, whose department adjoins the calcining one. This refinery will be of immense advantage to the company, for it will not only give it the pure commercial basis against which checks can be drawn at will, should a fresh supply of the circulating medium be needed, but it will also give it a plentiful supply of litharge for smelting purposes, should the galena ores from any cause run short. These checks, too, when so drawn, will stand in no fear of being dishonored, when presented for the express, or shipping receipt, will always stand out boldly in the relation of a good and sufficient *quid pro quo*, for the metallic favors that may be required from its financial agents.

Geological Formation.

The country hereabouts presents many geological and mineralogical features worthy the attention of the practical miner and scientist alike. This region is extremely mountainous and hilly, and bears in every direction in which it has been explored, ample evidence of the presence and general diffusion of the precious metals. These are not, however, always found in sufficient quantities to remunerate the thousands of the sturdy sons of toil who, in this wintrish clime, through icy storm and under the fierce glare of the summer's sun, delve deep into bowels of the earth, and penetrate the rock-ribbed sides of almost inaccessible mountains, in their search after them. The privations and hardships incident to the prospector's life amidst the rugged and barren looking mountains of this State, are of no ordinary character, and nothing but the love of gain and the ardent desire to possess wealth, that is implanted in the human heart, could or should induce a man to wander for years away from the refining influences of civilized life in a will-o-the-wisp chase after the wealth and fortune which, by some, are never found.

The hills are at present clothed in the purest of "ascension robes." Snow on every side, but not in such profusion as it was at this period last winter. This, at least, is comforting. The country rock, as far as I have been able to discern during my short sojourn here, appears to be an admixture of lime, decomposed slate, granite and porphyry, the two latter, however, predominating. These, as we know, are always favorable to argentiferous deposits, while there is sometimes but very little affiliation between silver and lime. In some instances, however, well defined fissure silver veins have been found to preserve their uniformity, outline and depth, and to yield as largely and larger in limestone formations than in either granite or porphyry, yet for all this we are well aware that a purely limestone formation is by no means favorable to the presence of fissure veins.

Now for a hasty glance at the company's mining property, particularly the celebrated

"Two G."

This famous mine contains 1,200 lineal feet running southeast from the point of discovery, over a rocky, lateral ridge of the elevated hill upon which it is located. This hill rises rather abruptly to the south of the canon, some 1,600 feet by actual measurement, and presents to the eye of the beholder a bold, grand appearance, and affords from its rocky apex a magnificent view of the surrounding wintry landscape. The morning after my arrival I was taken in tow by Mr. James Hudson, the courteous and obliging mine superintendent, who is an experienced, reliable and practical miner—and escorted to view the mineral wealth he has been instrumental in bringing to light. The Two G mine or vein is at present writing opened by a series of three tunnels to a depth of 245 feet, from the highest point of the outcrop of the vein. The average depth is, however, not more than 188 feet to the level of tunnel No. 1, allowing for the irregularities of elevation in the hills along the course of the lode. These tunnels are designated as tunnel No. 1, 2, and 3. No. 1 was commenced by the present manager, last May, and has since attained a distance of 163 lineal feet along the course of the vein. There appears, as far as I have seen, to be over 200 feet of this space which contains smelting or galena ores exclusively, while the remainder carries a kind of dark, partly decomposed quartz, which will mill readily without being roasted. This class of ore assays from $35 to $100 per ton; the latter figures are, however, not always obtained Forty dollars will more nearly approximate to its real working yield. Should it mill up to these last figures, or even give net returns of $30 per ton, the profits would be enormous, for the cost of mining, sorting, hauling and milling will not exceed $7 per ton, and this, I think, is an extreme figure. This one, I observe, carries some sulphurets, but not enough to interpose any great obstacle to its being readily and profitably worked. It will certainly need no roasting, which is quite a desideratum with mill men.

Tunnel No. 2, 40 feet above tunnel No. 1, located at the point of original discovery, has been driven along the vein over 500 lineal feet, disclosing the same quality of ore met with in No. 1, and like No. 1 has cut through one or two large chimneys on its course. These milling ore chimneys occur at regular intervals and in such places they open out laterally to seven and eight feet, and in some instances no walls were found even at these distances. These chimney expansions exercise no material influence upon the course or uniformity of the lode, which continues unbroken. Tunnels Nos. 1 and 2 are connected by a winze through which all the ore mined and to be mined above No. 1 is passed down to that level, from whence it is run in cars to the ore bins that are constructed at its outer orifice, to be from thence conveyed to the furnace as aforesaid.

Tunnel No. 3 is still higher up the hill towards the highest point of the lode, which it has penetrated about 100 feet. Here there is found unusually rich smelting ore. It will yield $200 per ton, and there are several hundred tons of it exposed to view ready for the pick of the miner. From this point to the opening of tunnel No. 1, the lode is developed to an average depth of 188 feet, and the lineal distance between the two points indicated is a trifle over 500 feet or five twelfths of the entire 1,200 feet of the Two G lode, and but one-sixth of the whole lode embraced within the limits of the Two G Casket, Lafayette and Crosly mines, all of which aggregate 3,000 feet in length.

The Casket and Crosly

Are immediate extensions of the Two G vein, while the Lafayette appears to be nothing more than an offshoot from the former for the same quality of ore and the same kind of vein formations are found as far as the vein is explored. It is opened by a 70 foot shaft and a drift 75 foot in length run to the south east along the vein. The vein is in all respects the same as the Two G, Casket and Crosly, and the walls are well defined as far as uncovered.

From the level of tunnel No. 1, (Two G mine), two incline winzes have been sunk a distance of 75 feet each below it. This is the first level below No. 1. These winzes are 163 feet apart. They are now connected underneath by a spacious drift run through the lode, which at this depth is not only thicker, but richer, and also more uniform in its general character. The tunnels and drifts, thus far opened, show a solid well defined ore vein of an average thickness of four feet, running down at an angle of inclination of 75 or 80 degrees, encased between perfect foot and hanging walls, composed of porphyry and silicious lime. The outcrop of this vein has been traced more than 5,000 feet southeast and northwest. The aforementioned winzes, the outer one of which is now down 110 feet, give further proof of the permanency and value of this property, the lode is penetrated and defined to an average depth from its outcrop, of 298 feet, and it is still descending. I will here, for the sake of argument, and by way of illustration, make an estimate of the amount of ore which the Two G vein should alone produce, provided it yielded throughout its lineal extent and depth as far as opened, (298 feet), the same as it is at present, and preserved also the same thickness, (four feet,) and uniformity of character. By cubing these figures I find a product of 1,430,400 cubic feet, which I divide by 15, the number of cubic feet in a ton of this ore, to bring them to tons, and I still have before me the enormous amount of 95,360 tons of ore, representing a coin value of $2,860,800. These figures are based upon the ore yielding a net value of $30 per ton, and this it will do, seeing that it works at present from 30 to 40 per cent. above this amount.

But since some persons may object to my taking or including the undeveloped portion of the lode, lying to the southeast, I will strike it out altogether, and confine myself to the 550 feet which I have shown is developed to a depth of 298 feet. Cubing, as before, I have a product of 655,600 cubic feet, which, divided by 15, as before, leaves a product of 43,706⅔ tons of available ore, which, at $30 per ton, as aforesaid, represents a sum equal to $1,311,200. This calculation would leave ten dollars per ton to cover the expenses incident to mining, hauling and reducing it, whether by mill or furnace; and this I know is a big margin, seeing that the ore is easily extracted and cheaply hauled to the place of reduction.

It will be well to state right here that I have gathered the following interesting data from the books of the head smelter and assayer, who is also an experienced, practical refiner, and a good furnace man, Mr. L. Hart. From this it appears that the furnace was set in motion for the first time on the 24th of August last, and run 59 days altogether up to the 1st instant, and reduced 1,260 tons of ore, which yielded 153 tons of bullion, valued at $612,000, or $400 per ton. This showing would bring the value of the ore to a fraction under $49 per ton, or $9 more than I estimated it at. The furnace runs were as follows:

	Days.	Ore tons.	Bullion tons.
August	8	145	20
September	18	355	45
October	15	340	40
November	18	420	48
Total	59	1260	153

These are highly encouraging facts worthy the attention of the public, as they demonstrate the value of these mines, and also foreshadow the brilliant future before the company who own them.

There is a noticeable feature and a singularly strange one too, that I cannot pass over, that has struck my attention in connection with this Two G lode, and it is this: That the milling and smelting ores run parallel to each other along the vein, the line of separation being well defined, the former hugging the foot wall or porphyry side, while the latter clings with equal fondness to the hanging wall, or silicious lime side. Will some of your readers, skilled in mineralogical science, explain the cause of this unusual occurrence.

There are thousands of tons of ore now in sight, that are held as reserves by Mr. Hudson, the foreman, against accident of any kind, though he does not anticipate the immediate "petering out" of the lode.

A New Shaft

To connect with the interior of the mine is now being sunk about 150 feet to the eastward of tunnel No. 1, through which all the ore, mined below the level of this tunnel, will be hoisted. A small portable engine is to be soon placed over it, to facilitate its being sunk to the desired depth. When this is attained, new and powerful hoisting gear will be permanently fixed over it.

This valuable property has recently been incorporated in the great mining and stock jobbing mart of the world—London—under the name and style above set forth, with a capital of $1,200,000. It is incorporated under the Limited Liability Act. Its incorporators have not as yet placed the venture on the market, and they will not either till the mill and second furnace shall have been completed and set in motion. Then this grandly conceived and grandly developed mining enterprise will be brought prominently, for the first time, before the London public, to sink or swim upon its own merits, the same as the other valuable and deserving mining properties that are held in this State have been doing. It is not, however destined to ingloriously sink beneath the waters of either adversity or oblivion, but to swim buoyantly onward on its course, gaining at each successive stroke renewed success and prosperity.

Now a word or two in relation to the altitude, town locations, etc., and I am done. The

Altitude

Of Tybo is not much if anything below that of Eureka. The latter town ranges about 6,000 feet above salt water, and I think the former place is not much less. The elevation of the mines is, of course, much greater. We have three embryo

Towns

Here, each struggling for supremacy, and each putting forth vigorous exertions in the race for future metropolitan destination. These three incipient segregations are denominated Upper, Lower and Middle Tybo. The lower town is being built along the canon, which here runs east and west. Here are situated the Tybo company's works. The middle town is located some distance higher up the canon at a point where it debouches abruptly to the northwest. This is the happy elysium of the "soiled doves," the sporting fraternity and the professional loafers generally, who have bid an eternal farewell to labor of any kind.

The upper town is situated about half a mile farther up toward cloud land. It is being built on a kind of open plateau where wood and water are abundant. These two upper towns are, however, destined to both blossom and decay in the same season, without I am mistaken. That they will not, at all events, become grey and over antiquated from the dust of accumulated years, is certain, for the principal place of business will of necessity be in the vicinage of the company's works.

We have three stores, one in each town, a postoffice, no express office, a blacksmith's shop, a "tiger den," a lodging house, a feed and livery stable, a restaurant, and last but not least, we can beat of innumerable places devoted to the sale of the ardent, where it is dispensed with lightning effect, by "gentlemanly barkeepers." We are also on the *qui vive* for the advent of a hurdy gurdy troupe to do the light fantastic for the boys. From the above it will be seen that Tybo, though a new and isolated place, is by no means behind more favored places in all elevating(?) influences.

In Conclusion

What more can be said? Nothing, only that Tybo is destined to find a distinguished and conspicuous place in the mining annals of Nevada; for its mineral wealth, its geographical position, in the center of a vast mineral bearing region, with easy approaches to it, will entitle it to the distinction. And whenever this is to be done, the names of the originators of the above venture, who have spent their money in its development making the wilderness to teem with life and motion, and the lonely cañons to echo to the music of the hammer and drill, will be associated with the event. I have been six years in this State and have in that time visited many mining localities, and inspected many of their leading mines, and I honestly confess that in all my erratic rambling I have never seen a more finely developed, or a more elegantly outlined vein, and taken on the average, better ore than is found in the above described property.

The company is working at present 85 hands, between mine and furnace, but this number will, in a few weeks, be immeasurably increased. J. D. POWER.

Tybo, Nye Co., Nevada, Dec. 4th, '74.

CHANGING SMOOTH BORE CANNON TO RIFLES. A series of important experiments is now in progress at Sandy Hook, for the determination of the merits of the new plan of changing smooth bore guns to rifles by the insertion of a coiled wrought iron cylinder, secured in position by a collar at the muzzle of the gun. A 10-inch smooth bore is thus converted into an 8-inch rifle. If the system prove successful, it will enable the government to utilize a large number of guns now useless. The casemates of almost all the fortifications of the United States have been built of a size admitting no larger piece than the 10-inch cannon, and it has been suggested that, by a steel cylinder instead of one of wrought iron, a gun of the above caliber may be altered even to a 9-inch rifle. Experiments thus far made demonstrate that while the 10-inch smooth bore used a projectile weighing 127 pounds the same gun altered to a rifle gives nearly double the force, a more even rate of speed, greater penetration and increased accuracy with a shot weighing 187 pounds.

NEW OREGON MINES.—Advices from Rock Point, Oregon, dated Dec. 15 state: J. L. Colvig and James Birdseye have just arrived from the new quartz mines, some fifty miles below this place. They say the road is lined with men and pack trains going to the land of gold and silver. The great Mammoth ledge is about 180 feet in width at the point where Rogue river has worn its way through to the depth of 500 feet. About 200 claims are now taken up. It has been traced for about 20 miles through a very rough country. Guides get from $10 to $20 per day to trace the lead.

HANDLING SUGAR BEETS.—It is well known, beets, when taken from the ground for the manufacture of sugar, undergo a rapid deterioration in their saccharine properties. As soon as they are removed from the earth they begin to give off carbonic acid and take up oxygen. The carbonic acid is a product of the oxidation of the sugar contained in the beets. According to calculation 1,000 cwt. beets would lose 10 cwt. sugar in 30 days. The air contained in the beets consists mainly of nitrogen and carbonic acid, and very little oxygen.

LICK OBSERVATORY.—A Washington depatch says Professor Simon Newcomb has been requested by the Trustees of the Lick Fund, to determine where and for what price the great equatorial telescope may be constructed which is to be the pride of the new California observatory. He will sail for Europe in a few days on duty for the National Observatory, and will visit Lord Rosse's Observatory in Ireland, and Paris, Berlin and other noted observatories.

HOW LONG WILL SOILS RETAIN EFFLUVIA?—At the late meeting of the American Medical Association, Dr. Bell, of Brooklyn, to show the unlimited time in which saturated alluvial soils retain their deleterious influences, related a circumstance of the digging up of the mastodon at Cohoes, New York, some years ago, the effect of which was to make the workmen sick from the stench arising, notwithstanding the fact that it was but a young mammoth, and had been buried only about 40,000 years.

WORKING GREEN WOOD.—A correspondent of the *Scientific American* says: Some of my brother wood-workers may not know that the difficulty of finishing a small piece of green wood, as is sometimes necessary, may be overcome by scorching the piece after it is shaped ont. A few lighted shavings will do, and you can then file and sandpaper without trouble.

A FREAK OF NATURE.—It is said that in a recent gale on Lake Superior, an island two acres in extent, on which the pine trees were three feet in diameter, was displaced by the waves, and floated a distance of three miles into the harbor of Duluth.

THE Salt Lake *Tribune* says that $100,000 was invested in Bingham cañon last week by Californians.

MECHANICAL PROGRESS.

Singular and Important Phenomenon in Regard to Iron.

At a late meeting of the Car-builder's Association, held in New York, Nov. 19. Prof. Thurston referred to a singular phenomenon which had been observed while making some experimental tests in Washington. A piece of iron was being subjected to a tensile strain by means of an eye welded to each end of the piece. When the limit of strength was apparently reached, and a sensible contraction of the circumference indicated that the piece was about to break, the weld holding the eye gave way and caused a postponement of the test until the following day, the eye being in the mean time welded on again. On renewing the test, the iron, instead of parting at the weakened spot, as was expected, sustained an additional strain of 20,000 pounds, and then parted at the other end, where no signs of weakness had been visible the day before, showing that the weakened part had actually gained in strength during its period of rest.

This was so remarkable that much attention was attracted to it, and subsequent experiments demonstrated that this property of regaining and increasing strength after resting from strain, was possessed by all good irons. Prof Thurston had himself made experiments of this kind, and exhibited diagrams showing that after iron had, under strain, passed the limit of elasticity and ductility, if the strain was taken off for five minutes even, and then applied again, the line on the chart would indicate an increase of strength. This occurred repeatedly with the same piece of iron; the longer the rest, the more evident was the increase of strength.

Mr. Hopkins wished to know if in such a case the strain were continued, the increase of strength would be permanent; or whether the metal would finally weaken at the point where the partial separation of the particles had taken place?

Prof. Thurston replied that that point had not yet been demonstrated, but his theory was that the added strength was permanent.

Mr. Snow asked if the point in the iron first referred to was not heated during the rewelding; and on being answered by the Professor in the affirmative, said he believed that the renewal of strength was due to the reheating.

Prof. Thurston said he supposed the reheating might perhaps restore the strength and leave it where it was before; but the fact that it held firm under a much higher pressure, until the iron broke at another point, showed that it was stronger than it was before.

Mr. Hopkins asked if the increase of the strength of iron when manufactured into wire was due to this *setting* process. He thought these experiments and tests would be productive of valuable results in the manufacture of iron.

Prof. Thurston said he could give an illustration by relating a recent experience. A gentleman in Pittsburg engaged in experimenting with Bessemer steel, sent him from time to time specimens to be tested. The results of the tests were sent to the experimenter but without knowing in what direction the experiments were tending, until one day the gentleman called and said he had succeeded by means of the tests in accomplishing what he wanted, and which was to ascertain what mixtures he must use to increase the ductility of the iron in order to make a better gun-metal. By looking over the diagrams he could see what effect his last mixtures had produced in the iron, and what modifications were necessary, until he had obtained the desired results.

Mr. Forney asked how much stronger wire was than the original metal.

Mr. Hopkins replied that he did not know, but it was a great deal stronger. He had some iron sent him which would stand 66,000 pounds to the square inch, and the wire from that grade of iron ran up to 99,000 and 105,000 pounds to the square inch, and he did not know but it would reach 120,000.

Mr. Partridge said some of the finest wires would more than double the strength of the original iron; and asked if cold rolled shafting would not get some of its stiffness and strength from the process of which they had been speaking.

Prof. Thurston replied that he presumed it would.

Mr. Forney inquired it the strength of iron coupling-links on cars was increased by use.

Mr. Hopkins said that the links were so worn by constant use that it would be impossible to tell. A grass scythe with an edge so brittle that it would break in cutting the brush, etc., growing with the grass, if hung up for a year or two out of doors and allowed to rust, would invariably be found to be in excellent condition when ground up again for use.

Prof. Thurston said that old chisels that had long been exposed, proved to be very good and very tough. He once found an old corn-knife in a scrapheap, which held its edge wonderfully well when ground up. He thought the improvement of the metal, when exposed to the the weather, might be due to the action of carbon.

Mr. Partridge had read in the *Annual of Scientific Discovery*, for 1855, an account of a series of experiments with some car-axles: a man had taken a set of axles in constant use, and another set that had had long intervals of rest, and compared their mileage, and it was found that the latter rendered longer and heavier service than the former, which were, under the very same circumstances, all the time at work.

Mr. Adams thought the improvement of the scythe by exposure was generally known and admitted among farmers: but of course, no one had any idea as to the cause. He believed the theory to be correct, that it was due to the removal of the carbon.

Prof. Thurston suggested that it might be partly owing to the fact that, in working the scythe, it receives a certain amount of internal strain, and when it was put into the market, it had not been relieved of any of this, but might be, by the means stated, to some extent.

Mr. Hopkins said that in the light of the experiments of the evening, he concluded that if the iron were drawn down under a strain of extreme tension, and in that condition hammered, a still greater compacting of the fibers would occur, and probably a vast increase of strength would be obtained.

Prof Thurston.—Hammered under a strain?

Mr. Hopkins.—Yes, sir; distributed over a large surface, and tending to compress the fibres for a long distance.

Prof. Thurston.—That might be the case. But one thing is a fact; it a piece of metal is heated up to a cherry-heat, and a strain put on it which is about as much as they expect it to bear, and then they take it and break it cool, it will bear a greater tension than they expected, before it will break. The increase of strength is almost always observable, and generally amounts to 10 or 15 per cent. This was shown by the experiments of a committee. They simply strained the iron to the point it ought to bear, allowed it to cool under that strain, and then tested it. The maximum resistance of the material, as they called it, was about 15 or 16 per cent. above the resistance as they ordinarily find it, when tested in the usual way.

The facts elicited by this discussion were considered highly interesting and important, and a vote of thanks was extended to Professor Thurston for the information which he had conveyed to the Association. ' We have collated the above from the columns of the *National Car Builder*.

The Fireless Locomotive System.

Mr. Michael Flurscheim, a mechanical engineer of Gaggenau, Germany, indulges in the following speculations with regard to the possibilities of city and suburban traveling. He asks:

"Could not the principle of the fireless locomotive be applied to coaches, cabs and private vehicles? By calculation, I find that a tank of 1½ feet diameter and ¾ foot length, jacketed by a non-conductor of heat, would be sufficient to propel an ordinary vehicle, containing two persons, on a macadam or wooden pavement, at a speed equaling that attained by ordinary cabs. It seems to me that in cities like London, Paris, New York, Boston, and even in smaller towns, large charging boilers could be kept at each cab-stand or in each street, where, at a minute's notice, a charge of hot water could be obtained at a moderate expense, which would propel the vehicle, say seven miles, and then another charge of hot water could be obtained. Horses could thus be entirely done away with, and traveling would be cheaper, more convenient, and less dangerous. A man who now keeps a horse and carriage could, at less expense, purchase a little buggy provided with a fireless engine, and keep it at the boiler stand in his street. If he wants to drive, he sends his boy or man to the stand; in one minute the boiler is charged, and the cab at his door. He need not be afraid of keeping his horses waiting at his door, as no weather will injure his steam animal. If this system were generally adopted, the municipalities would probably be forced to lay narrow gauge tracks along each street, connecting with the cross streets by easy curves; and tracks for longer distances all over the country would follow, connecting with the city roads and provided with boiler stations. We could then easily come to town from our country places, or travel all over the country, in our own vehicles, at very little inconvenience, needing no one to look after or feed the horses."

This will do to talk about, but where will this mode of traveling be when we get steering apparatus for the balloon?

CONDENSATION IN STEAM CYLINDERS.—By the use of leap facings to pistons and cylinder lids, a considerable economy in the use of steam may be effected. An iron lid and piston will, other things being equal, condense more than three times as much steam as a lead-faced piston and lid. The thickness of metal heated and cooled at each stroke is not considerable, and not far into the metal a zone of constant temperature, lower than that of the steam, will be found. The distance from this zone to the inside of the cylinder will depend on the conducting power of the metal, and will be about 9 for lead to 12 for iron. It may be shown that, in any case, the thickness of the lead facing may be kept within very moderate limits. Other materials may be used for the same purpose, as for instance, tin, the specific heat of which is 0·562, its specific weight being less than that of iron. Its conducting power is, however, in excess of that of iron, being as 15 is to 12.—*The Engineer*.

Wire Rope for Transmission of Power.

The considerable introduction of wire ropes for the transmission of power, and for other purposes in the mechanical arts, makes it of importance to know the best methods of employing them, and the precautions necessary to be observed in their use. In this connection we call attention to the following remarks, which are excellently endorsed. For safe working load allow one-fifth to one-seventh of ultimate strength, according to speed and vibration. When substituting wire rope for hemp, it is good economy to allow for the former the same weight per foot run which experience has approved for the latter. Wire rope is as pliable as new hemp rope of the same strength; the former will, therefore, run over the same sized sheaves and pulleys which are used for the latter. But the greater the diameter of the sheaves, pulleys, or drums, the longer the wire rope will last. The size of the drum should be as follows: The same figure which expresses the circumference in inches of the ropes, is also the minimum. diameter of the drum in feet; doubling the figure will give the maximum. In the majority of cases the rope will wear twice as long on a drum of maximum diameter as on one of the minimum. Experience likewise teaches that the wear increases with the speed; it is better, therefore, to increase the load than the speed. Wire rope must not be coiled or uncoiled like hemp rope. When mounted on a reel, the latter should be turned on a spindle to pay off the rope; when in a coil, without reel, roll it over the ground like a wheel, and let the rope run off in that way. All untwisting must be avoided. To preserve wire rope, apply raw linseed oil, or mix the oil with equal parts of Spanish-brown and lamphlack. To preserve the rope under water, or under ground, take mineral or vegetable tar; add one bushel of fresh slacked lime to one barrel of tar, to neutralize the acid, and boil it well; then saturate the rope with the boiling tar. The grooves of cast-iron pulleys and sheaves should be fitted with well seasoned blocks of hard wood set on end, to be renewed when worn out. This wood will save the rope and increase adhesion. The small pulleys or rollers, which support the ropes on inclined planes, should be constructed on the same plan. When large sheaves run with great velocity the grooves must be lined either with leather set on end, or cork, or with India rubber.—*Exchange and Review*.

SCIENTIFIC PROGRESS.

VANILLA FROM PINE TREES.—M. Heffman has informed the French Academy that his two pupils, who discovered a mode of obtaining vanilla from the sap of pine trees have established a flourishing manufactory. They obtain a hundred francs worth of vanilla from a tree of moderate size. The wood is not injured by the extraction of the sap. This communication was the more interesting as cases of poisoning have lately occurred through the substitution of the wild for the tame vanilla.—*Ex*.

The substance above referred to by our contemporary is not the tame vanilla, but has been named *vanillin* by Prof. Hoffman, from its similarity to vanilla, for which it is a perfect substituta. It is obtained from that particular fluid of the conifera, which flows between the bark and the wood—known as "cambium." This discovery furnishes another very remarkable addition to the series of the popular and economic triumphs of modern chemistry in furnishing new materials for use in the arts and economies of life.

PHENOMENA OF SOUND.—Prof. Henry recently read a paper on abnormal phenomena of sound, to which we have already briefly allnded in a previous issue of the PRESS, but did not give the following remarkable cases mentioned by him on that occasion, in which sounds had failed to be heard at very short distances. The battle of Seven Pines, continuing for three hours, was not heard by Col. Johnson of the Confederate army, only three miles away. Neither the highest nor the lowest pitched sounds are heard furthest, but those which are intermediate. Sometimes the extension of sound is favored, sometimes obstructed, by an opposing wind. The most penetrating sound for fog-signals is called a siren, and is made by regularly interrupted jets of high-pressure steam, the sound being sent through a trumpet. This has been heard 25 miles. Fogs do not obstruct sound, although the sunshine cannot penetrate a fog a mile thick.

NEW METHOD OF FILTRATION. — Professor Chas. A. Seeley has invented a new method of filtration. At the bottom of an open glass tube, say an inch in diameter, he places a piece of filtering paper, and over this a piece of India muslin, which is secured around the tube by a rubber ring. The tube is filled with the liquid to be filtered, and is closed at the top with a rubber stopper through which runs a piece of rubber piping. The tube is connected with two bottles, so arranged that the water in the upper one flows down into the lower one, forcing out the air, which in turn runs through the rubber pipe, forcing out the liquid through the filtering material. The arrangement is exceedingly ingenious, and by this means a liquid may be filtered in one-fourth of the time which the operation takes by the old method.

DARWINIAN EXPERIMENTS.—The Doudee *Advertiser* says: It is not generally known that a series of elaborate experiments, intended to illustrate the law affecting the variation and selection of species have been going on under the direction of able and intelligent naturalists. These experiments were begun soon after the appearance of Mr. Darwin's great work, and their object is to discover the extent to which by persistent effort species may be varied, to what degree particular organs may be changed by a different circumstance and condition, and how far technic and rudimentary development may be increased and accelerated by special conditions and wants. Those experiments are carried out with the utmost care, and their results recorded with accuracy; and they will no doubt in due time throw much light on the doctrines of development and natural selection. The period during which they have been conducted has as yet been too brief to yield important results, and they may require more than half a century before their scientific value is ascertained. These experiments are under the direct supervision of nearly all the more eminent naturalists of the day, including Sir John Lubbock, Mr. Darwin, and Mr. Wallace; and they will be the first sustained scientific test to which the laws affecting the variation and origin of the species have been subjected

SCIENTIFIC WORK.—Not least among the advantages offered by science is the fact that scientific work must be honest work. The investigator finds that he must work according to the laws of nature or else fail utterly. During the last session of the Royal Institution, Mr. Francis Galton delivered a lecture "On Men of Science—their Nature and their Nurture," in which, after stating that the ratio of scientific men to the population of England is about one in ten thousand; he shows that the characteristics of those men are energy, health, steady pursuit of purpose, business habits, independence of character, and a strong innate taste for science. These qualities are strongly marked; hence, in addition to the laws of nature, we see a reason why scientific work should be honest work. But among them health stands conspicuous. Mr. Galton records two of the answers he received to his enquiries on this particular—"Only absent from professional duties two days in thirty years;" "only two headaches in my life;" and, "never ill for more than two or three days except with neuralgia," the latter being from a man between seventy and eighty years of age. "It is positively startling," says Mr. Galton, "to observe in these returns the strongly hereditary character of good and indifferent constitutions."

PREPARATION OF METHYLIC ETHER.—Methylic ether is coming into use somewhat in the manufacture of ice, especially by Prof. Linde's process. The following method for its preparation has been devised by Erlenmeyer and Kriechbaumer, of Munich: One and three-tenths parts of pure methylic alcohol are mixed with two parts of sulphuric acid, and heated in a flask with a return cooler, gradually, to 140° C. The gas given off steadily at 110° is passed through caustic soda to remove any sulphurous acid, and is then absorbed by sulphuric acid, which is surrounded by water to cool it. One volume of sulphuric acid will absorb 600 volumes of sulphuric ether. This solution, or, rather, compound, will keep indefinitely, and may be transported in acid carboys. When the ether is to be introduced into the ice machine, it is only necessary to drop one part, by weight of water, in order to liberate the gas regularly. On warming a little the acid gives up 92 per cent. of the gas dissolved in it. By this process, from 57 to 70 per cent. of the alcohol, by weight, is converted into ether.

IMITATION OF LACE OR SILK BY PHOTOGRAPHY.—A new and beautiful application of photography has lately appeared in England, by the aid of which any lace design can be transferred to silk, so that the latter material appears to be covered with the delicate and costly fabric. The lace to be copied is secured in a frame in contact with sensitive albumerized paper, and exposed to the light until a very deep impression is obtained. This is then fixed, and the paper washed and dried, forms a perfect negative. And the piece of paper is then sensitized with bicromate of potash and gelatin, and exposed under the negative. Inking with lithographic transfer ink follows, and the paper is placed in water and lightly sapped with a sponge. This throws out every detail of the inked spaces, the rest remaining white or free from ink. The impression is lastly transferred to a lithographic stone, and thence printed upon the silks by the usual process.

PHOTOGRAPHING THE COMET.—Schaarwechter, in Berlin, attempted to photograph the comet, visible about the first of July, but, in spite of half an hour's exposure, was unsuccessful. Lockyer, in England, made a similar experiment with a telescope which followed the motion of the comet. In two minutes he obtained a picture of the faintest star in the Great Bear, but could not obtain any image of the comet, even with an exposure of ten minutes.

ACID IN THE GASTRIC JUICE.—R. Maly finds that the pure gastric juice in dogs contains no lactic acid. The decomposition of chlorides by lactic acid cannot therefore be the source of the hydrochloric acid in the stomach. Lactic acid seems to play no part in the chemistry of or the normal formation of acids. The source of the free hydrochloric acid in the stomach is a process of dissociation of the chlorides without the action of an acid.

Mining Stocks.

The mining shars market hae besn for the past few weeks in a state of high excitement. Ths wondsrfnl developmsnts in the Comstock lode have had tbe very natnral effect of raising the stocks of moet of ths mines on that remarkable lsdgs to a price far above what even the owners expeoted. California, Virginia Consolidated and Ophir have been the favorites, but others have sleo sbared in the good fortune. If only half of what is promised in the way of dividende provs true, the mine owners ought to be abundantly eatiefied, as more wealth is coming out of ths old Comstock than even ite moet sanguine sdmirers sver expected.

The bonanza struck in the California and Virginia Cons. is richer than anything ever hefore fonnd in tbs lode, and even tbe ore body at the Belcher and Crown Point is thrown in the ehade. Speaking of this wonderful body of rich ore, the *Enterprise* of laet week esys:

The progrsss of the work of development is being closely watched, and thoss who are purchasing stocks are doing so on their judgment baeed npon their knowledge of the extent and valne of the developments thus far made. Thoss who diecredit the exietence of a great body of ore in the Virginia Consolidated, California and Ophir mines—a body of ore abeolutely immense, and beyond all comparison superior in every respect to anything ever before seen on the Comstock lode—ehow lack of wiedom and do but publish their own narrow-mindednees and prejudics. Never before in tbe history of mining operations in this State has more ample opportnnity been afforded all clasees—speculatore in stocks, millmen, mining experts, men of ecience and common citizens—to see and examine for themselves. Day after day men have come from San Francisco in order to assure themeelves in regard to the truth of what had been told them in regard to the almost incalculable value of the ore body opened upon them. Tbeee men have seen for themeelvee, have gone away satisfied and are the men who are now buying the stock in tbe mines. High as the present prices of the three mines in question may esem, these pricee are but in accordance with ths developments made snd making, and are paid by men who bslieve that it is worth the money. However, the fact is that the valne of tbe great bonanza is now generally acknowledged, and it would seem, from all accounts, tbat we who are here on the ground are taking the matter much more coolly than are our friends in San Francisco.

Sales at the S. F. Stock Exchange.

Last Week.		This Week.	
THURSDAY, DECEMBER 17.		WEDNESDAY, DECEMBER 23.	
MORNING SESSION.		MORNING SESSION.	
560 Alpha	24¾@24½	710 Ophir	176@180
1755 Belcher	44@41	5 ....b 15	182
15 ....b 30	41	20 ....b 5	178
3065 Best & Bel	36½@36¾	3470 Mexican	45@40
250 ....b 30	37½@38	50 ....b 30	45
225 Obola	38@37½	150 ....b 5	44
420 Crown Point	48@48½	1970 G & C	56½@58
20 ....b 30	49½	550 ....b 30	58½@59
500 Con G Hill	70¾	2080 Best & Bel	64@62½
810 Confidence	41@42	20 ....b 30	67½
20 ....b 30	42	80 ....b 10	68@67½
1235 Con Vir	332@300	475 Savage	138@140
600 California	300@285	10 ... b 20	142
30 Exchequ	185@195	50 ....b 5	140
885 Empire M	15½@15¾	790 Chollar	80@85
1060 Gould & C	34@32½	50 ....b 30	89
585 Hale & N	62@60	80 ....b 5	86@84
100 ....b 30	63	385 H & Nor	63@65
1610 Imperial	17½@16¾	50 ....b 30	66
140 Justice	96@85	1215 O Point	47@50
320 Kentuck	20½@21½	595 Jacket	150@154
2125 Mexican	27@27¾	30 ....b 5	154
200 ....b 30	28	3585 Imperial	18½@17
1080 Con Imperial	16@15¾	100 Empire M	16
100 ....b 30	70½	250 Con Hill	70¾
10 ....b 5	72	385 Kentuck	20@21
1445 Ophir	118@110	25 ....b 30	21½
70 ....b 5	112@113	475 Alpha	25@27
30 ....b 30	110	50 ....b 30	26
375 Savage	120@125	3405 Belcher	50@55
150 ....b 30	127@127½	225 ....b 30	54@55
3760 S Nevada	17½@18¾	5 ....b 3	54
150 Seg Belch	118@125	1236 Confidence	49@46
10 ....b 30	127½	50 ....b 30	49
220 Succor	5¼@5¾	665 Con Vir	49@500
510 Y Jacket	150@156	145 ....b 5	502½@500
100 ....b 5	152½	4085 Sierra Nev	26@25
105 ....b 30	157@156	50 ....b 30	26@26½
AFTERNOON SESSION.		200 ....b 5	25
880 Belmont	14¼@14½	200 Daney	21¼
175 Am Flag	2¾	165 California	475@490
130 Plocbe	4	50 ....b 4	480
100 Eur Con	13¼	30 Exchequ	250@240
335 Rav & Eby	22½@23	AFTERNOON SESSION.	
200 Meadow Valley	6	430 M Valley	5½@5¾
100 Monitor	22¾@23	830 Ray & Eby	22½@23
100 Wash & Creole	75c	235 Eur Con	13¾@13½
515 Rye Patch	3¼	250 Plocbe	5@4½
300 Eldo South	3	290 Am Flag	2¾@2¼
100 E do North	1¾	850 Belmont	14½@15
850 War Eagle	2	340 Monitor Belmont	2
20 St Patrick	1½	1055 Rye Patch	3¾@4
100 Idaho E	2	200 Eldo South	2
100 G Cybarist	3¾@4	50 Char M	5
1230 Oberry Creek	1@7½	215 Oberry Creek	12½
390 Lady Bryan	37½@4	40 Eureka	8
815 Julia	7¾@7½	350 Golden Chariot	2½@3
150 Caledonia	28	70 Seg Belcbor	139@140
110 Knickerbocker	1720	Overman	32@34
420 Globo	1½@1¾	170 Justice	80@81
810 Baltimore Con	3¾@3½	205 Succor	5¾@6
610 Dayton	4½@4¾	400 Lady Bryan	4@4½
470 Challenge	12	1274 Julia	11@12
30 Trench	22@12½	320 Caledonia	24½@25
373 Eclipse	13¾@14	220 Knickerbocker	60@62½
600 Gold Hill	10¾@11	50 Globe	1¼
1240 Utah	7¾@8	4040 Utah	12@13
150 Bardanelles	19	705 S Hill	12¾@13
385 New York	33¾	460 Eclipse	13½@16
115 Occidental	4½	1295 Challenge	12¾@13
518 Am Flat	7¼@7½	505 Balt Con	7¾@8
250 Tylor	20c	575 Bacon	11@12
280 R Island	5½@5¾	275 Bullion	17½@18
993 Union	60@61	275 Trench	16
250 Alta	4	950 Pictou	70@81½
350 Senator	1¾	100 Senator	1
320 Woodville	3@3¼	415 Dayton	4½@4¾
800 Mint	25c	1885 R Island	5¾@6
600 Lady W	2	150 Dardanuelles	22½
430 Kossuth	2¾@3	715 Am Flat	7@7¼
500 C P Ravine	1	750 Union	95@96
150 Leo	1@1¼	610 Woodville	3½@3¾

MINING SHAREHOLDERS' DIRECTORY.

Compiled every Thursday from Advertieements in the Mining and Scientific Press and other S. F. Journals.]

ASSESSMENTS.—STOCKS ON THE LIST OF THE BOARDS.

Company.	*Location.*	*No.*	*Amt. Levied.*	*Deling'nt.*	*Sale.*	*Secretary.*	*Place of Business.*
American Flag M & M Co	Ely District	6	50	Nov 10	Dec 14	Jan 11	G R Spinney	320 California st
American Flat M Co	Washoe	4	1 00	Dec 7	Jan 9	Jan 27	C A Sankey	331 Montgomery st
Andes S M Co	Washoe	3	50	Dec 7	Jan 11	Feb 1	M Landers	507 Montgomery st
Arizona & Utah M Co	Washoe	11	75	Dec 10	Jan 14	Feb 2	J Maguire	419 California st
Arizona S M Co	Unionville Nevada	1	1 00	Nov 30	Jan 8	Jan 29	Wm Willis	419 California st
Baltimore Cons M Co	Washoe	7	1 00	Dec 5	Jan 8	Jan 29	D T Bagley	401 California st
Bellevue M Co	Placer Co Cal	10	50	Dec 10	Jan 14	Feb 4	D F Verdenal	409 California st
Bowery Cone M Co	Ely District	3	20	Dec 15	Jan 25	Feb 28	C E Elliott	419 California st
Buckeye G & S M Co	Nevada	12	1 00	Nov 14	Dec 18	Jan 7	C A Sankey	331 Montgomery st
Chollar-Potosi M Co	Washoe	5	5 00	Nov 14	Dec 18	Jan 7	W E Dean	419 California st
Daney M Co	Washoe	11	1 00	Oct 27	Dec 4	Dec 28	G R Spinney	320 California st
Dayton G & S M Co	Washoe	1	1 00	Dec 10	Jan 13	Feb 2	W E Dean	419 California st
Empire M Co	Idaho	8	1 00	Nov 10	Dec 10	Jan 4	William Wills	419 California st
Globe M Co	Washoe	9	75	Dec 10	Jan 14	Feb 2	J Maguire	419 California st
Ida Elmore M Co	Idaho	15	1 00	Nov 16	Dec 21	Jan 12	Willia Willis	419 California st
Imperial S M Co	Washoe	20	1 00	Nov 26	Dec 29	Jan 19	W E Dean	419 California st
Justice M Co	Washoe	12	3 00	Nov 13	Dec 15	Jan 15	J S Kennedy	Merchants' Ex
Kentuck M Co	Washoe	12	1 00	Dec 3	Jan 5	Jan 28	F Swift	419 California st
Lady Bryan M Co	Nevada	8	50	Nov 11	Dec 16	Jan 11	F Swift	419 California st
Mahogany G & S M Co	Idaho	14	2 00	Nov 3	Dec 10	Dec 31	O H Higgins	402 Montgomery st
Mint G & S M Co	Washoe	8	10	Nov 17	Dec 22	Jan 15	D A Jennings	401 California st
Monitor-Belmont M Co	Nevada		50	Nov 10	Dec 14	Jan 4	W W Hopkins	411 California st
Newark S M Co	Ely District	9	50	Nov 4	Dec 7	Dec 28	Wm Willis	419 California st
Original Gold Hill G & S M Co	Washoe	2	50	Dec 12	Jan 14	Feb 1	W M Helman	Fireman's Fund Bldg
Original Hidden Treasure	White Pine		1 00	Oct 12	Dec 11	Jan 7	D A Jennings	401 California st
Overman S M Co	Washoe	30	3 00	Dec 1	Jan 5	Jan 26	G D Edwards	414 California st
Plocbe S M Co	Ely District	8		Dec 11	Jan 21	Feb 18	J E Elliott	419 California st
Raymond & Ely M Co	Ely District	2	3 00	Nov 3	Dec 10	Jan 7	T W Colburn	418 California st
Rock Island G & S M Co	Washoe	5	1 00	Nov 16	Dec 21	Jan 12	J W Clark	418 California st
Red Jacket M Co	Idaho	5	50	Nov 28	Jan 5	Jan 26	Wm Willis	419 California st
Savage M Co	Washoe	16	5 00	Dec 5	Jan 1	Jan 27	E B Holmes	419 California st
Sierra Nevada S M Co	Washoe	30	3 00	Dec 1	Jan 5	Jan 26	G D Edwards	414 California st
Silver Cord M Co	Idaho	6	50	Nov 5	Dec 7	Dec 29	Frank Swift	419 California st
Soutb Chariot M Co	Idaho	11	50	Nov 5	Dec 11	Jan 5	O H Bogart	402 Montgomery st
Tyler M Co	Washoe	7	50	Nov 19	Jan 21	Feb 12	G D Squire	Steveneon's Bldg
Utah S M Co	Washoe	7	1 00	Nov 25	Dec 30	Jan 20	W E Dean	419 California st
War Eagle M Co	Idaho	6	1 00	Nov 9	Dec 16	Jan 6	L Kaplan	401 California st
Washington & Creole M Co	Ely Dist	13	50	Dec 8	Jan 11	Feb 4	F D Cleary	Merchants' Ex
Woodville G & S M Co	Washoe	8	1 00	Nov 9	Dec 14	Jan 5	W M Helman	401 California st
Yellow Jacket S M Co	Washoe	19	5 00	Dec 10	Jan 13	Feb 13	G W Hopkins	Gold Hill
Yule Gravel M Co	Placer Co Cal	5	10	Nov 9	Dec 14	Jan 5	W H Watson	302 Montgomery st

OTHER COMPANIES—NOT ON THE LISTS OF THE BOARDS.

Baltic Cons M Co	Washoe	1	15	Nov 18	Dec 23	Jan 20	B Barris	507 Montgomery st
Calaveras Hydraulic M Co	Cal		5	Dec 7	Jan 9	Jan 25	A Sbear	321 Battery st
Cheyenne Creek M & M Co	Nevada	1	15	Nov 10	Dec 14	Jan 7	D F Verdenal	409 California st
Cberokee Flat Blue Gravel Co	Cal	33	5	Nov 10	Dec 14	Dec 29	H Pichoir	603 Washington st
El Madre Quicksilver M Co	Cal	2	6	Oct 27	Dec 4	Dec 28	A H Isey	312 Montgomery st
Florence M Co	Humboldt Co Cal	1	10	Dec 5	Jan 8	Feb 2	I E Delavan	220 Montgomery st
Globe Cons M Co	Washoe	4	75	Dec 10	Jan 14	Feb 2	J Maguire	419 California st
Globe M Co	Washoe	9	75	Dec 10	Jan 14	Feb 2	J Maguire	419 California st
Gold Mt G M Co	Holcomb Valley Cal	3	50	Nov 19	Dec 29	Jan 23	J P Cavallier	513 California st
Gold Run M Co	Nevada Co Cal	9	20	Dec 7	Jan 11	Feb 3	C O Palmer	41 Market st
Golden Rule S M Co	Utah		5	Dec 8	Jan 15	Feb 15	W Gertheimer	520 Clay st
Harvard Hill G M Co	Cal		50	Nov 7	Dec 16	Jan 7	F J Hermann	418 Kearny st
Jumata Cons S M Co	Aurora Nev	2	1 00	Dec 16	Jan 21	Feb 10	C S Neal	419 California st
Kennedy M Co	Amador Co Cal	8	1 00	Dec 16	Jan 20	Feb 10	A Wissel	210 California st
Keystone No 1 & 2 M Co	Ar zona	4	1 00	Dec 12	Jan 12	Feb 1	W R Townsend	320 Pine st
Lady Washington M Co	Washoe	2	30	Dec 17	Jan 21	Feb 8	H C Ribbe	419 California st
Lake Tahoe A & F Water Works	Cal	6	25	Nov 18	Dec 23	Jan 18	E Chattin	808 Montgomery st
Martin & Walling M & M Co	Cal	1	50	Dec 7	Jan 8	Jan 23	J W Tripp	408 California st
New York Cons M Co	Washoe	11	50	Dec 5	Jan 6	Jan 25	H C Kibbe	419 California st
New York M Co	Washoe	11	50	Dec 5	Jan 6	Jan 25	H C Kibbe	419 California st
North Bloomfield Gravel M Co	Cal	325	1 00	Dec 1	Jan 4	Jan 25	I D Dewey	320 California st
North Fork M Co	Plumas Co Cal	7	75	Dec 5	Jan 4	Jan 19	A Martin	520 Washington st
Oneida M Co	Amador Co Cal	10	1 00	Dec 11	Jan 16	Feb 3	L Kaplan	Merchants' Ex
Owens G & S M Co	San Diego Co Cal	3	1 00	Nov 3	Dec 7	Dec 28	Frank Swift	419 California st
Page Tunnel Co	Utah	1	5	Dec 12	Feb 20	Feb 20	J Hutchinson	418 California st
Poorman G & S M Co	Idaho	1	50	Nov 13	Dec 18	Jan 11	William Willis	419 California st
South Fork M & Canal Co	Cal		5	Dec 7	Jan 10	Feb 1	H Knapp	306 Montgomery st
Star King S M Co	Elko Co Nevada	9	25	Dec 4	Jan 8	Jan 26	L Kaplan	Merchants' Ex
Succor M & M Co	Washoe	10	1 00	Nov 27	Jan 4	Jan 28	W H Watson	302 Montgomery st
Thrift G & S M Co	Calaveras Co Cal		50	Nov 24	Dec 26	Jan 16	H R Wells	240 Montgomery st
Watson M Co	Robinson Dist Nevada	1	1 00	Nov 16	Dec 21	Jan 13	W H Watson	302 Montgomery st
Woodville M & M Co	El Dorado Co Cal	1	25	Nov 10	Dec 19	Jan 6	J Glaesman	335 Montgomery st
Zacatero C M Co	Cal		50	Nov 4	Dec 7	Dec 29	L Hermann	330 Pine st

MEETINGS TO BE HELD.

Name of Co.	Location.	Secretary.	Office in S. F.	Meeting.	Date.
Beach & Paxton G & S M Co		Called by Trustees	507 Montgomery st	Special	Jan 14
Bullion M Co	Washoe	J S Kennedy	Merchants' Ex	Annual	Jan 14
California & Arizona M Co		T E Jewell	507 Montgomery st	Annual	Dec 29
California M Co	Washoe	D T Bagley	401 California st	Annual	Jan 29
Consolidated Virginia M Co	Washoe	D T Bagley	401 California st	Annual	Jan 14
Georgia S M Co	Nevada	R Wegener	414 California st	Annual	Jan 5
Gould & Curry S M Co	Washoe	A K Durbrow	438 California st	Annual	Dec 28
Gould & Curry S M Co	Washoe	Called by Trustees	438 California st	Special	Jan 25
Nevada G & S M Co		J G Bloomer	419 California st	Annual	Jan 4
Patten M Co		L Hermann	330 Pine st	Annual	Dec 28
Prussian Gold & S M Co		R H Brown	402 California st	Annual	Jan 4
Sanderson G M Co	Cal	W Stuart	113 Liedesdorff st	Annual	Dec 31
Union Cone M Co	Washoe	Called by Truetees	Merchants' Ex	Special	Jan 23

LATEST DIVIDENDS (within three months)—MINING INCORPORATIONS.

Name of Co.	Location.	Secretary.	Office in S. F.	Amount.	Payable.
Black Bear Quartz M. Co.	Cal	W. L. Oliver,	316 California st.	30	July 17
Belcher M. Co.	Washoe.	H. C. Kibbe,	419 California st.	3 00	Dec 10
Chariot M & M Co	Cal	Frank Swift	419 California st	40	Nov 16
Consolidated Virginia M Co	Washoe	O T Bailey	401 California st	3 00	Dec 11
Crown Point M Co	Washoe	C E Elliott	414 California st	2 00	Dec 12
Diana M Co.		M. G. Fasset.	220 Clay st.	1 00	Jan. 25
Eureka Consolidated M Co	Nev	W W Traylor	419 California st	60	Dec 5
Keystone Quartz M Co	Cal	L Vesaria		50	Feb 16
Phœnix G M Co		Charles E Elliott	419 California st	50	June 30
Rye Patch M Co	Nevada	D F Verdenal	409 California st	50	Dec 5

New Incorporations.

The following companies have filed certificates of incorporation in the County Clerk's Office, San Francisco.

WARN G. & M. Co., Dec. 17—Location: Storey Co., Nevada. Capital stock $4,000,000. Directors—Thos. Cole, E. M. Fry, M. D. Townsend, G. W. Fisher and Hill Beachy.

NORTH CALIFORNIA S. M. Co., Dec. 17—Location: Washoe. Capital stock $6,000,000. Directors—Thos. Cole, E. M. Fry, M. D. Townsend, G. W. Fisher and Hill Beachy.

TROY S. M. Co., Dec. 18. Location: Virginia District, Nevada. Capital stock $10,000,000. Directors—A. B. Perkins, E. C. Brown, John B. Spring, A. C. Taylor and H. S. Brown.

STAR QUICKSILVER M. Co., Dec. 18. Location: Sonoma county, Cal. Capital stock $500,000. Directors—Lewis B. Harris, Samuel Foster, G. Sanderson, James A. Brown and C. A. Eastman.

OPHIR G. M. Co., Dec. 18. Location: San Bernardino county. Capital stock $600,000. Directors—E. J. Baldwin, Samuel T. Curtis, James R. Keene, John W. Coleman and A. Goldsmith.

THE EAST BELCHER M. Co., Dec. 22.—Location: State of Nevada. The Capital stock is $10,000,000, divided into 105,000 shares. Directors—James Mee, Chas. J. Collins, Martin White, Geo. H. Mallard and John Spring, Jr

CALIFORNIA CONFEDERACY, Dec. 22,—Capital stock $50,000. Object: The importation of thoroughbred horses into the State of California, and the improvement of the breed of horses raised in the State. Directors—Geo. M. Pinney, Ezekiel Wilson, J. S. Taylor, A. E. Swain, John Martin, O. F. Willey and Wm. Shear.

MINERS' UNION.—On the 14th instant the semi-annual election of officers of the Gold Hill Miners' Union was held at their hall, at a regular meeting. The following officers were elected for the ensuing term: President, John K Connor; Vice-President, Maurice O'Connor; Recording Secretary, Daniel D. Donovan; Treasurer, Matthew Crowley; Conductor, Patrick Smith; Warden, Thos. Daly; Finance Committe, Wm. L. Force, John Wade and A. C Hey.

OCCIDENTAL MINE.—The Gold Hill *News* says that in this mine prospecting operations have been continued during the past yesr without intermiession on a scale of considerable magnitude. The main drift has been run in the ore veiu for a length of 3,000 feet. Winzee have been snnk from the top of the ore body and raised from the lower adit, which are now connected. These vertical openings have been carried throngh the ore without showing ite widtb. Crossdrifte have been started at regular intervale to develop the vein between the two levele, wbich are 300 feet apart. All the lateral drifte are now in thorough repair, and the whole mine is in complete working order.

ON THE Sierra Nevada mine, on the Cometock, the hoistiug and pumping machinery at the old sbaft ie being overhauled and put in good trim, in order to repair the shaft and resume einking. This ebaft ie 700 feet deep, and it ie propoeed to sink it 100 feet deeper, and drift for the valuable ore deposit recently developed by a drift nortb from the end of the old tunnel, and eome 300 feet from the shaft. At the same time an incline will be commenced from the bottom of the ebsft, to follow tbo dip or inclination of the ledge eastward. As soon as practicable new and powerful machinery will be erected at this shaft.

PANAMINT.—A gentleman from Pauamint, reports very cold weather there. The Jacobs mill had been running about an hour before he left. The new district, Wild Roee, some ten miles north of Panamint, wae caueing great excitement. There was also a rnsh to the new Coso mines. There are abont fifty honses in Panamint, and lumber is twenty-five cents per foot.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

CALAVERAS COUNTY.

UPPER COUNTY ITEMS.—Calaveras *Chronicle*, Dec. 19: Entsrprise mill is nearly completed. Teams will eoon begin to haul ore from the mine to the mill. Sbaft down 142 feet. Vein carries in lower level four feet of milling ore. Ore in eight, 3,000 tons. Some 50 tons of ore from Miller & Co.'e mine averaged $23 per ton. The hoisting works are now nn by a steam engine. Haskins & Co. crushed 33 tons of ore which prodnced $4.760 or $142.42 per ton. The chimney this ore was taken from ie increasing in length. Work has commencsd at the Josephine.

THE RED HILL CLAIM.—Preparations for re-opening tbe Red Hill claim go briskly on. About 3,000 of the 4,000 feet of iron pipe required to convey water to the mine are made, and the remainder will be finished as soon ae possible. A large quantity of pipe has been hauled to the claim, and ae soon ae it is tarred will be pnt in position. Everything will be in readiness for active operatione shortly.

NEW DISCOVERY.—Meesrs. Hnrbert & Gouldson recently made a rich discovery on the extension of what is known as the old French lead. At the depth of 20 feet, they found a foot vein proepecting $70 to $75 per ton, and tbe indicatione are ench as to justify the belief that they have fonnd a large and valuable chimney of ore.

HASKINS & CO.'s mine at West Point, Calaveras county, from 33 tone of unaseorted rock taken from the mine and crnebed at Carlton's mill, cleaned up $4,620, or an average of $140 per ton.

EL DORADO COUNTY.

SALE OF MINING GROUND.—Mountain *Democrat*, Dec. 19: McClelland, Phillips & Co. have recently sold to a San Francisqo company their mining claim known as the Dry Gulch claim, consisting of 160 acres of gravel, situated about three miles above Pleasant valley. The parties purchasing have also bought Davenport's ditch, which is about five miles in length and conveye a good head of water to the claim. The ground ie nnqueetionably first-class, and the new company will immediately put it in first-rate order for extenaive operation.

KERN COUNTY.

BIG BLUE.—*Courier*, Dec. 19: During the past few yeare the value of the rock has been thoroughly tested, and the vein determined to be as great ae surface appearance indicate, while the fact of its being a true fiesure ie placed beyond all cavil. These developments have decided the company to work it on a commensurate scale. With that view Mr. Burke hes been engaged for a year past in the creation of an immense mill—to run by water power—that will probably have a crushing capacity of 120 tons per day, and hoisting and pumping works of the most approved description. The pumping apparatns in particular is the most complete and powerful on this coast. There is enongh ore in sight, without further exploratione, to run the mill five years. In the nnmbsr of men it employe, directly and indirectly, the amount of farm produce it consumee, etc., it has been a source of considerable wealth to the county, although slight in compariecn to what it will be when operated on the grand scsle contemplated. Abont four months hence everything ie likely to be well under way. The mill may be ready to etart within three months. The Big Blue ie not of that clsss of leads usually styled rich, yet it belongs to a kind that always, under proper management, yield large fortunes to the owners. It will average uot far from 40 feet in thickness. Gold of a fine quality ie evenly diseeminated throughout the vein matter, which will probably, at the lowest estimate, taken from eide to side, yield an average of $15 per ton. This looke small, bnt when it is considered that $5 per ton ie an extravagant estimate of the coet of mining and milling, including intereet and wear and tear, the valne of the mine in view of ite vaet extent and practically exhaustless charecter, becomes apparent.

NAPA COUNTY.

MORE RICH DISCOVERIES.—Napa *Register*, Dec. 19: Yonntville and its vicinity hae been thrown into a tumultuous excitement by the discovery of very rich cinnabar indications in the hills on the west eide of that town. The etrike has been made on the property of Chas. Hopper.

PINE FLAT MINES.—Cor. *Reporter*: In the Geyser mine four tunnele have been run in, the mein one of whioh ie in 300 feet; the othere from 100 to 150 feet. Splendid ore ie being teken ont and it looke as if there was no end to it. The present force employed consiste of 30 white men and 50 Chinamen. The new furnace, Knox & Osborne, 15 tons capacity, is also finished and will be ready to start up about the 25th of this month. Mr. Roda is superintendent.

THE Miesouri mine has stopped running its retorts. A furnace will be put np in the spring.

THE Kentnck mine is also run on a small scale for thie winter. Only four miners are at work.

At the Annie Belcher mine the new furnace, a Knox & Osborne, 15 tons capacity, is finished

and drying beautifully, and by the 20th of this month will be ready for charging, by which time there will be 80 tons of ore on the dump for reduction. About 135 men are employed now, but a large force of Chinamen will be put on soon for making adobes.

The Sonoma mine tunnel is in 650 feet, and four other tunnels vary from 50 to 100 feet. Besides these six shafts have been sunk, and the mine is being thoroughly and systematically prospected. Here everything is being conducted on the most economical scale, every item is made to count, and I believe the lowest grade ore on the coast has been put through this furnace with a fair profit to its owners. The entire average cost of extraction and reduction in this mine is but $3 60 per ton, and certainly does more than credit to its management, which is in the hands of Mr. Clark, the superintendent. The furnace has stopped running for the winter, and there are about fifteen men working at present, but an additional force will be put on again in a few weeks.

PLACER COUNTY.

Booth Mine.—Placer *Herald* Dec. 19: Just now a force of men are engaged in erecting a whim for hoisting rock, as the old apparatus is no longer efficient. Over these hoisting works a large building is being erected, which will add much to the comfort and convenience of all hands, and especially those who work above ground. The developments of the mine would well justify even more extensive improvements. The shaft is now down below all surface water, and the rock is of the solid primitive formation. A blast the other day revealed a sight beautiful indeed to behold. A large piece of rock was thrown loose, of several hundred pounds weight, which was fairly flecked with free gold. This quality of rock at this depth and formation is something almost wonderful, and it is no wonder the old miners looked at it with astonishment, and the younger ones became much excited.

At the Julian mine a full force is employed in drifting and sloping. The 20 stamp mill is kept running night and day, on rock from this mine. The yield at the last clean-up exceeded the expectations of the owners.

At the Green mine the prospects are altogether encouraging. The present mill stands about 80 rods from the mine, and is run by water power. The company are talking of erecting a steam power mill, with increased capacity near the mine. This would be a fine improvement which we hope to see carried out.

The Crater mine is turning out very rich rock, and those who have an interest in that direction are feeling very fine.

Mining at Damascus.—Placer *Argus*, Dec. 19: The Mountain Gate company, one of the oldest mining companies in the county, is steadily pushing its work, with favorable results. Being engaged in tunnel mining, they do not require a large supply of water, and sufficient comes from the tunnel to supply all their wants and enable them to wash the year round. Their tunnel is now fully a mile into the mountain, still in good paying gravel, with fine prospects ahead. The claim has been worked for twenty years, and has paid well. Thirty men are now engaged on the claim, and there is no scarcity of pay. Lewis & Co.'s claim is already turning out well.

SIERRA COUNTY.

Good Pay.—*Mountain Messenger*. Dec. 19: A short time since the Bald Mountain finished washing up the small dump, the yield of gold dust being 2,400 ounces, from 8,000 car-loads of gravel. They have barely made a beginning on the large dump, which contains about 16,000 car-loads of gravel, which it is known will pay as much per load as the smaller. The company have just about water enough to keep up with the drifters, the recent north wind having diminished their supply considerably. They are now working ninety odd men and have room for about twenty more if the present supply of water keeps up. The quality of gold taken out is what is denominated as "coarse," the largest piece yet found weighing 65 oz. The pay channel varies from 500 to 800 feet in width, the gravel being about four feet in depth. The superintendent, H. Wallis, as good a gravel miner as there is in the State, informs us that in his experience of twenty years he has never seen a channel that paid so uniformly and so well as this. The further into the mountain they go the richer becomes the gravel, and this year's dividend will probably reach $10,000 to the share or $200,000 in the aggregate. The company has acres of rich ground prospected but not worked—ground enough to last for years without driving a tunnel another foot ahead.

The South Fork company, of Forest City, have just closed a contract for running 300 feet of bedrock tunnel. This tunnel is in something like 3,000 feet, but not to the point where the owners expect to strike a pay channel, under the ridge between Forest City and Alleghany, but to the eastward.

The North Bloomfield company, at Forest City, are now in 2,700 feet with their tunnel, and are still driving ahead for a pay channel under the cement ridge west of town.

TUOLUMNE COUNTY.

The Riverside—*Union Democrat*, Dec. 19: This week we saw a solid bar of gold weighing over twelve pounds, the result of seven and a half days crushing at the Riverside claim. The owners are now running a ten-stamp mill, and are adding ten more stamps. By the first of January it is expected to have twenty stamps in operation. This mine, the old Telegraph, is another evidence of good mines being laid aside when failing to pay a profit. A number of years ago it was very profitable, then ceased paying, and for a number of years laid idle. The present owners went to work and opened it as it should be, and are now reaping the result of their energy and labor.

Street Mining Stopped.—Tuolumne *Independent*, Dec. 19: The mining operation commenced on Holden street, near the creek, by Mr. J. T. McLean, has been abandoned in its infancy; a demonstration of a number of citizens against it, and Mr. not desiring to harrow up their souls and create bad blood, desisted like a sensible man.

The Golden Gate company talk of erecting chlorination works on their mine, to work their sulphurets at home instead of sending them abroad.

Mill Moved.—The five-stamp mill lately engaged in chewing up rock on the Fidelity lead, at Five Mile creek, will be removed to the Ohio at Calder's ranch.

Nevada.

WASHOE DISTRICT.

Con. Virginia.—Gold Hill *News*, Dec. 17: Daily yield about 300 tons. The winze sinking in the ore body, below the 1550-foot level, has attained a depth of 70 feet below that level, and is in good ore at the bottom. On the 1550-foot level the exploring drifts are all in excellent ore. The character of the ore on this level and in the winze beneath it is of great hardness and solidity. On the 1500-foot level the east cross-cut No. 1, is 230 feet in length, and cross-cut No. 1, near the northern boundary line, is extended. Both of these drifts have passed through ores of extreme richness, and still show the same description in their present faces. The drifts in the course of extension northerly and southerly between the cross-drifts are driven through first-class ore.

Sierra Nevada.—Daily yield about 60 tons of ore, principally from the old upper workings. The pumping machinery at the new shaft has worked well the last few days, and the water is nearly all out. Sinking will be resumed next week. The old ore breasts of the mine continue looking and holding out well.

Gould & Curry.—On the 1700-foot level work has been resumed. On the 1500-foot level the water from the east vein continues to flow with unabated force and volume. The winze progressing below this level has been sunk to a depth of 220 feet. This winze is passing downward through favorable vein material and will soon unite with the north drift on the 1700-foot level. The accomplishment of this connection will secure sufficient ventilation to allow of the vigorous explorations of the ore body on this level at all points.

Belcher.—Daily yield, 450 tons, from the old working levels. The ore breasts are yielding as usual and show improvement from last week. The prospecting of the 1500-foot level is being actively carried forward by means of winzes from the 1400-foot level, which are being sunk in the ore vein, with no heavy developments thus far. The station at the 1500-foot level is well opened.

Kossuth.—The new shaft is down 335 feet and progressing downward two feet per day. When the shaft shall have attained a depth of 350 feet, it is proposed to open a station and drift for the ledge. The shaft will be continued downward at the same time, to the 500-foot level.

Lady Washington.—New shaft down 240 feet to-day, and at the depth of 60 feet further the first station will be opened, and a drift east for the ledge will be started.

Nevada.—The main ore chimney, in the upper workings, is yielding a goodly amount of excellent ore at the present time. The lower tunnel is running in ledge matter, but has not yet reached the ore chimney. The ledge is very wide.

Ophir.—Daily yield, 245 tons, principally from the 1300, 1400 and 1465-foot levels, car samples of which run from $75 to $115 per ton. The ore bressts in the floors between these two levels, continue looking and yielding splendidly and the cross-cuts of the 1465-foot level are all in fine ore. The cross-cut from the winze, 35 feet below the 1465-foot level, near the California line, is in very rich ore indeed, assaying high up in the thousands.

Imperial-Empire.—Main drift north at the 1850-foot level still pushing ahead toward the Yellow Jacket line. The south winze ran nearly out of ore a day or two since, but is now in good ore again. Progress is very slow at the 2000-foot level, owing to the very hard rock encountered, as also to every blast throwing out hot water. Quit a stream of this was struck last week, but has subsided materially.

Utah.—Preparing to place the new pumping engine in position. The pump now in use is one of the largest on the lead, and is in perfect order. New wire cables have been received and are now in place. Sinking the shaft will be resumed for the 600-foot level, as soon as the engine is erected. The prospecting of the 400-foot level is meanwhile vigorously prosecuted.

Hale & Norcross.—Down on the lowest level, 2100 feet from the surface, the cross-cut drift west is advanced a distance of 120 feet, and has penetrated the ore vein. At this point no concentrated body of paying ore has yet been penetrated, the character of the material exposed being regular vein matter of fine appearance.

California.—On the 1500-foot level the east cross-cut in progress 200 feet north of the south line of the mine, is extended 43 feet, and is now traversing a belt of hard rock precisely similar in character to the stratum passed through in the east cross-drift near the southern boundary. On the 1400-foot level the cross-drift running east near the center of the mine, is already advanced 110 feet. The material exposed by this drift as it progresses eastward is of a promising appearance.

Leo.—The face of the main tunnel shows considerable improvement since last report. The ledge matter is much softer and steadily improving in quality as further advance is made. The face of the north drift continues in very favorable vein matter.

Original Gold Hill.—At the 340-foot level, from the switch where the main west drift branches, 70 feet from the shaft, a drift southwest is being run. A northwest drift is also being run.

Dayton.—Daily yield, 65 tons. A heavy body of water has been tapped in the north drift of the second level, giving a 10-inch flow of water, but this has abated considerably. The south drift is yielding some excellent pay ore, and improves as further developed.

Chollar-Potosi.—Resumed drifting at the 1100-foot level last night. The ore-producing sections show improvement in quality, and the usual amount is being extracted and shipped to the mills.

Mexican.—The active development of this newly consolidated mine will be carried forward at once through the Ophir mine, of which it was recently the north half. A cross-cut east is commenced, from the main north drift of the 1645 foot level from the Ophir, at a very favorable point to find out what is in the Mexican ground.

Julia.—The prospecting developments at the 1000-foot level and other parts of the mine are going ahead, with excellent promise.

Crown Point.—Daily ore yield 500 tons, from the old working levels. The prospecting and opening out of the 1500 and 1600-foot levels is being actively carried ahead as usual, and good developments are confidently expected. The east ledge at the 1500-foot level shows improvement.

Bullion.—The south drift at the 800-foot level gives good assays from occasional bunches of quartz met with, and good hopes of getting an ore body at that point are reasonably indulged in.

Senator.—The indications are favorable for finding a larger body of pay ore than what is developed already. The assays from drift No. 1 run up to $40.

Woonville.—The ore breasts of the 200 and 300-foot levels continue to yield enough ore to keep the mill steadily running. The winze below the 300-foot level is in good ore. The new hoisting works just completed, started into operation yesterday, working finely.

Yellow Jacket.—The drifts both north and east, at the 1740-foot level, are being actively carried ahead, and the main incline is down 109 feet below that level to-day.

Globe Consolidated.—Main west drift going ahead at a satisfactory rate, the face in gravelly quartz and soft ledge matter, with a considerable influx of water. The winze below the north drift at this level continues in very favorable looking vein formation.

Rock Island.—The winze in the east vein continues its showing of fine looking quartz.

Baltimore.—The face of the drift at the 750-foot level shows considerable improvement.

Phil. Sheridan.—A slight increase of water is perceptible, and the indications strongly favor a near proximity to the ledge.

American Flat.—At the 750-foot level the ore indications in the face of the drift have much improved during the last few days. The prospects in the winze at the 450-foot level have also improved considerably.

Silver Hill.—The northeast drift at the third level continues to show improvement, and the quartz in the northwest drift gives higher assays.

Colorado.

San Juan.—*Prospector*, Dec. 12: Professor N. A. Foss and Colonel L. P. Dodge, both connected with Messrs. Greene & Son's smelter, in Baker's park called at the *Prospector* office to-day as we were going to press, and allowed us to gaze upon the first silver brick from the San Juan country. It weighs about 40 pounds, is 98 fine, and coin value $800. The brick will be sent to Judge Greene, at Cedar Rapids, Iowa.

Leasing.—Georgetown *Miner*, Dec. 12: The work of leasing mines has been more active during the past few weeks than ever before. The discoveries on Democrat in part account for this, but the work is not by any means confined to that locality. Mines in different districts and on all the mountains are being prepared for active operations during the winter.

Big Mill Runs.—P. McNulty & Co., working on the Rogers, have recently had mill runs made at the Stewart reduction works, of ore from their shaft, which is now down about 100 feet from the surface with the following results: 1,227 ounces silver per ton; 1,700 ounces; 1,750 ounces; and 2,140 ounces. These are not specimen assays, be it remembered, but actual mill runs.

Raw Amalgamations.—For some time past, Dr. George C. Munson has been experimenting with a class of silver ores found in this district running high in the precious metal, by a process of raw amalgamation, that is, without subjecting the ores to the roasting process. He has succeeded in getting from Polar Star ore, the satisfactory result of 92 and 52-1,000 per-cent. of the actual assay value.

Reduction Works.—Last week we alluded to the proposed erection of furnaces in Peru district next season. These furnaces will be similar to those now being so successfully operated by Spears & Consnt, near Breckenridge. They will be put up by T. C. Johns, who intends to commence work upon them at the very earliest practicable moment next spring.

Idaho.

Placer Mining—Silver City *Avalanche*, Dec. 12; Dr. Newsom is enjoying a vacation from office work by opening up a set of placer claims on a flat near the road leading across the mountain from the Golden Chariot Mill to the Half-way house. He has well nigh completed the blasting out of the tail race, and informs us that he gets a very good prospect, and thinks his ground will pay handsomely when the water starts in the spring.

Elias Brown how gone up to Banner district, in Boise county, where he has valuable quartz ledges, and will work until the middle of January, when he will return and go East with the view of selling some of his ledges.

Montana.

Mining at Philipsburg—*New Northwest*, Dec. 11; Mr. B. P. Tilden, manager of the Hope mining company, informs us everything is progressing favorably at Philadelphia, and property owners in a good frame of mind. The Hope company's new shaft on the Hope lead is down 50 feet. About 30 tons of ore which it is estimated will yield $200 by milling process, has been taken from the shaft which averages about two feet crevice. Besides this they have 70 tons of ore graded to $50 by milling process. As this process only saves about 60 or 70 per cent. where 90 per cent. can be saved by the roasting process, it shows a valuable class of ore is being mined.

Mining Affairs at Butte.—Mr. Frank Ramsdell handed us this week a large sample of the ore now being taken from the 125 foot shaft on the Parrott lead at Butte which is rated at nearly $1,000 to the ton. Considerable work is now being done on it and will be this winter. Messrs. Talbott & Downs have a 50 foot shaft on discovery, and four or six men will be employed this winter sinking on that and taking down the ores through to No. 2. The quality and quantity of rock is about the same as at like depth on the one-half shaft, rating from $150 to $200. The First National bank of Helena is contracting these ores on the dump and they pay a good profit. The Parrott is steadily rising in estimation as a true, rich lead. Considerable other work and representation is also being done in the camp. The ores in the camp smelt readily, and as much useless transportation can be saved by reducing the ores to metals, it is in contemplation by Messrs. Talbott and Wolverton to put a furnace in operation for that purpose if satisfactory arrangements can be made with property owners. Ores were smelted with very satisfactory results some two or three years ago, but through personal disagreements and legal complications the business was suspended and essential machinery sold to parties for use elsewhere. It is to be hoped it will be revived.

Silver Lake District.—This new district is near cable, on the Silver Moss. They have fitted up a sampling room, have sunk a couple of shafts ten feet each on the Fairview and put up a shaft house and will continue operations on that and the Silver Moss this winter. There is considerable snow over the entire district. Con Bray and partners, and Meacham & Venable have all gone out, but there is much interest and confidence in the district and it will be thoroughly prospected in the spring. The ores found are very rich.

Utah.

Stockton Mines.—Cor. Salt Lake *Tribune*, Dec. 15: The Great Basin mine is working a number of men in the incline and surface cut, the former of which is now down forty feet from the tunnel, showing about three feet of galena and carbonate ore, and showing well-defined foot-hanging walls. The First National mine is now down 180 feet in the incline, showing pockets of high grade ore, the character of which is mostly solid galena, running very high in lead and silver. The Leonore mine still continues to improve, and is daily raising about five tons of high grade galena ore. The new house has just been completed, and will greatly facilitate the shipments. Quite an extensive body of galena has been found in the deepest works of the mine. The Viola mine is being worked by its owners with good success. The incline is now in 33 feet and is showing a vein of about three feet of galena and carbonate ore. The Chicago smelter is now making a clean up run and will close down on the 20th, for the purpose of refitting, after which it will continue running all winter on ores from Dry Cañon and the neighboring mining camps. A new brick building has just been completed, to be used as the assay office of the smelter.

Park City Notes.—The Marsac mill, heretofore known and frequently noticed as the Flagstaff, is owned by a Michigan company, who also own the Flagstaff mine. The mill has 20 stamps, ten horn pans and five settlers; the whole run with a Corliss engine, of a 150 horse-power, capable of running 40 stamps with the requisite pans. The engine is acknowledged to be one of the finest pieces of workmanship on the coast. Every piece of machinery was put in motion on Tuesday last, (not excluding the whistle) and after a run of six hours, was pronounced a perfect success in every particular. The mill has a capacity of sixty tons of ore daily. There are about 300 tons already in the mill for a starter, and 1000 tons on the dump, now being delivered daily.

Mushroom Culture

In Robinson'e interesting work, "The Parks, Promenadee and Gardens of Paris," a chapter is given to the cultivation of mushrooms. A portion of thie chapter ie devoted to a description of underground mushroom culture ee it is carried on in the environs of Paris. The writer visited these "muehroom 'caves," some of which contain six or seven miles of mushroom beds, and gives us a carefully prepared account of their construction, mode of cul ure, productiveness, etc., accompanied with suitsble illustrstions; hut as this system—though poesessiug great practical value under the circumstancee under which they sre worked—would be impracticable in California, st the present time at least, we have not thought it worth while to reproduce it in the columns of the PRESS, and will pass on to the portion devoted to "Muehroom Culture in Cellars and in tbe Open Air."

The information to be found here can be msde available in varioue circumstances existing in this country. In order to make the method still more practicable we have hed tbe accompanying engraving executed hy our own artist. The author of the work referred to speaks of the cellsr and open-air process as follows:

Culture in Cellars and in the Open Air.

Of conrse they are only profeseional mushroom growers that carry on such extensive operations as those just described, hut the mushroom is slso grown extensively in cellars and like places. As an analogous mode of culture is more likely to meet the general wants, the following observations on the subject may prove acceptable. They are by M. Laizier, tbe president of the Mutual Aid Society formed among the Paris market gardeners.

"The manure to be nsed for this method of cnltivation should be prepared in the same wsy as that for the open-air system described further on. Preference should he given to a cellar producing ssline efflorescence; it should be as dark as poesible, and expoeed to no draughts. The warmth generated by the fermentation of the manure will subeide, and the sowing of the spawn must not be commeuced until the temperature of the bed has fallen below 76 degs. Fahr.; if it is above this the layers of spawn are liable to be burnt. Bede can be msde in cellars in many ways. Those made iu the middle should alwsys be formed with two sides, while those againet the walls should only be half as thick, on account of their having only one usefnl side. It is also possible to arrange them on shelves, one above tbe other. For this purpose strong hars of iron are driven into the walls, upon which are placed shelves of the propsr sized covered witb earth, upon which is formed a hed, that is treated exactly as those made upon the ground. These beds are just as productive as any of the other kinds. They may even be made on the bottoms of cssks, which should be at least two feet six in diameter; and they are built up in the shape of a sugarloaf, about three feet in hight, and the pieces of spawn are placed an inch and a quarter deep, and sixteen inches apart. A barrel is sawn crossoways into two piecee, each forming a tub. Holes are made in the bottom of eech, and a thin layer of good eoil is spread over them inside. They ere then filled with good well prepared stahle manure, just like thst used in the caee of ordinary mushroom beds, the different layere of dung in each tub being well preesed down. When the tub is half full, six or seven good pieces of spawn are placed on the surface, and the remainder ie piled up with msnure, which is well pressed down, the operation being completed hy giving to the heap the form of a dome. The tnbs thus prepared are placed in a perfectly dark part of a cellar, and eight or ten days afterwards the dung is taken up nntil the spawn is visible, in order to see whether it has commenced to vegetate and develope little filaments. If the spawn has struck, the surface muet be covered with soil, care being taken to nse only that which is fresb and properly prepared. The necessity of procuring good mushroom spawn cannot be too strongly insisted upon, thie being the indispeneable coudition for arriviug at a good result. An excellent kind is sometimes met with that has been formed spontaneously in some old dungheap, which is called virgin spawn. When this canuot be procured, excellent spawn may be formed in the following manner:—A little bed of stable manure is prepared, either in a cellar or in the opeu air, and sown with good ordinary mushroom spawn, the proper amount of care already deecribed being bestowed upon it. As soon as the mnshrooms appear on the surface of the bed the spawn remaining must be speedily removed and placed in a dry, airy situation. The spswn thus prepsred csn he preserved for two or three or even four yesrs. Specimens have been kept as long as fourteen years, from which excellent results have been o'tained."

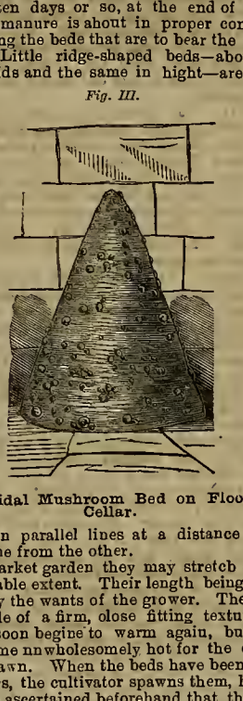
We will next turn to the culture of the mushroom in tbe open air. In old times the market gardeners of Paris used to grow the mnshroom amongst tbeir ordinary crops with great profit but since the Champignonnistes cultivate it nnder no danger from cold in the caves, the market gardeners, who used to raise it to a great extent in the open air, do so now in a lesser degree. They begin with tbe preparation of the msnure, snd collect that of the horee for a month or six weeks before they meke the beds; this they prensre in some firm spot of the market gerden, and take from it sll ruhbish, particles of wood, and miscellaneous matters; for, ssy they, the spawn is not fond of these hodies. After sorting it thue, they place it in beds two feet thick, or a little more, pressing it with the fork. When this is doue the mass or bed is well stamped, then thoroughly watered, and

Fig. I. *Fig. II.*

Newly Made Mushroom Beds.

finally again pressed down by stamping. It ie left in this state for eight or ten days, by which time it has begun to ferment, after which the bed ought to be well turned over and re-made on the ssme place, csre being taken to place the manure that was nesr the sides of the first-made bed towards the oenter in the turning and re-making. The mass ie now left for another ten days or so, at the end of which time the manure is about in proper condition for making the bede that are to bear the mushrooms. Little ridge-shaped beds—about 26 inches wide and the same in hight—are then

Fig. III.

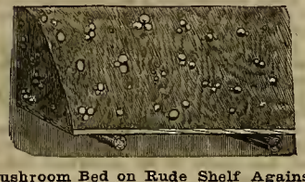


Pyramidal Mushroom Bed on Floor of Cellar.

formed in parallel lines at a distance of 20 inches one from the other.

In a market garden they may stretch over a considerable extent. Their length being determined by the wants of the grower. The beds once made of a firm, olose fitting texture, the manure soon begins to warm again, but does not become nnwholesomely hot for the spread of the spawn. When the beds have been made some days, the cultivator spawns them, having of course ascertained beforehand that the heat is genial and suitable. Generally the spawn is inserted within a few inches of the base, and at

Fig. IV.



Mushroom Bed on Rude Shelf Against Wall of Cellar.

about thirteen inches apart in the line. Some cultivators insert two lines, the second about seven inches above the first. In doing so, it would of course he well to make the holes for the spawn in an alternate manner. The spawn is inserted in flakes about the size of three fingers, and then the manure is closed in over, and pressed firmly around it. This done, the beds are covered with about six inches of clean litter. Ten or twelve days afterwards the growers visit the bede, to see if the spawn has

Fig. V.

Mushrooms Grown in Bottom of Old Cask.

taken well. When they see the white filaments spreading in the hed they know that the spawn has taken; if not, they take away the spawn they suppose to be bad and replace it with better. But, using good spawn, and being practiced hands at the work, they rarely fail in this particular; and when the spawn is seen spreading well through the bed, then, and not before, they cover the heds with freeh sweet soil to the depth of ahont an inch or so. For cover, the little pathway hetween the bede is simply loosened up, and the rich soil of the market garden applied equally, firmly, and smoothly with a ehovel. With these open-air bede they succeed in getting mushroome in winter. A covering of abundance of litter is put on immedistely after the heds are earthed, and kept there as a protection. They have not long to wsit till the beds are in full bearing, and when they are in that state it is thought better to examine snd gether from the hede every second dsy, or even every day where there are many bede. And thus they grow excellent mushrooms, snd in great quantity, all the further attention required being to renew the covering when it gets rotten, and an occasional watering in a very dry seaeon.

Beautiful Horticultural Importations.

The horticultural missionsries, who manifest their zeal in the good csuse, by entreating the heathens of Californiа to plant trees, should be informed thst tree-planting in this, as in most other parts of the United Stetes, has been almost a msnia for the last ten years. Consequently all such appeals are like sending flannel sbirts to the babies of Africa.

No stimulne is needed in this matter, and if any advice is to be offered for directing this tree-planting movement, it must come from the highest and best iuformed sonrces to be of any avail; for it is evident that a high degree of taste and practical judgment are, and have been employed in this great work.

In California, especially, the progresciveneee indicated in this directiou is remarkable. From information derived from our exchanges, and from inquiriee and facte communicated hy correspondents, we are impreesed with the conviction, that not only are treee being planted in abundance, but that there is a sufficiency of taste and judgment employed in the matter. The State University is keeping pace with the popnlsr taste in this direction, and is doing mnch to add to the wealth of California in its timber, fruit and ornamental possessions, and capitalists are manifesting a commendable interest in this subject, and are epending their money in thus improving the property owned by them; while people of more limited means are steadily improving and beautifying their poeeeesions in cities and villsges as well as in the country.

The recent importations referred to are twenty-four varieties of msple from Japan, which we had the satiefaction of examining at the establishment of R. J. Trumhull in thie city. The trees were accompanied with beautifully colored plates descriptive of the foliage of all the varieties. Theee plates were executed by the Japanese, the coloring as well as other parte being done by hand. A leaf of every one of the 24 varieties is given, its form and color heing represented in all their minutia. The varietioe of foliage dieplayed here is remarkable, many of the leaves being extremely unique in form and color.

The importation coneists of six trees of each variety; all grafts and all in excellent condition for planting. They were sent here to a gentleman who recently visited Japan, and observing these trees in full foliage there, resolved to try them in California. A large portion of them were engaged before the box was open, and on learning the names of the parties who obtained them, we were setisfied that they had fallen into good hande. The growth of this interesting family of maples will be watched with a good deal of iuterest by horticulturiets generally, ss well as by those who were fortunate enough to procure them.

CURIOUS TREES.—Just heyond the Darbonne or Calcasieu river, in the parish of Calcasieu, is a white-osk tree, abont two and a half feet in diameter. There are no branches for 25 or 30 feet up. About 12 or 15 feet up, a pine limb or top part of a pine tree, six or eight inches in diameter, and 12 or 16 feet long, runs at right angles through the center of the tree, sticking out abont the same distance on either side. It tapers a little to one end, where there are two or three knots, giving it the appearance of a tree top. The oak, where it passes through, is grown closely aronnd it. The pine is rich in turpentine and will not decay. There ie no fork or hollow in the oak; but it has the appearance as if a hole had been made and the pine stuck through, after which the osk closed on it by growth. The question is, how did the pine get through the osk, or the oak round the pine? In Mallet woode there is another white oak, of considerable size, that divides into two prongs about one a half feet from the ground, which after running up like a pair of bowlegs, about fifteen feet, unite in one round compact stem. The prongs are about one and a half feet in diameter; and where they unite above, the tree is larger than either of them, but smaller than both together. A man can walk between the two prongs, and the tree stands on a land boundary line. Forked treee are very common; but the question here is, how did the two prongs nnite so perfectly into one stem above?—*Opelousas, La., Journal.*

IN MEMORIAM.—A marble slab has been placed upon the house in which Agassiz was born, at Motier, Switzerland, with this inscription: "J. Louis Agassiz, the celebrated naturalist, was born in this house May 28, 1807."

California Not Considered.

The second annual report of the New York Produce Exchange is criticised rather sharply by the *Railroad Gazette*, on account of lack of uniformity in terms and estimatee used in constructing its tablee. The *Gazette* expresses its dissatisfaction as follows: "For instance, there are statistics of grain for different places and countries, which give quantities in one table in bushels, in others in English "quarters" (480 pounds) in others in English hundreds (112 pounds), in others still in Russian "tschetwerts" (ahout six hushels). We should doubtless have the California wbeat trade given in centals of 100 lbs., but for the astounding fact that no account whatever is given of thie traffic, though California already exports nearly as much as Russia, (to which several pages of statietics are devoted), and is very likely much of the time to export more than all the rest of the United Stetes, and is really the most formidable competitor of the country which exports through the Atlantic ports, with the single exception of Russia and is sure to remain so, as nearly its whole product must he exported for want of home market."

The fact is rather "astonishing;" and to attempt to account for it on the score of imputed jealousy would simply prove that the imputation itself was founded on jealousy. It is simply another instance of the fallihility of figures. The ordinary statistician, like a hedgehog, displays his bristling figures, evidently thinking himself invulnerable; which is really the case in too many instances; the lack of interest which characterizes a large portion of the enbjects which bring forth these bristling tables, rendering them entirely safe from critical attacks. The fact that this blunder on the part of the compilers of the report referred to is properly criticised by such authority as the *Railroad Gazette*, should thoroughly reconcile us to the seeming slight in failing to notice the wheat exports of California. We shall probably continue to grow and export wheat even though no estimate of our operation should ever he admitted within the tables of the statisticians.

Winter Irrigation and Drainage.

In our California winters we have to look two ways for danger. In some portions of the State we are fearful of too much rain. In such places let each farmer see if a portion of his land cannot be drained to advantage in winter. Cannot several landholders in a neighborhood work jointly to advantage in draiuing their lands? Is there not an opportunity to make ditches or embankments to carry the water shed around your lands? We are living in new fields here. We have not had a long line of ancestore to plan all the improvements possible on our lande, and hand them down to us carefully improved. Nature has done much for us in the lay of our lands, but cannot we often gain much by a little assistance in completing some of her simple plans?

Then in some sections we may not receive rain enough. Let us look about such lands, and see if a little labor will not enable ue to economize water streams now running to waste, by bringing their contents onto the land at a proper period during the winter or spring. Perhaps reeervoirs can he built, or a dem stretched across the lower end of your field to produce an overflow, which will secure you good crops in a dry season.

A NEW white alloy has recently been produced by M. Dalslot, which is said to be very cheap, and to possees qualities rendering it suitable to replace the various white alloys now in use. The proportions are pure red copper 80 parts, oxide of manganese, two parts, zinc, 18 parts, and phosphate of lime, one part. The copper is first melted and the manganese added little by little. When the latter is dissolved, the phosphate is similarly mingled. The scoria is removed and finally the zinc is added about ten minutes before ossting. To accelerate the fusion of the manganese, one-half part fluoride of calcinm, one-half part borax, and one part wood charcoal may be used as a flux.

IMITATION OF MARBLE THAT CAN BE POLISHED.—Corvin, of Dresden, manufactures an elegant imitation of marble for architectnral purposes, by impregnating sandstone with silicic acid and alumina. In Nanndorf, euch stones are prepared which are intensely white, transparent and capable of taking a polish. By the introduction of suitable pigments in the impregnating mass sny desired color is produced. The details of the process have not yet reached ne, but it is stated that the cost is much less than real marble, while it resists heat better.

NARROW GAUGE.—Utah has five narrow-gauge railroads, four of which are in operation, and the fifth will he onen on the first of November. Salt Lake City is now the greatest narrow-gange railroad center in the world.

NEW BRIDGE.—The new bridge across the Mokelumne river at Cherokee, about one mile from Lodi, is nearly completed.

Good Health.

Effects Of Imagination.

At a late meeting of the Paris Académie des Sciences a letter was read from M. Volpicelli, of Rome, to M. Chevreal, in which the writer related that, if a magnet were brought near a nervous patient magnetism had the effect of disturbing him in various ways, and notably in his condition of health. M. Volpicelli goes on to state that being invited to experiment on a nervous subject, at the San Spirito hospital, he practiced a little rose, and instead of taking with him a magnet provided himself with a piece of unmagnetised iron. The patient scarcely saw the piece of iron before he fell into convulsions; his imagination became so highly excited that nervous disturbances of the most extreme character supervened. M. Volpicelli then made a second experiment. A magnet was placed in the hands of another person suffering from nervous disorder, who, when a few minutes had elapsed was so extremely excited that it was necessary to take the magnet from him. M. Volpicilli, however, was convinced that the nervous disturbance was brought on by the sight of the magnet and not by magnetic action, and he was subsequently able to assure himself of the fact. The same person had to preside over a scientific meeting, and M. Volpicelli contrived to surround him with very powerful magnets, which were introduced into his chair, into the drawer of the table before him, and even under his feet, without his having the slightest suspicion of the trap laid for him. During the meeting, which lasted more that two hours, his nerves were not in the least affected; and when the meeting was over he declared, in answer to a question put to him by M. Volpicelli, that he was perfectly well; but when it came to his knowledge that he had been surrounded by powerful magnets he was extremely surprised and alarmed, and began to have the idea that he could not have been so well as he thought.

Let Blisters Alone.

One of the most generally diffused erroneous notions is that it is good and beneficial to break a blister, whether it is caused by a burn or the heating of a part of the body by continued friction under pressure, to which the feet especially are exposed after long walks in ill fitting shoes or boots. Such blisters are always found filled with a clear liquid, which must be retained and not drawn off by lancing them; and also those blisters often caused by a part of the skin being forcibly pinched and squeezed, and which contains blood, must be left alone. This water or blood in blisters is a healing substance, of a kind most appropriate for the parts where the skin is destroyed, and if the blister is allowed to dry out by itself, the new skin forms much more rapidly under it, and much pain is avoided. If the blister contains blood, it must be treated in the same way, as blood is the best healing salve. And, by the way, while using the word "healing salve," it may be well to state that there are no healing salves or healing plasters. All salves and plasters retard healing, and many wounds which heal notwithstanding the salves and plasters applied, would heal in half the time if left alone.

It is only in exceptional cases that a blister may be punctured, namely, when very full of fluid so as to cause much pain by its tension, a prick of a fine needle may be given so as to allow the excess of fluid a chance of escape. Instead of breaking a blister and destroying the loose skin over it, it should be protected so as to guard against any such destruction by accident.

BURNING AT A WHITE HEAT PAINLESS.—Dr. J. S. Camden publishes in the *Medical Times and Gazette* information very important to surgeons who are not cognizant of the fact, that the application of a white-hot iron to the body is absolutely painless, while when only red-hot it is an extremely painful operation. When operating with a red-hot iron on men the screeching was fearful, while when the iron was white-hot not a murmur was heard; and when he operated so on a horse the animal appeared to be scarcely aware of what was being done. He proposes to use for actual cautery a large spirit blow-pipe, but we can hardly think that this would do, as only in the center of the flame great heat is generated, while all around lesser degrees prevail, which would certainly be painful. We would recommend the more extensive use of the platinum wire, kept white-hot by the current of an electric battery; this has thus far been less used than it deserves. It may be too troublesome for private practice, but should be resorted to in all public medical institutions.

LIME VAPOR IN MEMBRANOUS CROUP.—Dr. John Bartlett, in the Chicago *Medical Examiner*, recommends the following method of using lime vapor: The patient is placed in a tent extemporized with bedclothes and clotheshorse. In this is placed a tub and in the tub a bucket filled with hot water. Patient being seated in the tent with nurse, unslacked lime is dropped into the water. From time to time the physician estimates the state of the vapor, increasing the steam and lime by dropping into the water pieces of lime. The quantity of lime required is large. The doctor's experience in the use of this bath has been a happy one. The onward march of the disease seemed checked at once and a real improvement to take place.

Treatment of Felons.

We recently gave the following item under this head from the London *Lancet*: "As soon as the disease is felt, put directly over the spot a fly blister, about the size of your thumb nail and let it remain for six hours, at the expiration of which time, directly under the surface of the blister, may be seen the felon, which can instantly be taken out with the point of a needle or a lancet."

We now reproduce it in order to give the following remarks upon this item by a medical correspondent in Vineland, N. J.:

"I have noticed the *Lancet's* cure for bone felon several times in the current medical journals during the past three years, and I think the notice too brief to be understood.

"I have employed this treatment for the past seven years and with results that lead me to adopt it altogether. A piece of adhesive plaster, an inch or more in width, and long enough to go once and a half around the finger, should have spread upon it a surface of cantharidal plaster, the size of a three cent piece.

"This surface should be applied to the tender part and the adhesive plaster carried around the finger and lapped.

"It should remain for twenty-four hours at least, and then if vesication has occurred, the cuticle may be raised and beneath it will be found a small opening not exceeding a line in diameter, which penetrates the deep tissue and discharges pus. If the blister is applied during the first three days this is all sufficient for a cure; and if the disease has run longer than this, its coarse is shortened and the cure remarkably quick.

"The plaster should remain 48 hours when applied to the palm of laboring men, a fresh one being furnished at the end of 24 hours in these cases the opening may be enlarged as the quantity of pus is greater. The pain is greatly diminished during the action of the blister.

"Those who have experienced disappointment at finding no matter after laying a delicate finger open to the bone, and who have seen patients resort to all sorts of means to avoid the inevitable knife, will be most pleasantly surprised at the efficacy of the blister."

Useful Information.

A Very Useful Table.

The following table, computed from actual experience, will be found very useful in calculating the weight of loads, etc.—or the weight of any of the articles mentioned, in bulk. It shows the weight per cubic foot. All that is necessary, therefore, is to measure the bulk; ascertain the number of cubic feet in it; multiply this by the weight per foot, and divide by 2,000, when you have the weight per ton:

SUBSTANCE.	WEIGHT PER CUBIC FOOT.
Cast Iron	450 lbs.
Water	62½ "
White pine, seasoned, about	30 "
White Oak, " "	52 "
Loose earth	95 "
Common soil, compact	124 "
Clay, about	135 "
Clay, with stones	160 "
Brick	125 "

The following shows the bulk of a ton of different substances:

	CUBIC FEET.
Sand	28
Earth, compact	18
" loose	32
Clay	17
Half rotted manure, solid	36
" " " " if coarse, about	50
Timothy hay, moderately pressed	500
Clover, about	750

All that is necessary, therefore, in order to ascertain the quantity you have on hand in tons is to take the measurements as above, and if hay, divide by 500 or 750, as the case may be; if manure, by 36, etc.

THE POTTERY TREE.—Among the many vegetable products of Brazil the pottery tree of Para is not the least worthy of note. This tree, the *Moquilea utilis* of botanists, attains a hight of 100 feet up to the lowest branches. The stem is very slender, seldom much exceeding one foot in diameter at the base. The wood is very hard and contains a very large amount of silica—not so much, however, as the bark, which is largely employed as a source of silica in the manufacture of pottery. In preparing the bark for the potter's use it is first burned, and the residue is then pulverized and mixed with clay in varying proportions. With an equal quantity of the two ingredients a superior quality of ware is produced. It is very durable, and will bear almost any amount of heat. The natives employ it for all manner of culinary purposes. When fresh the bark cuts like soft sandstone, and the presence of the silex may be readily ascertained by grinding a piece of the bark between the teeth. When dry it is generally brittle, though sometimes hard to break. After being burned, if of good quality, it cannot be broken up between the fingers, a pestle and mortar being required to crush it.

A TALL CHIMNEY.—A furnace stack or chimney has just been built at the Meier furnaces-St. Louis, which is 203 feet high, 25 feet square at the base and 10 and a half feet at the top. The inside of the stack for the first 75 feet is lined with fire brick.

THE CAUSE OF CHANGE OF COLOR IN THE CHAMELEON.—The London *Medical Record* gives some interesting facts relative to the cause of change of color in the chameleon, which have been gathered from remarks made on this subject by M. Paul Bert, at a late meeting of the Société de Biologie of Paris. This animal, whose natural color is dark green, has the power of changing to pale green, and very pale yellow, this change of color being entirely due to the nervous system. The explanation of this phenomenon is thus given: "Under the skin, and communicating with it, are vessels filled with pigment, coursing through little canals which intersect, cross, and interlace each other in all directions at the back of the epidermis itself. This pigment is afterwards drawn back into the vesicles by the volition of the animal, and the chameleon then takes on a pale tint produced by a pale-yellow tissue, visible by its transparency." It has been discovered that the color of the animal is affected by light, and that if disturbed at night the side on which a light is thrown becomes pale, the other side remaining unchanged. So far no explanation of this curious fact has been suggested, and it offers a field for research and observation which may lead to very important results.

SOLDERING.—Every housekeeper may not know of what they are capable in the line of keeping their tinware in order. For the benefit of such, I will say that it is easier to solder such things than to pay a traveling tinker two prices for mending them. Take a sharp knife and scrape the tin around the leak until it is bright, so that the solder will stick. Then sprinkle on a little powdered resin; (they have liquid solder to sell, but resin will do as well;) lay your solder on the hole and with your soldering iron melt it on. Do not have the iron too hot or the solder will adhere to that. After two or three trials you can do a job that you will be proud of. If you do not own a soldering iron, procure one by all means; but when hard pressed, I have used the knob on the end of the fire shovel or a smoothe piece of iron, or hold a candle under the spot to be mended. Anything is better than stopping leaking pans with beeswax or rags. Try it, young housekeepers, and see how independent you will feel. Your pans should be dry when you take them in hand.

FRESCO PAINTING.—Fresco painting is so called because executed with water colors upon fresh plaster. This plaster is made of slacked lime and fine sand, and is applied upon a coating rough enough to make it adhere to it. The fresco needs a wall from materials tinctured with saltpetre, and the colors must be such as the lime does not change. When the artist has polished and made very smooth the surface to be painted, he traces upon it the previously prepared composition. The designs, of the size of the picture, are called cartoons, because prepared upon large sheets of paper glued together. Upon the wall the drawing is traced with a point of ivory or wood, or the contour of the drawing is pricked with a pin and a tampon dipped in charcoal passed along the lines of the holes, which fixes the design on the plaster. Afterward the artist follows the tracing with a sharp pointed pencil or stylus, and this indelible contour is called the nail of the fresco.

GAS-METRES.—A common belief. If there is one thing more than another in which we have little or no faith at all, it is as to the correctness of gas-meters. Their principle may be a good one, (good for the gas companies,) but, like "white men" that are "very uncertain." A journal open before us, the *American Manufacturer*, published at Pittsburg, Pa., has some rather startling exposures relative to the humbug played upon the consumers, not unfrequently, by these little machines. It is bad enough to pay exorbitant prices for illuminating gas, and to be supplied with a very poor article, but to be cheated in the measurement, and to be overcharged for the miserable stuff as to the quality supplied, is aggravating to the last degree.—*Boston Globe.*

SIZE OF BARRELS.—A president of an agricultural society calls attention to the fact that there are, in a standard legal barrel, only one hundred quarts, while the ordinary flour barrel most in use among farmers in the sale of potatoes and apples, contains nearly one-eighth more. Farmers sell their produce in flour barrels, and merchants transfer the same to standard barrels, making a profit on quantity as well as on the price. In the sales of eight hundred barrels of potatoes from a farm, the proprietor loses one hundred barrels, worth $250, for which he might as well be paid. The middleman, not the consumer, profits by this. Farmers, see to it that you employ the one hundred-quart barrels hereafter.

POLISHING BRASS.—Young engineers will find the following recipe a good one for polishing the brass work of their engines. Rub the surface of the metal with rottenstone and sweet oil, then rub off with a piece of cotton flannel and polish with soft leather. A solution of oxalic acid rubbed over tarnished brass soon removes the tarnish, rendering the metal bright. The acid must be washed off with water, and the brass rubbed with whiting and soft leather. A mixture of muriatic acid and alum dissolved in water imparts a golden color to brass articles that are steeped in it for a few seconds.

Domestic Economy.

ROAST TURKEY.—Rinse the turkey out with several waters and in the next to the last mix a teaspoonful of soda. Fill the body with this water, shake well, empty out, and rinse with clean water, singe off the hairs, and prepare a dressing of bread crumbs, add a small piece of butter, pepper and salt, and add thyme and marjoram, or sage if preferred. Wet it with hot water or milk. The liver, heart, etc. should be boiled and chopped fine and mixed with the dressing. The water in which they were boiled should be put in the dripping pan with which to baste the turkey. Dredge it with flour and salt before roasting, and baste often. With a brisk fire and young turkey allow ten minutes to a pound for roasting. Tie a string tightly about the neck when the craw is filled, and sew the body with strong thread. Remove this when the fowl is dished, When the turkey is lifted from the pan add a spoonful of flour wet with cold water to prevent its lumping. Boil up once and pour into the gravy boat. 'Hearth and Home' says "In carving a turkey, cut off the wing nearest you first, then the leg and second joint; then slice the breast until a rounded ivory shaped piece appears; insert the knife between that and the bone, and separate them; then turn over the bird a little, and just below the breast you will find the 'oyster', which you separate as you did the inner breast. Proceed the same way with the other side. The fork need not be removed during the whole process.' A sharp knife is indispensable. The platter should be drawn near enough to the carver for him to reach each part of the bird with perfect ease.

RABBIT CUTLETS.—Prepare the rabbits as you would for a stew; cut the different limbs into the size of cutlets—such as the shoulders cut in half, also the legs, with the ends of the bones chopped off, and pieces of the back, even to the half of the head. Have ready some bread-crumbs and the yelk of an egg beat up. Drop each outlet into the egg and then cover with bread-crumbs, as for veal cutlets. Fry them a nice brown and when you dish them pour round them some rich brown gravy, which may be flavored with tomato sauce if approved, and put round them rolls of fried bacon.

COOKING OATMEAL.—W. says: One reason why oatmeal is not more generally used as food is that, in the way in which it is usually cooked it requires constant stirring, which takes a good deal of time and attention. If, after the porridge is mixed, that is, as soon as the oatmeal is stirred into the boiling water, the cover is put on and the tin saucepan containing it placed in another pot of boiling water on the stove, and the water let boil, good oatmeal porridge will be made, without the least danger of its being scorched.

CANNED GRAPE PUDDING.—Pick and wash good sweet grapes--say Concord—and put in alternate layers with one-fourth the quantity of picked and washed rice, and sugar enough to sweeten. Fill up with water, and cook in hot water one hour after it begins to boil. Can as usual for fruit, and serve cold when wanted, either with or without a sauce of sweetened cream. This pudding is not likely to keep more than two or three months, owing to the liability of the grapes to deposit tartaric acid.

HAIR DRESSING.—A nice dressing for the hair is said, by a correspondent of the *Christian Monitor*, to be cold tea. She uses it twice a day, and insures a fine growth of beautiful, luxuriant and healthy hair, with less trouble, no danger of injury to scalp or hair, no expense, and in less time, than any, or all, of the quack mixtures, which are so loudly and persistently recommended.

SOAP AND SILVER.—Never put a particle of soap about your silver if you would have it retain its original luster. When it wants polishing, take a piece of soft leather and whiting and rub hard. The proprietor of one of the oldest silver establishments in the city of Philadelphia says that "housekeepers ruin their silver by washing it in soap suds, as it makes it look like pewter."

TO CLARIFY DRIPPING.—Put the dripping into a basin; pour over it boiling water, in which a teaspoonful of salt has been dissolved and keep stirring the whole to wash away the impurities. Let it stand to cool, when the water and dirty sediment will settle at the bottom. Repeat the operation twice with fresh water. When cold remove the dripping from the water and melt into jars.

ICING THAT WILL NOT BREAK.—Take one pound of pulverized white sugar, the whites of 3 eggs beaten until you can turn the dish upside down; one teaspoonful of flour or cornstarch added to it; flavor with lemon; flour the top of the cake as soon as taken from the oven; put on the icing with a large bladed steel knife dipped in warm water and then smooth the icing with it.

SHEEP'S TONGUE IN SAVORY JELLY.—Skin the tongues, lard them and cook them until they are quite tender, in good veal broth or any white stock. Take out the tongues, boil down the liquor to a stiff, clear jelly and pour enough of it over them to cover them. To be eaten cold.

SQUASH PIE.—Three cups of milk, two cup, of squash, one cup of sugar, two crackers, rolled two eggs, lemon to taste. This makes two pies.

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Close of the Volume and Year.

Here we are, dear reader, at the end of another volume and at the close of another year. While we put old 1874 on its back, and look forward to the bright new face of the incoming year, let us rejoice that it has been so well with us for the twelve months past. We have been spared the ills of war, of famine, of pestilence, and of everything whatever in the way of a national calamity. As a community, even old "hard times" has kept aloof from our shores. Our mountains have yielded an unusual amount of their precious treasure, and have brought us, as a Christmas present, a bonanza of bewildering wealth—whose value no one can determine. Our plains and valleys have teemed with such an abundance, that the fleets of the world are burdened to move it away. For all of these things let us be thankful.

We trust that our intercourse with our subscribers has been both pleasant and profitable—to us it certainly has been pleasant, if not profitable. As we take up the work of the coming year we shall aim to do so with renewed energy and zeal. We are not in the habit of making promises; we prefer rather to point to what we have done as an earnest of the future. The publishers of this paper have been for some fifteen years engaged in industrial journalism in California, and they take an honest pride in the success with which their efforts have thus far been crowned. All we promise is that our aim in the future shall be to continue the same steady and sure progress that has characterized the past. With many thanks to all who are with us as readers or helpers, we close the twenty-ninth volume of the MINING AND SCIENTIFIC PRESS.

Work on Mining Claims.

After all the warnings given by the newspapers of the coast, the miners who now allow their claims to be forfeited for non-compliance with the laws of the United States, deserve to lose them. The term "claim," as understood by the land office, is held to mean that portion of the vein or lode and adjoining surface to which the claimant has the right of possession in virtue of a compliance with the laws of the United States, and the local customs or rules of miners, not in conflict therewith. In order that those who have not a copy of the mining law of May 10th, 1872, may understand it in detail we quote below the 5th section of the act, which refers to the general expenditures required:

SECTION 5. That the miners of each mining district may make rules and regulations, not in conflict with the United States, or with the laws of the State or Territory in which the district is situated, governing the location, manner of recording, amount of work necessary to hold possession of a mining claim, subject to the following requirements: The location must be distinctly marked on the ground so that its boundaries can be readily traced. All records of mining claims hereafter made shall contain the name or names of the locators, the date of the location, and such a description of the claim or claims located by reference to some natural object or permanent monument, as will identify the claim. On each claim located after the passage of this Act, and until a patent shall have been issued therefor not less than $100 worth of labor shall be performed, or improvements made during each year. On all claims located prior to the passage of this act, $10 worth of labor shall be performed or improvements made each year for each 100 feet in length along the vein, until a patent shall have been issued therefor; but where such claims are held in common, such expenditure may be made upon any one claim; and upon a failure to comply with these conditions, the claim or mine upon which such failure occurred shall be opened to relocation in the same manner as if no location of the same had ever been made: *Provided*, that the original locators, their heirs, assigns, or legal representatives, have not resumed work upon the claim after such failure and before such location. Upon the failure of any one of several co-workers to contribute his proportion of the expenditures required by this Act, the co-owners who have performed the labor or made the improvements may, at the expiration of the year, give such delinquent co-worker personal notice in writing, or notice by publication in the newspaper published nearest the claim, for at least once a week for ninety days, and if, at the expiration of ninety days after such notice in writing or by publication, such delinquent should fail or refuse to contribute his proportion to comply with this Act, his interest in the claim shall become the property of his co-owners, who have made the required expenditures.

The time for the first annual expenditure was extended to January 1, 1875. It may be well to state that the Commissioner has decided that the construction placed upon the section is that all claims located *after* May 10, 1872, not less than $100 shall be expended in labor or improvements during each year, and that the year shall commence from the *date of the location of the claim*. This may not be generally known, but was decided September 14, 1872.

Of course when a mine is patented no further annual expenditures are required either by Congress or local laws, as local laws must conform to the general law. It must be understood, however, that application for a patent is not equivalent to a patent in this connection, and the work must be done even if the patent proceedings are pending.

It may be stated here also that many miners who are not just ready to do all the works, will rely on the strict reading of the law as above given in section 5 of the Act. It says, "*Provided*, that the original locators, their heirs, or legal representatives have not *resumed* work upon the claim after such failure and before such location." This does not say the work must all be done exactly at that time, but simply that it shall be *resumed*. Accordingly quite a number of people who propose patenting their ground, intend only to be on the ground on the 1st of January, do one day's work and quit, relying on the law to bear them out. Providing they do the work within the year or patent their claims they think they will be all right. The best way, however, is to do the work and be done with it. Some remarks in this connection with relation to tunnels will be found in another column.

THE South Yuba Canal company is now running through its ditches to the different mining companies in the eastern portion of the county of Nevada 120,900,000 gallons of water daily.

A GRAVEYARD has already been started at Panamint. The first occupant is Cal. Mowry, late of Pioche. Andy Laswell did the shooting. He too was a graduate of Pioche.

IT is stated that all the Pacific coast Senators and Representatives will work together for the abolition of the duty on quicksilver.

Improvement in Astronomical Clocks.

The mechanism of the astronomical clock, which has greatly contributed to the accuracy as well of astronomical observations, as of the determinations of longitudes, has been carried to a degree of wonderfully delicate perfection. Its correction for varying temperatures has been so complete and its rate so uniform, that the astronomer has hitherto thought best to let it run without disturbing it by attempting to adjust the length of the pendulum, even if it was uniformly gaining or losing on the time it was desired to keep. Yet the very great inconvenience to the practical astronomer in the observations, of having his clock show a different face time from that given by the ephermis, and the still greater reluctance to stopping his clock when once set going has awakened the ingenuities of astronomers and mechanics to devise a means of lengthening or shortening the pendulum without disturbing its vibration.

Success had only half crowned their efforts. By fixing a small funnel on the face of the pendulum, and dropping small shot into it, they succeeded well in shifting the center of gravity up towards the point of suspension, thus shortening the pendulum without disturbing its vibrations. But when they attempted to lengthen the pendulum, by extracting shot from the funnel, without disturbing its vibrations, they were baffled in their efforts. To drop the shot into the funnel was easy enough, but to get them out was the difficulty. With a pair of ordinary tweezers and various other mechanical devices, they attempted to lift the shot out, but these all disturbed the vibrations of the pendulum, and were hence inadequate.

Mr. T. J. Lowry, of the United States Coast Survey, has hit upon a simple device for the solution of the problem of lengthening the pendulum of an astronomical clock without stopping or disturbing its vibrations. At the last meeting of the California Academy of Sciences, he read a short note on the subject, and after explaining the matter as above, said that on seeing the difficulty, it had occurred to him that if, instead of using the small lead shot, we used small iron shot, we could pick them up with a magnet; in fact they will pick themselves up and jump to the magnet if it be held in close proximity to them. Of course the magnet should be of small diameter and not very powerful, so as to avoid picking all the shot out at once, or essentially disturbing the vibration of the pendulum by its attraction. Thus we see gravity aids us in shortening the vibrating pendulum, and magnetism assists us in lengthening it. This, Mr. Lowry believes, will be found a solution of this problem as effectual as it is simple.

Australasian Intercolonial Exhibition.

The intercolonial exhibition of the Australian Agricultural Society will be held in Sydney next year, opening on the 9th of April. Mr. Wm. Westgarth, Commissioner from Australia, has recently come to this city in order to procure samples of California products and manufactures, machinery, agricultural implements, etc. Mr. Westgarth has brought with him letters to many of our prominent merchants, and has already accomplished considerable. The schedule of exhibits embrace both agricultural and non-agricultural exhibits, including the fine arts, apparatus and application of the liberal arts; in fact, all the products and industries of the colonies. A section has been set aside in the exhibition for the articles from California, and it behooves our manufacturers and artisans to better themselves and get up a creditable display. Viewed simply as a matter of business alone, it would be of benefit for us to send a large exhibit, as the communication between the two countries is likely to be much more intimate in the future than in the past. It is Mr. Westgarth's intention to establish, after the conclusion of the exhibition, an agency in Sydney for the exclusive sale of California products; and in view of the regular steamship communication now established between the two countries, the enterprise promises to be thoroughly successful. Communications for Mr. Westgarth should be addressed care of J. C. Merrill & Co., or to him at 619 Pine street, and he will gladly make arrangements with those who may choose to become exhibitors.

He will give his personal attention to the display and will take charge of shipments from here. He leaves from here on the steamer which starts about the 30th of January, and goods which are to be sent should be ready to go with him.

COPPER.—Jas. Lewis & Sons, Liverpool, in their report on ores and metals for Dec., report a further advance of £5 per ton in the value of Chili bar copper during the month of November, which was chiefly ascribed to the notable diminution in the stocks of Chili produce in Liverpool and Swansea, of Australian in London, and of Chili in Havre. Latest quotations were: Bars, £87 10s. to £88 for good ordinary; £88 10s. to £89 for picked, and £90 for special brands. Ore, 17-6 to 17-9 per unit. The stocks of west coast produce were estimated on the first of December at 10,510 tons fine, against 12,350 tons on the 1st of November.

Holiday Greetings.

The date of our paper, December 26, places us "one day after the fair," in wishing the friends and patrons of the PRESS a merry Christmas; but it does not deprive us of the satisfaction of offering our friendly, hearty, holiday greetings. And though our date is a day after Christmas, the PRESS was printed, and our greetings put in type in ample time for us to send the wish for a merry Christmas in its appropriate time; for, as in connection with Thanksgiving day, we managed to "steal a march" on time sufficient to enable all hands to keep the holiday. We shall do the same with the PRESS of New Year's week; and will take this occasion to bespeak for all a happy New Year. The idea that the presence of winter clothed in a massive blanket of snow, his venerable beard adorned with icicles, in order to make these wintry holidays duly appreciated, is a mere fancy. They are really creations of the heart, and not mere ordinations of religious or political bodies, or matters of social custom. People seem resolved to be merrier on the first of these and happier on the latter, than on other days of the year; and we all know that the extra amount of happiness thus secured is not purchased with the good wishes that are expended in our behalf, but arises from that condition of our hearts which in all sincerity wishes good to others. It is a mighty achievment for human nature to attain this position, even once or twice a year. It is good evidence of the nature of the soil of the social heart; and although it would be unreasonable for us to expect to have it keep up to this standard, it will be well for us to look to it that it does not fall below it. We therefore contribute our mite in this holy service by sending a hearty holiday greeting to all our friends.

Agriculture in the State University.

The Regents of the State University have received a letter from Professor Hilgard by which it appears that he may be expected to begin his work as Professor and his residence at Berkeley, early in the next college term, which begins January 13th.

The Regents have also received a letter from Professor Bessie of the Agricultural College of Iowa, accepting an invitation to deliver some lectures before the students in agriculture. He will give several short courses on the relation of the sciences to agriculture, on the improvement of varieties, and a third on the practice of agriculture. These lectures will commence at the beginning of the next term, January 13th.

The work of the nursery and propagating house has been carried forward with great vigor during the last few months. Many thousands of plants have been started and as the wet season advances will be transferred to their appropriate places. The beginning of an orchard, a nursery, an arboretum, and a botanic garden has thus been secured. We are also informed that certain agricultural experiments, in addition to these in horticulture and arboriculture, are also to be instituted—so far as the very limited means at command will permit.

THE FANDANGO MINE.—The "Fandango" is the name of a quicksilver mine lying next on the east to the Rattlesnake mine, in Sonoma county. They have a tunnel in on the claim over 100 feet long. The "ledge matter" is about 28 feet wide, and assays all the way from one to five per cent. The mine has been lately examined by an expert, who thinks that with more work upon it, the necessary furnace, etc., it will be a good paying property. Four men are now at work on the mine, and ten more will shortly be added. A tunnel is to be commenced when this force is put on, which will tap the deposit 200 feet from the surface. A furnace is to be erected at the mine shortly.

MINING SUIT.—In the Circuit Court for the District of Columbia, on the 19th inst., a bill was filed in behalf of Allen Schenck, of Boston, and Norris W. Mundy, of Chicago, for an injunction against Joseph Walker, and others, to perpetually restrain them from making use of the Highland Chief silver mine, in Salt Lake district, Utah. Complainants allege that the defendants illegally took possession of this lode in July, 1872, and have since been holding possession. Damages of the complainants are to the amount of $500,000, for which they claim compensation.

THE daily yield of ore from the principal Comstock mines during the past week has been as follows: Crown Point, 500 tons; Belcher, 450 tons; Consolidated Virginia, 300 tons; Ophir, 245 tons; Dayton, 65 tons; Sierra Nevada, 60 tons.

THE Southern Pacific railroad is making rapid progress toward Tehachepi pass, on its way to Los Angeles. The grading is finished to a distance of 14 miles east from Bakersfield, and the iron laid for seven miles.

THE Butte *Record* is informed that the iron for the first 25 miles of the road from Benicia to Vacaville, on the Red Bluff and Benicia narrow-gauge, is now on the way to this State.

Hydraulic Mining in California.

No. 5.

The Opening of Hydraulic Mines.

The great gravel deposits fit for hydraulic mining rest in channels or basins of unknown depths, and it is evident that, unless the depth of the channel can be ascertained beforehand, certain risks have to be taken in boring the tunnels, indispensable for almost all hydraulic operations. In the principal hydraulic mines in the State early operations were commenced from the easiest point of access, without much regard to the lasting sufficiency of the "open cut" or tunnel. The natural consequence was that only a small portion of the mine could be worked by existing facilities; the grade had to be cut down from time to time, and in most cases the constant improvements absorbed or exceeded the whole production of the mine.

The expenditures for opening a hydraulic mine, furnishing it with sluice-boxes, under-currents, etc., besides the introduction of water, generally amount to many thousands, perhaps hundreds of thousands of dollars, and only a large area of hydraulic mining ground will warrant such an outlay. There should, therefore, be a reasonable proportion between the estimated outlay for improvements and the mining ground at command. Much can be done by the consolidation of different interests. A plat of hydraulic mining ground, representing from eighty to two hundred acres, constitutes a security for any capital which can legitimately be employed in its improvement.

Location of Tunnel.

This should be low enough to work the whole body of mining ground. If the depth of the channel can be ascertained by shaft or incline it will be the best policy to do so; if, however, too many difficulties, such as quicksand, or too great a depth of ground, interfere, it will be better to choose at once the lowest point attainable for a tunnel, always, however, with due regard to sufficient fall from the mouth of the tunnel for a long line of sluice boxes, with under-currents, dumps, etc.

In choosing this starting point for a tunnel, not only the probable depth of the channel must be taken into account, but also the fact that the necessary grade of the tunnel, say from 3½ to 4 feet per hundred, will reduce its depth, for each additional thousand feet, 35 to 40 feet. Hence, if the extent of the claim to be worked is considerable, say 2,000 feet on the channel and 4,000 feet across it, and the tunnel, as is generally the case, runs across the channel, it will be necessary to have the tunnel in the middle of the channel, at least 40 feet lower than the bed-rock, or bottom. This is illustrated by the subjoined diagrams.

It will be seen that the dotted line toward *D E*, on the left side, is still somewhat in the bed-rock. This is desirable, not only for the lateral extension of the mine, but also for the reason that sluice boxes, at a reasonable depth in the bed-rock, always facilitate the work in a hydraulic mine, offering chances for grades in all directions to wash the gravel, etc.

Size of Tunnel.

This must depend to some extent upon the required work, the quantities of water at command, and the length of the season annually during which the water lasts. Tunnels 5 feet wide and 6 feet high were considered in former years sufficiently large for any purpose, but since hydraulic mining has been conducted on a much larger scale the size of tunnels, in hight and width, has increased accordingly. They are now generally constructed 7 feet wide, and 8 feet high for single runs of flumes or sluice boxes, and in those mines where there is a sufficient quantity of water for eight or nine months in the year, and where the remaining three or four months can be used for a thorough cleaning up, repairing, etc.

A tunnel of such a size, with a 6-foot flume and 4-foot grade per hundred, would admit the use of 2,000 or 2,500 inches of water; the size of tunnel may be reduced if the supply of water is much less, other conditions being the same. For mines which possess a lasting supply, say 2,500 to 3,000 inches the whole year round, a much larger size would be desirable, admitting a double run of sluice boxes, and thus an uninterrupted washing.

In former years, the idea of running a tunnel 12 feet wide and 9 feet high might have deterred the boldest; but at the present day, when the diamond drill has come into use, such undertakings can be prosecuted with a comparatively small additional expenditure and no loss in time. It has been found that it takes almost as much time to remove the fragments of stone excavated by the diamond drill as for drilling and blasting; and in consequence, the diamond drill is only employed for half the time in tunnels of limited size. But where, after the blasts are exploded, the drilling machine can be adjusted again, without interfering with the car by which the fragments of rock are removed, a tunnel of double width can be run in the same time.

Grade of the Tunnel.

This depends partly on the quantity of grade to spare. Where there is plenty of fall, a liberal grade, say 6 inches per 12 feet, or about 4 feet per hundred, ought to be given.

More grade in large flumes becomes dangerous for the pavement of the flume; a 6-inch grade will not only carry off any desirable quantity of gravel, etc., but materially assist by the very rapid motion produced, in the breaking up of the gravel and liberation of gold. Where the fall is more limited the grade may be reduced to 5 inches in 12 feet, or 3½ feet per hundred. Whenever less grade has to be applied, difficulties in the removal of the "pulp," and particularly of larger stones, will arise, and many hands will have to be employed to push the material along.

Line of Tunnel.

This should be perfectly straight wherever practicable, in order to facilitate not only the general flow, but also the measurement and calculation of all those points, the correct location of which is necessary. Underground measurements of curves are for the simple miner extremely difficult; the magnet loses its reliability, being disturbed by the iron in the bed-rocks, and generally a "tapping in the dark" ensues. Due attention to the straight line in the tunnel will avoid all these difficulties, and insure, besides, the shortest distance.

General Considerations.

It is not advisable to open a hydraulic mine too close to the rim-rock. As already remarked great bodies of quicksand lie close to the rim-rock; moreover, the occurrence of pipe clay, and perhaps the want of rich "pay gravel," may combine to render the work tedious, unprofitable, and discouraging; and, finally, the mining ground brought under control will be comparatively insignificant.

In the diagram given the tunnel *A B* ought to have been prolonged at least to the point *D* before being connected with the gravel deposit. The chimney *B C* admits only the working of the deposits lying between *C* and *E*, which, for the reasons stated, is of but little value. It will be acknowledged by most of the managers of hydraulic mines, that generally either too little importance has been attached to the point where the mine was opened for work, or that an undue outside pressure and a cry for dividends have forced the adoption of half measures against the soundest argument, and that labor and time have been wasted in many instances by the inordinate desire of saving both.

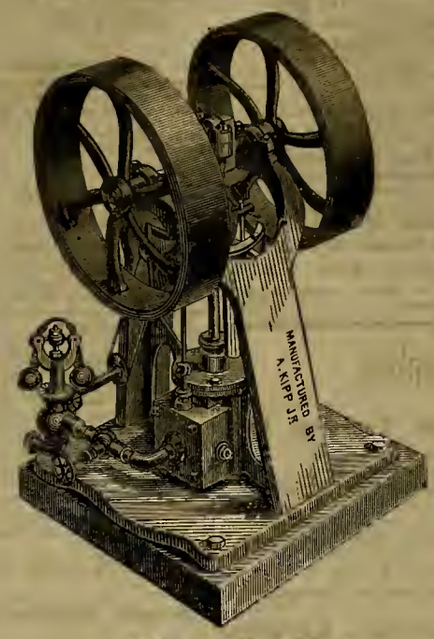
—*Condensed from an article by Charles Waldeyer, in the last Annual Report of the U. S. Commissioner of Mining Statistics.

The developments at the lower levels of the Justice mine indicate the presence of one of the regular ore chimneys of the old Comstock, and the powerful new hoisting works which will be completed in two or three weeks are expected to do great things in the way of rich ore extraction.

Kipp's Upright Engine.

The accompanying illustration represents Kipp's upright engine, one of which, of small size, was exhibited at the late Mechanics' Institute Fair and also the State Fair, where it ran a large Sinther pump. Both engine and pump were exhibited by J. M. Keeler & Co., of 306 California street. The engine was awarded a diploma at the State Fair. Certain important advantages are claimed by the manufacturers over other upright engines. The style of frame is both symmetrical and strong, and its lines and proportions bring the whole into a compact form so that it occupies much less space than is usually the case.

The cylinder, steam chest and piston guides are cast solid in the frame, giving a mutual support and making it impossible for it to vary from its original exactness in working. Again, the piston guides and steam cylinders are bored or turned out at the same time, and, of course in the same line, so it is difficult for the engine to get "out of true" in working. The engine has the latest improved slide valves, which are easily adjusted. The shaft and piston rods are of steel. The bearings are of the most approved kind, and all the adjustable parts exhibit good workmanship, the engine running almost noiselessly.



KIPP'S UPRIGHT ENGINE.

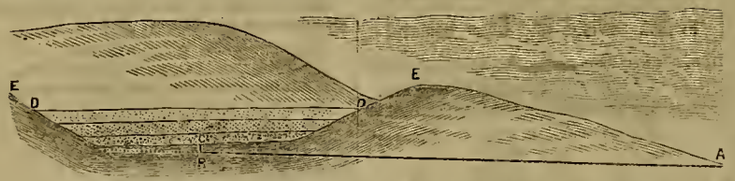


Fig. 1. A B, tunnel to middle of channel; B C, distance (43 feet) from tunnel to bottom of channel; D D, extent of workable gravel; E E, the two shores of the channel.

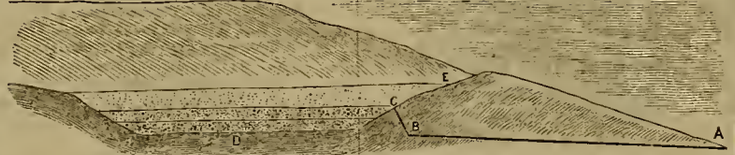


Fig. 2. A B, tunnel; B C, chimney; D, bed-rock.

The governor is simple, effective and ingeniously connected, and, on the whole, it is claimed that for workmanship, compactness, durability, and ease in handling, the engine has no equal in the market. Messrs. Cubery & Co., 414 Market street, are running power presses with one of these engines, where it may be examined by those interested and inquiries made as to cost of fuel as compared with other engines. The price asked for it gives it a fair advantage in the market.

Recent advices from Julian district, San Diego county, report that the Chariot mill, which had been stopped for a few days, owing to an accident, is now running again. The Whitney ten stamp mill is now in complete order, and will start up on Kentuck rock next Monday. After next Monday there will be thirty stamps running day and night in Banner district.

A thousand shares of the Abbott quicksilver mine, Colusa county, were sold last week for $20,000, and a fourth interest in the Turner mine for $10,000,

Tunnels for Developing Lodes.

A dispatch dated Washington, Dec. 17 says: "The House bill reported without amendment from the Senate Mining Committee to-day, provides that money expended in running tunnels for developing lodes shall be considered as expended on the lodes, whether located before or after May 10, 1872, and work shall not be required on the surface to hold lodes, as provided by the mining law of that date."

This bill is the one introduced last session which "went over" when Congress adjourned in June. It is an amendment to the Act of May 10, 1872, and reads as follows:

"Be it enacted, etc., that the 5th section of said Act be, and the same is hereby amended so that where a person or company shall run a tunnel for the purpose of developing a lode or lodes, owned by said person or company, the money so expended in said tunnel shall be taken and considered as expended on said lode or lodes, whether located prior to or since the passage of such Act; and such person or company shall not be required to perform work on the surface of said lode or lodes, in order to hold the same as required by said Act."

Willis Drummond, Commissioner of the Land office, in August, 1872, decided that the expenditure in running a mining tunnel, before a lode was struck thereon, was not tantamount to expenditures on the claim. This construction of the law was approved by the Secretary of the Interior. However, in May 1874, W. W. Curtis, Acting Commissioner, wrote to Senator Sargent in answer to an inquiry, and said:

"Referring to your recent personal call, I have to state that where a tunnel is run for the development of a particular vein or lode, it is held by this office to be work upon that vein or lode, within the meaning of mining Acts of Congress. The required expenditures may be made either from the surface of a mining claim or in a tunnel run for the development of such mine."

The decision of Commissioner Curtis, coming later, is now the one which holds good. The Act of May 10, 1872, requires ten dollars worth of labor each year for each 100 feet along the vein until a patent is issued on claims located prior to the passage of the Act; and one hundred dollars worth of work annually on claims located after the passage of the Act. In the decision of Mr. Curtis, he makes no distinction of claims located before or after the passage of the Act, and miners would be justified in conforming strictly to the language of his letter. If the rulings of the courts would agree with his decision there would be no need for the amendment proposed.

Up to the time we go to press we have received no notification of the final passage of the amendment; and although the matter is of much importance just at this time, it may be several days before the bill is considered. We have given our readers an explanation of how the matter stands now; and they can judge for themselves whether to risk the work done on tunnels as satisfying the law requiring expenditures. Those who have done all the work on tunnels can very well afford to laugh at "jumpers" on the strength of Mr. Curtis' letter, whether the amendment passes or not.

McClelland, Phillips & Co. have recently sold to a San Francisco company their mining claim known as the Dry Gulch claim, consisting of 160 acres of gravel, situated about three miles above Pleasant valley, Eldorado county. The parties purchasing have also bought Davenport's ditch, which is about five miles in length, and conveys a good head of water to the claim.

The new district of Coso, about fifty miles from Panamint, Inyo county, is now looming up. Deposits of smelting ore, such as exist in Cerro Gordo, have been discovered, and a large camp is springing up. Many people have gone there from Panamint, and it will afford a fine outlet for the overflow of that place.

The ore breasts above the 1400-foot level, and between the 1300 and 1200-foot levels of the Consolidated Virginia mine, show the finest grade of ore, and are yielding the regular daily average quantity required to keep the mills in constant operation.

The ore in the Ophir mine dips to the east and north, and continues to widen as a greater depth is attained. The ventilation of the mine is excellent, and the future of the Ophir, as indicated by the vast amount of ore in sight is very flattering indeed.

The Arizona mine at Unionville has shut down, and all of the workmen are discharged. It is said that the mine has not paid expenses for the past year, and the recent assessment of $1 per share, amounting to $48,000, was levied to square up the loss.

A company has been organized to establish a foundry and machine shops for the making of machinery and castings, agricultural implements, etc., at Albina, Multnomah county, Oregon, with a capital stock of $50,000, in shares of $100 each.

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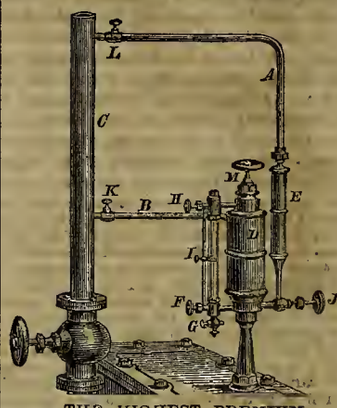

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There is but this one machine that has ever had these improvements employed. It is an old machine, formerly built for another device, and is unfavorably constructed for Ball's improvements; yet this first temporary experimental machine has filled a scow of eighty-five cubic yards in sixteen minutes in unfavorable digging. For durability, digging hard material and fast work, it has a reputation (supported by leading engineers) as having no equal.

Testimonials and references will be given on application to the inventor, who is the sole owner of patents (excepting having made an assignment of the one machine now belonging to the Central Pacific Railroad Company) Having resolved not to sell any rights unless upon a *basis* of actual work performed by a machine built by myself for the purpose of fairly establishing the worth of the invention, I therefore offer to sell machines or rights on the following plan, which is warranting the capacity of the machine by actual work:

I will enter into an agreement with any responsible party to build and sell a machine, scows and tender, all complete, and right of all my improvements in dredging machines throughout the Pacific Coast for $20,000, warranting the machine to dredge six cubic yards per minute (to fill a scow at that rate). $20,000 will but little more than pay the cost of building the machine, scows, etc., all complete; therefore I am proposing to ask *nothing* for my patents unless my machine dredges more than six cubic yards per minute. But it shall be further agreed that in case (at a fair trial to be made within a stated time) the machine shall fill a scow at the rate of more than six cubic yards per minute, then $10,000 shall be added to the price above stated for each and every such additional cubic yard thus dredged per minute, and for additional fractions of a cubic yard thus dredged in the same ratio the $10,000 is to be added to said price above stated.

I will sell any other Territorial or State rights (either United States or Foreign) upon the same plan and at a lower price proportionately than the rights for the Pacific Coast.

I will sell a single machine with scows and all complete, and right to use the same in a limited territory, for $20,000 on the same plan as above stated, but will add only $2,000 to each additional yard over the six cubic yards per minute. Each machine is not to employ more than two 10x20 inch engines.

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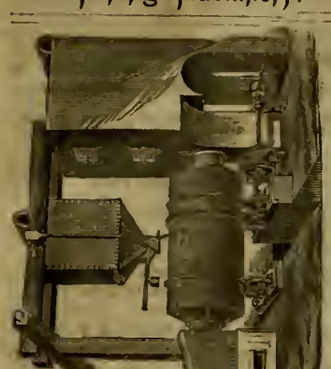

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TEATS' PATENT FURNACE

For Roasting, Desulphurizing, Chloridizing and Oxidizing Ores, etc. For the reduction of Gold, Silver, Lead and other ores, saving a larger percentage, at less cost, than any other invention now in use. Chloridizing Silver ore more thoroughly, in less time, with less fuel, salt and labor; also roasting Lead ore preparatory to smelting, better and cheaper than any other invention. The Furnace is so constructed that one man, of ordinary ability, tends five or more furnaces; controls them with ease; adding heat or air, stopping or starting at will; charging and discharging with ease. Also, Patent "Conveying Cooler," for conveying and cooling roasted ores, heating the water for amalgamation and the boilers at the same time. Saving the large space in mill (covered with brick or iron), and the labor of two men per day, exposed to the poisonous chlorine gases. Also, Patent Air Blast "Dry Kiln," for drying ores direct from the mine or breaker, saving fuel and labor heretofore necessary in drying ores for dry pulverizing. For description refer to MINING AND SCIENTIFIC PRESS, No. 18, October 31, 1874. For particulars address

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Circulars, &c., will be furnished, if required.

18v29-3m

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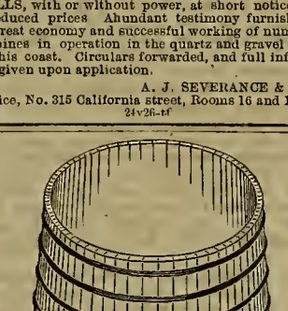

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PARKE & LACY, Sole Agents for WRIGHT'S BUCKET-PLUNGER Steam Pump

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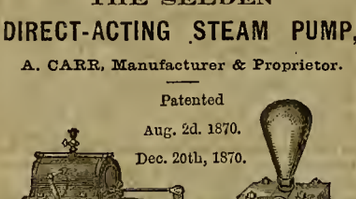
A. CARR, Manufacturer & Proprietor.

Patented Aug. 2d. 1870. Dec. 20th, 1870.



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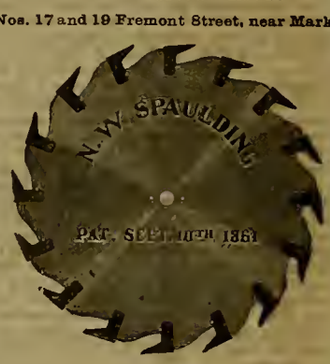

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Pig Iron.

The Pacific Coast is full of Mines, Mioerals and Metals. Every year new sources of metallic and mineral wealth are discovered—every year it is becoming more and more developed. Iron, the king of metals has long been known to have been present in ahundance, but it is only of late that the Iron deposits of the coast have been at all utilized. Oregon has led the way, and after a period ot suspension has been sending to this market for many months a very superior quality of Iron, and one that commands the highest price.

California is about to follow. A New York Co. are about to work the ore beds of Shasta, and having determined to locate their works in Sacramento, the citizens of the State capital have raised several thousand dollars to purchase a site for them. Sacramento knows the value of such an industry, and her people are expending a few thousands in order that hereafter they may gain millions. As a central location both for shipping the manufactured Pig Iron, and for receiving the crude ore, Sacramento is probably unequaled. And it has other advantages which do not less recommend it. It is in close proximity to the as yet undeveloped Coal beds of Lincoln, and even should the product turn out to bc unsuitable for smelting purposes, the two splendid rivers that unite their waters before it, with their hundreds of branches reaching into the Sierras, afford unequaled facilities for floating down lumber to feed the furnaces.

With the development of the Iron resources of California, there is a great industrial future before her. The Central Pacific Railroad and its connections use up 46,352 tons of Iron every year; with the development of railroad building in the State, this amount will be largely increased. There is used in this city and State about 17,000 tons of Pig and manufactured (exclusive of railroad) annually. So that for a long time, the new works would find enough to do in supplying our local wants in Pig and manufactured Iron. But there is a much wider field open before them. When the producers of the ore and the manufacturers are united in one and the same company or individual, California or the Pacific Coast can produce Iron cheaply enough to compete for the Iron and Hardware trade of the world.

If what business men in the Iron trade of this city tell us be correct, vast fortunes must have been made by the Iron men of Pennsylvania, not the manufacturers hut the ore men. The following are quotations of actual sales of Gray forge Iron, delivered at Pittshurg, on four months time, bituminous Coal Iron smelted from Lake Superior Ores:

1855 Dec	$50 00	1872 Sept	$52 50
1855 May	44 00	Oct	50 00
Sept	45 00	Nov	45 00
1867 Jan	48 00	Dec	40 00
1868 Feb	36 50	1873 Jan	40 00
May	35 50	Feb	40 00
Sept	40 00	March	43 00
1859 Jan	38 50	April	42 00
May	38 00	May	43 00
Sept	37 50	June	38 00
1870 Jan	37 50	July	35 00
May	33 00	Aug	34 25
Sept	31 00	Sept	34 00
Nov	30 00	Oct	33 00
1871 Jan	31 00	Nov	30 00
May	33 00	Dec	30 00
Sept	35 00	1874 Jan	31 00
Nov	40 00	Feb	31 00
1872 Jan	40 00	March	30 00
Feh	41 00	April	27 00
March	45 00	May	27 00
April	50 00	June	27 00
May	55 00	July	27 00
June	55 00	Aug	25 50
July	50 00	Sept	25 50
Aug	53 50	Oct	25 50

After paying freight, etc., this is equal to $23 in the furnace yards of Mahoning and Shenango Valleys. Now our informant stated that Pig Iron ought not to cost more than $12. That it ought not to cost more here is evident. The ore costs $14.75 to the ton of Pig Iron in Pennsylvania; here it will only cost $2.50, leaving a difference of $12.25 in favor of California. Eastern Iron in the furnace yards is worth $23 in currency, or $21 in gold, and deducting say $12 from this there is left $9 per ton as the cost here. Making every allowance, however, it ought not to cost more than $12 to $15.

This is a most important fact, for if Pennsylvania or Ohio can sell Pig Iron at a profit at $12, there is no reason why California should not do so too, and why we might not proceed to manufacture and supply the whole countries bordering on the Pacific with Hardware.

At any rate the inauguration of the works at Sacramento is laying the foundation stone of a grand industrial future for us. Sacramento will not alone have the honor of lighting up the Iron furnace fires of the Coast—Humboldt and other localities even witb superior facilities will follow suit. In Humboldt county there is not only found abundance of Iron, but illimitable forests of hardwood Lumher, close at hand and suitable for making the finest kind of smelting Charcoal. Even if we did no more than supply our own needs we would be relieved from the odium of sending 17,000 miles for Iron, with sufficient to supply the world for centuries lying unutilized at our doors.—*S. F. Journal of Commerce.*

The Grase Valley *Foothill Tidings* of Satnrday saye: Miners abont here, wbo depend upon the natural etreame for their eupply of water for hydraulic purpoees, are praying for more rain. It ie eeldom that a enpply to be depended npon comes before Fehrnary, and if it sbonld it would be too cold to use it in many parts of the connty.

It is asserted that Senator Jones has invested largely in qnartz mines in Eastern Oregon. The *Bedrock Democrat* speaks in very hopeful terms of the mining prosperity of that section of the State.

Refining Base Bullion in San Francisco.

The journalist should be always ready to chronicle the inauguration of new enterprises, says the San Francisco *Journal of Commerce*, especially those that help to nevelop the resources of the Coast. But while doing this and giving the promoters all the credit that is justly their due, it is not meant to forget pioneers, and to totally ignore important facts in the baste to glorify some new co-worker in an old field. Yet this has lately been done by a contemporary in this city. Unwittingly and without malice we presume, but the unjustice done is none ths less glaring, and the impression produced abroad of our industrial progress none the less erroneous.

We refer to the account given some time since of the prospects of the Kohler Refining Works, in which it was asserted that the establishment of this institution would cause the Base Bullion from Eureka and from all parts of Central and Western Nevada to come here for sale and treatment, as the saving in freight and time, owing to the diminished distance, would be enormous. In the same article it was stated of the Selby Refining Works that the balance and major part of the crude Bullion turned out was shipped to New York.

Now what are the facts? That for many years the refining of crude Bullion has been carried on at the Selby Works at North Beach, which form in themselves the most important industrial establishment of the city or coast, and one of the most important in America. During the past year not less than twelve thousand tons of refined Pig Lead has been turned out here, of which ten thousand tons have been shipped to New York. If all that was needed to have the Crude Lead Bullion of the Coast refined in, or near this city, was the establishment of a refinery, that desideratum has been long ago supplied. The capacity of the Selby Works is not less than twenty thousand tons annually, so that all the Crude Bullion turned out on the coast could be refined there. In addition to the refined Lead there is also produced a large amount in Silver. The growth of this industry has not been one of the least notable things in the history of the city, the production having increased from 1,900 tons tn 1870 to 12,000 tons in 1874, and the value from $200,000 in 1870 to $1,500,000 in 1874. The labor employed has increased in the same ratio from 15 hands in 1870, to 70 in 1874.

This progress is reasonably rapid, and when it is known that 2,000 tons of the Lead thus refined is utilized in this city, it will be allowed that San Francisco does not occupy after all such a backward position in this market as has been represented. There is no need of new establishments to refine the crude Bullion that should come to this city, but this will not be so in a year or two if we are to judge hy the progress of the past. There will not only be room for the Kohler Refining Works hut for many others if our anticipations should prove correct, so that San Francisco bids fair to become one of tbe most important Lead Refining centers in the world. The Lead mines of the coast are practically inexhaustible, and in future years we will supply the world with Lead as we do now with Gold and Silver.

We now refer only to the refining of Lead, but there is no reason why we should not manufacture it, and thus build up a vast and varied industry, and one which would of itself task the resources of a great city. San Francisco is situated the same with regard to the great Lead region of the coast that Philadelphia is to the great Coal and Iron region of Pennsylvania, and that Birmingham and Manchester are to the great Coal and Iron bearing districts of England. The refining works at North Beach and the Shot Tower are but the foundation stone of a vast and splendid industrial system which shall number similar establishments by the score, and which shall employ millions of dollars and thousands of men. The credit of pioneering all this will however be due to Mr. Selby, and this should not be forgotton even in extending an enthusiastic welcome to a co-worker in the field of industrial progress.

Hot Water.—The water encountered in the main east drift on the 2,000-foot level of the Imperial Empire mine is the hotteet ever struck on the Cometock lode. It was carefnlly tested with two good thermometere, and the temperature was found to he 150½ degrees. This stream of water is but an inch or two in diameter. The temperature of the atmosphere in the drift was 115 degrees, when the water wae teeted.

Discharge of Pipe.—A correspondent asks ne the following questione: How mnch water will discharge tbrough a pipe 4¼ inches in diameter, 1¼ milee long, with 70 feet fall or nearly a gradnal descent, fed by a reservoir five feet deep, or five feet pressure at head. It will diecharge 160 gallons per minute.—Ede. Prese.

A Meeting was held on the 16th, at Hollister, to take action regarding the proposed narrow gauge railroad from Hollister to salt water at San Juan. It wae agreed to organize a company with a capital of $500,000, in shares of $100 each.

Silver bullion to the value of nearly $600,000 from Pioche, Nevada, hae been received at Salt Lake City by Wells, Fargo & Co., this season.

The shaft heing drained once more, work is heing resumed in the Tyler mine.

Antimony is worth in Liverpool £50 to £51 for regulue.

Quicksilver is £25 per flask in Liverpool.

The foundry at Belmont has started up.

General News Items.

The Irwin examination at Washington appears to hs attractiog mnch interest—almost as much as did that of Von Arnim at Berlin. Irwin claims to have dishursed over half a million dollare for the company to obtain a subsidy from Congress for the China Mail servics. He is now called before Congress to testify as to whers this money was paid. The position of Irwin may hs imagined from the circumstance that it will not do to admit that the monsy was paid to corrupt memhers of Congress, and in the event he oannot show where it was paid, hs will be liahle to return it to the company. Mr. Irwin's illnsss has thus far prevented any extended examination. He appears disposed at first to make a pretty clsar breast of it, and mnch interest was manifested to hear his story; hnt he since msnifested a disposition to withhold the names of the parties to whom he paid the money.

The Katie King Fraud.—Thsre appsars to he no doubt now that the pretsnded spirit manifestations connected with the name of Katie King were an nnmitigated fraud. Robert Dale Owen and Dr. Childs, two leading Spiritnalists of Philadelphia, pnblish and repndiate the ewindls. Is it not astonishing that so many otherwise sensible psople can he deceived and carried away with ths follies and frands of Spiritnalism, as exhibited in its various seusational forms? That there are many important facts connected with psychology and mind rsading, the philosophy of whioh is not yet fnlly nnderstood, there can he no doubt. And that they will eventually be referred to natural canses and hrought into snbjection by natural laws, there need hs as little doubt.

A Goon Result.—The success of the "Farmers' Road," so called in Montsrsy connty, has indnced quite a gensral dssire for local intercommnnication by short lines of railroad owned and controlled hy those immediately interested in their construction. A mass meeting was held at Hollister on the 17th instant to take measures to huild a local narrow gange road from Hollister to San Juan, with very satisfactory results. There is also a movsment to construct a narrow gsnge road from the town of Sonoma to Popper's landing.

Kansas Sufferers.—Gov. Oshorn, of Kansae telsgraphs that he estimatss the numbsr of people in Western Kansae that will require assistance during the winter at 20,000. Msny of these are now in a state of actual want. The prospect for the wheat crop is good, and the winter so far has heen mild and favorable. Donations may be sent to Lieutenant-Governor Stovsr, Chairman of the Central Relief Committes, Topska. The things most needed are food and clothing for womsn and children.

Another Pacific Mail Disaster.—The Pacific Mail steamship "Japan" was burned on Thursday last, when within eighty miles of her destination; but only twelve miles from Swatow. It is supposed that the passsngers and crsw were all landed safely in the boats. A large portion of them havs already been hsard from. The ship, togsther with the mails, treasnre ($375,000), cargo and baggags ie a total loss.

Another Dam Breaks.—The Haydenville dam in Massachusetts, which was destroyed at the time of the grsat Mill Creek disaster in May last, hroke again a few days since, caosing great damagss but no loss of life. After the terrible warning received it would seem that sufficient ekill would have heen shown to have rendered the new one perfectly secure, hut it appears that few can appreciate the great power of water.

Building a Wing Dam.—W. A. Dewey has commenced operatione in the constrnction of a wing dam, for the protection of the ranchee on the Yolo eide of the river, at the first hend helow Sacramento, and will pnsh the work as rapidly as poesihle, hoping to complete it hefore another extensive rise in the river ehsll take place.

The War of Races.—It is now eaid that there were about 71 colored persons killed and a large nnmber wonnded in the late affair at Vicksburg. The affair seems to have been a massacre, as only two whites are reported killed.

Bradlaugh, the great English workingman's advocate ie coming to Californuia—so it ie said. Bradlangh ie no douht doing a great and good work, alheit it he is reported to he, as Tom Paine was, a very profane man in religion.

Von Arnim has heen sentenced to three monthe' imprisonment and cost of prosecntion —a very light penalty, if any whatever is inflicted; hut he is not inclined to submit, as report says he ie moving for a new trial.

Snow Storm at the East.—Eight or ten inches of snow fell in New York on Snnday, and a fall of twenty inches is reported in Pattereon N. J. Tbe storm is eevere, and extends throngh the Eastern and Middle Statee.

King Kalakaua's vieit, it is thought by many, will result in reciprocity and a loan to the Island government of one million dollars. Perhaps so—we shall see.

Hotel Burned.—Clondman'e hotel, eight miles helow Chinese Camp, on the Knight's Ferry road, was bnrned on Tnesday; lose, $1,500.

Refuses the Reward.—Dick Shafer, to whom Granice applied for shelter from the fog, hae refused to accept the $800 reward.

The shortest day for the year has passed, and from Tnesday last to the 21st of Jnne the days will lengthen.

Patents & Inventions.

A Weekly List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports for the Mining and Scientific Press, Dewey & Co., Publishers and U. S. and Foreign Patent Agents.]

By Special Dispatch, Dated Washington, D. C., Dec. 22d, 1874.

For Week Ending Dec. 8th, 1874.*

Rotary Harrow.—Walter G. Read, Colusa, Cal.

Smoke and Gas Consumer for Engines.—David Matthsw, Portland, Orsgon.

Reissues.

Concentrator.—Joshua Hsndy, S. F., Cal.

Ore Concentrator.—Joshua Hendy, S. F., Cal.

———*The patente are not ready for delivery by the Patent Office until some 14 days after the date of issne.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the ehortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the ehortest time possible.

Industrial Items.

The Oldest Piece of Iron.—Mr. Hanks lately exhihited a piece of iron, used to fasten togsther the stones composing the Servian wall, built around Rome 475 yeare B. C., more or lsss, and which was taken from a deep cut for a modern railroad, by Mr. Lsvi Goodrich, architect, of San Francisco. The face of the fragment was polished and aoted npon hy nitric acid, showing nnnsually largs crystals, and for the purpose of comparison a piece of modern iron wss exhibited. Is not this the oldest piece of iron in the world? and if iron improves by resting, as ssems to he showu hy the evident improvement in old razors, case knives, etc., this must be a very supsrior piece of metal. What did the microscope revsal when it was placed in comparison with "a piece of modern iron?"

Something New in Estimates.—It is ststed that the total cost of bnilding the north wing of the female department of the State Insane Asylnm was $88,511.83. The Legislature appropriated $113,000 for this purpose—a sum considered a fair estimate of its cost. Coming within an enginser's estimate is something new —in California at least.

Peat Manufactory.—Ths Stockton *Herald* states that a peat manufacturing company to mannfacture that article for fuel is shortly to bs started at Head Reach, on the San Joaquin rivsr.

Eight vesssls are in course of construction at Humboldt Bay.

Mining Suit.—Ths cass of Grsat and Dickerson vs Jemison, brought hefore the Supreme Conrt of the U. S. from the California Circuit Conrt brought hy plaintiffs to recover some $3,000 on promissory notes given as part payment on the purchase of the Alhsrt mioing claim, has hesn submitted to the Supreme Conrt for review, on a printed hrief. The defsnse was that the mine did not turn out so rioh as represssnted by ths vendors, and the oourt exclnded evidence offered to show that the Tehama mine, some 400 or 500 feet away, wae not worth working, ae irrelevant. This ie the chief error assigned, and the qnestion ie whether the production of an adjacent mine is admissahle in euch a case as evidence.

Our Agents.

Our Friends can do mnch in ald of our paper and the canee of practical knowledge and eclence, by assisting Agents in tbeir lahors of canvaseing, by lending their influence and encouraging favore. We intend to send none but worthy men.

Chas. T. Bell—Alameda, Santa Clara and Santa Cruz Countiee.

J. W. Anderson—Orange and Santa Ana, in Los Angeles Connty, Cal.

J. G. Kelley—For Washington Territory.

B. W. Crowell—California.

F. B. Alderson—City egent, San Francieco.

George Decker—Solano County.

J. L. Tharp—Southern California.

C. H. Wheeler—Southern California.

A. O. Champion—Tnlare, Fresno and Inyo Countiee.

D. J. James—Anetralian Colonies.

J. C. Ewing—Contra Coeta County.

John Rostran—Sonoma County.

J. W. Riley—San Joaquin and Stanislane Conntiee.

W. C. Quinby, Eastern and Western Statee.

Better Than Going South.—"Go Sonth! Go Sontb!" is tbe parrot cry of the friends of tbe consumptive. It is well meant, but silly. Few of thoso wbo are suffering from lung and throat complainte can go Sontb, or would be benefitted if they did go. *Hale's Honey of Horehound and Tar* is worth more than millions of cubic feet of soutbern air as a remedy for every species of pulmonary complaint. It will cure any cough, any cold, any bronchial complaint, and will effectnally arrest tbe tendency to consumption.

Pike's Tooth-Ache Drops—Cure in one minnte

Wood Cuts for Sale.

We are willing to sell a large nnmber of the wood cuts and electrotypes wbich bave appeared in tbe Pazes, on very liberal terms to publishers abroad, and would invite correspondence on tbat business.

Woodward's Gardens embracee an Aquarium, Museum, Art Gallery, Conservatories, Tropical Honses, Menagerie Seal Ponds, and Skating Rink. Admiesion, 25 cents; children, 10 cents.

Subscribers wbo are troubled in getting their papers regularly from the P. O. sbonld be particular to mention the name of tbe paper.

S. F. Gold and Silver Platino Works, 655 Mission St, advertisement appears first Saturday of every month.

METALS.

WEDNESDAY M., Dec. 23, 1874.

American Pig Iron, ₱ ton	—	@	46 00
Scotch Pig Iron, ₱ ton	42 00	@	46 00
White Pig Iron, ₱ ton	—	@	46 00
Oregon Pig, ₱ ton	—	@	46 00
Refined Bar, bad assortment, ₱ ₱	—	@	3½
Refined Bar, good assortment, ₱ ₱	—	@	4
Boiler, No. 1 to 4	—	@	5½
Plate, No. 5 to 9	—	@	5½
Sheet, No. 10 to 13	—	@	5½
Sheet, No. 14 to 20	—	@	5½
Sheet, No. 24 to 27	08	@	09
Horse Shoes, per keg	7 50	@	8 00
Nail Rod	—	@	9½
Norway Iron	—	@	8
Rolled Iron	—	@	—
Other Irons for Blacksmiths, Miners, etc.	—	@	4½
COPPER.—			
Braziers'	31	@	32
Copper Tin'd	45	@	—
O. Nail's Pat	50	@	—
Sheathing, ₱ ₱	—	@	24
Sheathing, Yellow	—	@	25
Sheathing, Old Yellow	—	@	12½
Composition Nails	24	@	—
Composition Bolts	24	@	—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	13 00	@	15 00
Plates, I C Charcoal	13 00	@	14 50
Roofing Plates	12 50	@	15 00
Banca Tin, Slabs, ₱ ₱	32½	@	— 33
Straits—Refilah Tin, ₱ ₱	29	@	29½
Anderson & Woods' American Cast	—	@	16½
Drill	—	@	16½
Flat Bar	18	@	24
Plough Steel	8 50	@	10 00
ZINC.—			
Sheet	—	@	11
Zinc, Sheet	—	@	11½
NAILS—Assorted sizes	4 25	@	5 00
QUICKSILVER, per ₱	—	@	1 55

GENERAL MERCHANDISE.

WEDNESDAY M., Dec. 23, 1874.

BAGS.			
Eng. Stand Wht	—	@	12
Detrick's Machine Sewed, 2x38 E	12	—	@12½
do 22x36, do E W	—	@	13¼
do 20x40, do A	—	@	13½
Flour Sacks ¼a	9½	@	11½
" 4a	8	@	7
Stand. Gunnies, double seam	13	@	14
single seam	13½	@	14
Wool Sacks	20	@	67½
Barley Bags 21x35	13	@	14
do 22x40	13	@	14½
do 24x40	—	@	15
do 24x36	—	@	16
Oat Bags, 21x40	18	@	16½
do 22x36	—	@	17
Hessian 40-in grade	9½	@	9¾
do 45	10½	@	11
do 60	—	@	16
CANNED GOODS.			
Asst'd Pie Fruits			
In 2½ ₱ cans	2 50	@	2 75
do Table do	3 50	@	4 00
Jams & Jellies	3 75	@	4 00
Pickles, ½ gl	—	@	3 50
Sardines, ¼ boxl	20	@	—
do ½ boxes	3 20	@	—
COAL—Jobbing.			
Australian, Pton	10 50	@	12 50
Coos Bay	—	@	10
Sellingham Bay	—	@	9 50
Seattle	—	@	11—
Cumberl'd, cks	—	@	18 00
do bulk	16 00	@	7 50
Mt. Diablo	7 50	@	8 50
Lehigh	—	@	17 00
Liverpool	10 50	@	11 50
West Hartley	—	@	14 00
Scotch	10 00	@	11 00
Scranton	—	@	13 50
Vancouver's Isl	11 00	@	11 50
Charcoal, ₱ bk	75	@	—
Coke, ₱ bbl	—	@	60
COFFEE.			
Sandwich Island	—	@	22
Central America n	20	@	22
Costa Rica per ₱	23		24
Guatemala	20	@	22
Java	—	@	26½
Manilla	19	@	20
Ground in os	—	@	27
Chicory	9	@	10
FISH.			
Pac. Dry Cod, new 5 @ 6			
onses	6	@	7½
do boneless	11	@	12
Eastern Cod	8	@	8½
Salmon in bbls	9 00	@	9 50
do ½ bbls	4 50	@	5 00
do 2½ ₱ cans	—	@	2 80
do ₱ cans	2 65	@	2 75
do 1 ₱ cans	1 75	@	—
Dry Cod, K. ₱ ₱	—	@	—
Pick. Cod, bbls	22 00	@	—
do ½ bbls	11 00	@	—
Bos. Sm'k'd Her'g	40	@	50
Mack'l, No. 1, ½ bbls	9 00	@	11 00
" Extra	—	@	12 00
" in kits	2 00	@	2 50
" ½ mess	3 00	@	3 50
" Ex mess, ½ bbls	—	@	13 00
Pic'd Herr's, ½ s	3 00	@	3 50
NAILS.			
Assorted size, ₱ ₱	67½	@	7 50
OILS.			
Pacific Glue Co.			
Neat Fish No. 1	—	@	90
Pure	—	@	—
Castor Oil, No. 1	—	@	1 25
do do No. 2	—	@	1 12½
Cocoanut	1 47½	@	1 50
Olive, Pi'nicl	—	@	—
de Possel	—	@	—
Palm ₱	9	@	—
Linseed, raw	—	@	1 05
do boiled	—	@	1 10
China nut in os	77½	@	82½
Sperm, crude	—	@	1 40
do bleached	1 90	@	2 25
Coast Whales	45	@	—
Polar, refined	50	@	52½
Lard	1 15	@	1 30
Coal, refined, Pet	37½	@	—
Oleophine	21	@	24
Devoe's Brill's	25	@	28
Long Island	21	@	24
Eureka	—	@	—
Devoe's Petro'm	21	@	24
Barrel kerosene	21	@	24
Olive	4 20	@	9 25
Downer Kerose'e	—	@	37
Gas Light Oil	—	@	26
PAINTS.			
Atlan. W. Lead	6	@	10
Whiting	—	@	2
Putty	4	@	5½
Chalk	—	@	2½
Paris White	2½	@	—
Ochre	2	@	5
Venetian Red	3½	@	5
Red Lead	7	@	11
Litharge	10	@	11
Eng. Vermillion	2 00	@	2 10
RICE.			
China No. 1, ₱ ₱	6½	@	6¾
do 2, do	5¾	@	6
Japan	6	@	7
Siam Cleancd	7	@	—
Patna	8	@	6½
Hawaiian	—	@	8
Carolina	10	@	10½
SALT.			
Cal. Bay, per ton	10 00	@	14 00
do Common	5 00	@	7 00
Carmen Island	11 00	@	13 00
Liverpool fine	—	@	24 00
do coarse	16 00	@	—
SOAP.			
Castile ₱ ₱	10	@	11
Local brands	5	@	8
SPICES.			
Cloves	50	@	55
Cassia	26	@	27
Citron	33	@	35
Nutmegs	1 20	@	1 30
Whole Pepper	21	@	23
Pimento	—	@	15½
Gr'nd Allsp'ce	—	@	12½
do Cassia do	—	@	50
do Cloves do	—	@	50
do Mustard do	—	@	30
do Ginger do	—	@	00
do Pepper do	—	@	00
do Mace do	—	@	00
SUGAR, ETC.			
Cal. Cube per ₱	11½	@	—
Partz' Pro. Cube bbl or 100 ₱ bxs	—	@	11¾
do in 50 ₱ bxs	—	@	12
do in 25 ₱ bxs	—	@	12½
Circle A crushed	—	@	11¾
Powdered	—	@	11¾
Fine crushed	—	@	11½
Granulated	—	@	11¼
Golden C	—	@	10
Hawaiian	8	@	11¾
California Beet	10¾	@	11½
Cal. Syrup in tc	—	@	67½
do in ½ bls	—	@	70
do in kegs	—	@	75
Hawaiian Molasses	25	@	30
TEA.			
Oolong, Canton, ₱ ₱	19	@	25
do Amoy	28	@	50
do Formosa	40	@	80
Imperial, Canton	25	@	40
do Pingsuey	45	@	80
do Moyune	60	@	1 00
Gunpo'der, Cant	30	@	42½
do Pingsuey	50	@	90
do Moyune	66	@	1 25
Y'ng Hy., Canton	28	@	40
do Pingsuey	40	@	70
do Moyune	65	@	85
Japan, ½ chests, bulk	30	@	75
Japan, lacquered bxs, ½ and 5 ₱	45	@	67
Japan do, ₱ hxs	45	@	90
do pl'n bx, ½ ₱	35	@	65
do ½ ₱ paper	30	@	55
TOBACCO—Jobbing.			
Bright Navy	50	@	60
Dark do	50	@	55
Dw. f Twist	70	@	72½
Light do	60	@	70
Light Pressed	70	@	80
Hard do	50	@	60
Conn. Wrap'r	35	@	40
Penn. Wrapper	20	@	45
Ohio, Wrapper	15	@	20
Virgi'a Smok'g	45	@	75
Fine ot che'g, pr	8 50	@	9 25
Fine ont chewing, bue'ta, ₱ ₱	75	@	90
Banner Sae cut	9 00	@	9 25
Eureka Cala	—	@	9 00
TURPENTINE.			
Eastern	55	@	60

LEATHER.

WEDNESDAY M., Dec. 23, 1874.

City Tanned Leather, ₱ ₱			6@29
Santa Cruz Leather, ₱ ₱			18@29
Country Leather, ₱ ₱			24@28
Stockton Leather, ₱ ₱			25@29
Jodot, 8 Kil., per doz	$50	00@	54 00
Jodot, 11 to 15 Kil., per doz	66	00@	90 00
Jodot, second choice, 11 to 16 Kil. ₱ doz	55	00@	72 00
Cornellian, 12 to 16 Ko	57	00@	67 00
Cornellian Females, 12 to 13	63	00@	67 00
Cornellian Females, 14 to 16 Kil	71	00@	76 50
Simon Ulimo Females, 12 to 13, Kil	60	00@	68 00
Simon Ulimo Females, 14 to 15, Kil	10	00@	72 00
Simon Ulimo Females, 16 to 17, Kil	73	00@	75 00
Simon, 18 Kil., ₱ doz	61	00@	68 00
Simon, 20 Kil. ₱ doz	55	00@	67 00
Simon, 24 Kil. ₱ doz	72	00@	74 00
Robert Calf, 7 and 9 Kil	35	00@	40 00
French Kips, ₱ ₱	1	00@	1 15
California Kip, ₱ doz	40	00@	5 00
French Sheep, all colors, ₱ doz	8	00@	15 00
Eastern Calf for Backs, ₱ ₱	1	00@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9	00@	13 00
Sheep Roans for Linings, ₱ doz	5	50@	10 50
California Russett Sheep Linings	1	75@	4 50
Best Jodot Calf Boot Legs, ₱ pair	5	00@	5 25
Good French Calf Boot Legs, ₱ pair	4	00@	4 75
French Calf Boot Legs, ₱ pair	4	00@	—
Harness Leather, ₱ ₱		30@	37½
Fair Bridle Leather, ₱ doz	48	00@	72 00
Skirting Leather, ₱ ₱		33@	37½
Welt Leather, ₱ doz	30	00@	50 00
Calf Leather, ₱ foot		17@	—
Wax Side Leather, ₱ foot		17@	—
Eastern Wax Leather		—@	—

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Our intimate knowledge of the various inventions of this coast, and long prsctics in patent bnsiness, enable ne to abundantly satisfy our patrons; and our success and business are constantly increasing.

The shrewdest and most experienced Inventors are found among our most stsadfast friends and patrons, who fnlly appreciate our advantages in bringing valnable inventions to the notice of the public through the colnmns of our widely circulated, first-class journals—thereby facilitating their introduction, sale and popularity. .

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In addition to Amsrican Patents, ws sscurss with ths assistance of co-operativs agents, claims in all foreign countriee which grant Patents, including Great Britain, France, Belgium, Prussia, Anstria, Victoria, Pern, Rnecia, Spain, Britieh India, Saxony, Britieh Columbia, Canada, Norwny, Sweden, Mexico, Victoria, Brazil, Bavaria, Holland, Denmark, Italy, Portugal, Cnba, Roman States, Wurtemberg, New Zealand, New Sonth Wales, Queensland, Tasmania, Brnzil, New Grenada, Chile, Argsntins Republic, AND EVERY COUNTRY IN THE WORLD where Patents are obtainabls.

No models ars required in Europsan countries, but the drawings and specificatione should be prepared with thoroughnese, by able persone who are familiar with the requirements and changes of foreign patent laws—agents who are reliable and permanently established.

Our schedule prices for obtaining foreign patents, in all casss, will alwaye be as low, and in some instances lowsr, than those of any othsr responeible agency.

Ws *can and do* get foreign patente for inventors in the Pacific States from two to eix months (according to the location of the conntry sooner than any othsr agsnts.

Home Counsel.

Our long experience in obtaining patents for Inventors on this Coast hae familiarized na with the character of moet of the inventione already patented; hence we are frequently able to save our patrone the cost of a fruitless application by pointing them to the same thing already covered by a patent. We are alwaye free to advise applicante of any knowledge we have of previone applications which will intsrfere with their obtaining a patent.

We invite the acquaintance of all parties connected with inventione and patent right business, believing that the mutual conference of lsgitimate business and profeecional men is mutual gain. Partiee in doubt in regard to their righte ae asoignees of patente, or purchasers of patented articles, can often receive advice of importance to them from a short call at our office.

Remittances of money, made by individual inventors to the Government, somstimes miscarry, and it has repeatedly happened that applicants have not only loet their money, but their inventions also, from this cause and conecquent delay. We hold ourselves responsible for all fees entrusted to our agency.

The principal portion of the patent business of thie coast has been done, and is still being done, through our agency. We are familiar with, and have full records, of all former cases, and can more directly judge of the value and patentability of inventions discovered here than any other agents.

Situated eo remote from the seat of government, delays are even more dangerous to the inventore of the Pacific Coast than to applicants in the Eastern Statee. Valuable patente may be lost by the extra time consumed in transmitting specifications from Eastern agencies back to this coast for the signature of the inventor.

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MINING ENGINEER AND METALLURGIST.

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BY OTHER AUTHORS.

The Quartz Operator's Hand-Book; by P. M. Randall. 1871. Revised and Enlarged Edition. Cloth bound, 175 pages. Price, $2.

Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked; with a Chapter on the Blow-Pipe Assay of Minerals. By Wm. M. Barstow, M. D.; 1867; cloth bound, 114 pages. Printed and sold by DEWEY & Co. Price, $1; postage free. The best written work, and most complete work on the subject treated.

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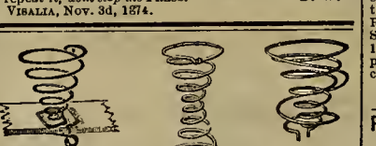
VISALIA, Nov. 3d, 1874.



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Notice is hereby given, that at a meeting of the Trustees of said Company held on the 7th day of December, 1874, an assessment of five (5) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary of the Company, in the office of the United States Internal Collector, No. 321 Battery street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on Saturday, the ninth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the twenty-fifth (25th) day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale. ABRAM SHEAR, Secretary.

Office, Room 21, 321 Battery street, office of the U. S. Internal Revenue Collector, San Francisco, Cal. dec18-4t

Electric Mininng Company—Principal

place of business, San Francisco, State of California. Location of works, Lincoln Mining District, Butte County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the 24th day of November, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately, in United States Gold coin, to the Secretary, at the office of the Company, in San Francisco.

Any stock upon which this assessment shall remain unpaid on the fourth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Monday, the 25th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

F. B. WINGARD, Secretary.

Office—Room 13, No. 318 California street, San Francisco, Cal

"Golden Rule" Silver Mining Company—

Principal place of business, San Francisco, California. Location of works, Ophir Mining District, Utah Territory.

NOTICE is hereby given, that at a meeting of the Board of Directors, held on the 8th day of December, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold and silver coin to the Secretary, No. 530 Clay street, San Francisco, California.

Any stock upon which this assessment shall remain unpaid on the fifteenth day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment be made before, will be sold on Monday, the fifteenth day of February, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

K. WERTHEIMER, Secretary.

Office, 530 Clay street, San Francisco, Cal.

Keystone Quartz Mining Company—

Location of principal place of business, San Francisco, California. Location of works, Butte Township, Sierra County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of November, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
O H Simpkins	37	1248	$1248 00
J Clem Uhler, trustee	56	600	500 00
J Clem Uhler, trustee	57	274	274 00

And in accordance with law, and an order of the Board of Directors, made on the tenth day of November, 1874, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the salesroom of John Middleton & Son, No. 310 Montgomery street, San Francisco, on the eleventh day of January, 1875, at the hour of one o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

LOUIS VESARIA, Secretary.

Office—Northwest corner Sansome and Pine streets, San Francisco, Cal. dec26-3t

Martin and Walling Mill and Mining Com-

pany Principal place of business, San Francisco, Cal. Location of works, Coulterville District, Mariposa County, Cal.

Notice is hereby given, that at a meeting of the Board of Directors, held on the 5th day of December, 1874, an assessment (No. 1) of fifty (50) cents per share was levied upon the capital stock of the corporation, payable immediately, in United States gold coin, to the Secretary, at the office of the company in San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on the 8th day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on Saturday, the 23d day of January, 1875, to pay the delinquent assessment together with costs of advertising and expenses of sale.

J. W. TRIPP, Secretary.

Office.—Room 6, 408 California street, San Francisco.

Owens Gold and Silver Mining Company.

Location of principal place of business, San Francisco, Cal. Location of Works, Julian Mining District, San Diego County, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment, (No. 3,) levied on the second day of November, 1874, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Joseph Storey	1	10	$10 00
J Q Lytle	2	10	10 00
A Pauly & Sons	4	10	10 00
Jas D Lynch	22	10	10 00
W R De Frees	23	300	300 00
W R De Frees	60	150	150 00

And in accordance with law, and an order of the Board of Directors, made on the second day of November, 1874, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by the Secretary at the office of the Company, Room No. 4, Hayward's Building, 419 California street, San Francisco, on Monday, the 28th day of December, 1874, at the hour of one o'clock, P. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

FRANK SWIFT, Secretary.

Office, 419 California street, San Francisco, Cal.

Page Tunnel Company.—Location of

principal place of business, San Francisco, California. Location of works, Big Cottonwood District, Salt Lake County, Utah.

Notice is hereby given, that at a meeting of the Directors, held on the 12th day of December, 1874, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room 2, No. 408 California street, San Francisco California.

Any stock upon which this assessment shall remain unpaid on the 20th day of January, 1875, will be delinquent, and advertised for sale at public auction, and unless payment is made before, will be sold on the 20th day of February, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

JACOB HARDY, Secretary.

Office, Room 2, No. 408 California street, San Francisco, California. dec18-4t

Theresa Mill and Mining Company.

Location of principal place of business, San Francisco, California. Location of works, Coulterville District, Mariposa county, California.

Notice is hereby given, that at a meeting of the Board of Directors, held on the twenty-fifth (25th) day of November, 1874, an assessment (No. 1) of fifty (50) cents per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin, to the Secretary, at the office of the Company, room 16, 408 California street, San Francisco, Cal.

Any stock upon which this assessment shall remain unpaid on Wednesday the thirteenth (13th) day of December 1874, will be delinquent and advertised for sale at public auction, and unless payment is made before, will be sold on Friday, the 15th day of January, 1875, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. W. TRIPP, Secretary.

Office, Room 18, 408 California street, San Francisco, Cal.

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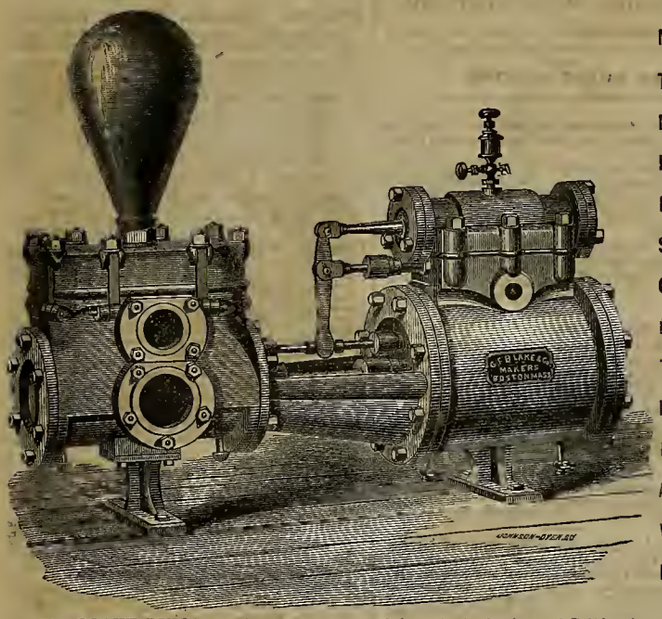

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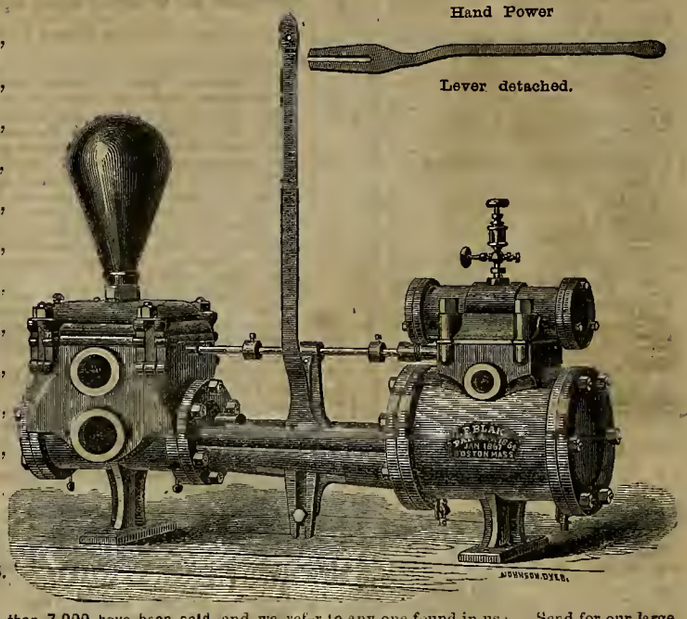

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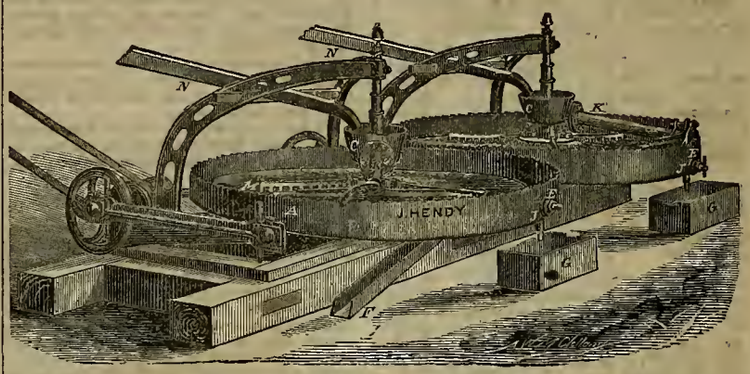

Can be seen at the Manufactory, No. 32 Fremont Street, San Francieco.

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JOSHUA HENDY, Esq.—*Dear Sir:*—As a practical miner and millman, I take pleasure in recommending the use of your Concentrators in all mills where gold or silver ores are reduced. No mills should be without them, for the following reasons:

1st. They are good sizers (no perfect concentration in pulverized ores can be effected without first sizing).
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4th. They require but little power and attention to run them, and with ordinary care will last for years.

I have been familiar with the workings of your Concentrators for four years past; have run them myself in the North Star Mine, Grass Valley; am familiar with their practical workings on the Empire Mine, Grass Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this testimonial. For further information you are at liberty to refer to,

Yours respectfully,
JAS. H. CROSSMAN, M. E.
409 California street, or Cosmopolitan Hotel.

SAN FRANCISCO, February 10, 1874.

OFFICE SUPERINTENDENT OF KEYSTONE CON. M. CO., AMADOR, AMADOR COUNTY.

MR. J. HENDY—*Dear Sir:*—In answer to your inquiries as to your Concentrators furnished our company last July, I would say that I am more than pleased with them; and the saving to the company has been over $3,500 per month more than with the blankets and huddles formerly in use.
O. C. HEWITT, Supt.

OFFICE SUMNER MINE, KERNVILLE, April 27, 1874.

J. HENDY, Esq.—*Dear Sir:* Having four of your Concentrators in use at our Mills for four or five months, which for saving Amalgam and for concentrating Sulphurets, are a success, beyond a doubt, I feel it a duty due you and those interested in Quartz Mills, to recommend them.

As further evidence of their worth, I now order TWELVE more of your Machines for our new Mill, now in course of erection.
E. R. BURKE, Superintendent.

For description send for Circular.

JOSHUA HENDY, San Francisco.

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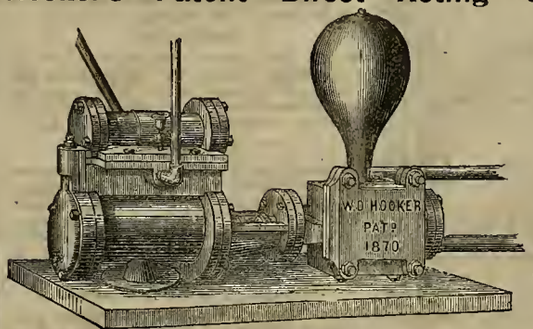
Hooker's Patent Direct Acting Steam Pump



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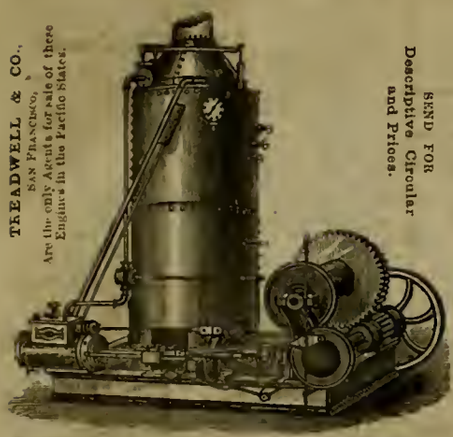

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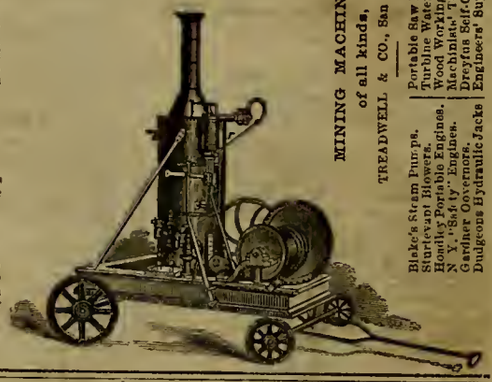

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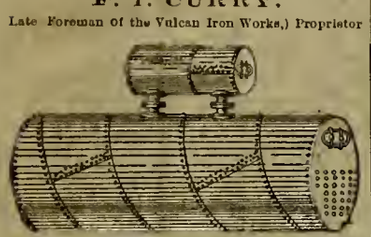

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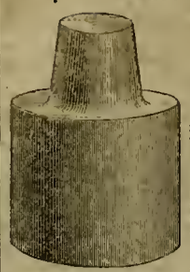

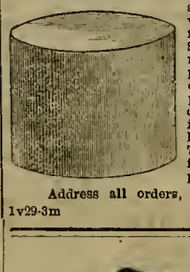

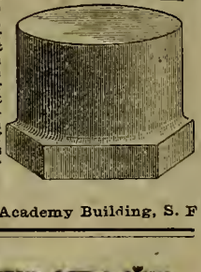

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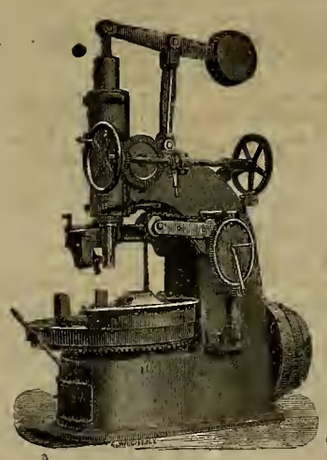

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